

2. WATERSHED PLANNING

Watershed planning within Watershed Resource Inventory Areas (WRIAs) recognizes the large scale and complexity of water resources and the wide variety of factors that influence the amount of water available for use. Although the geographic area contained in a WRIA rarely corresponds with political/jurisdictional boundaries, water resource issues such as water supply, water quality, and habitat for fish and wildlife are closely linked together within watersheds.

From an assessment perspective, the watershed (or basin) scale is appropriate because the hydrologic processes that occur within WRIA boundaries can be approximated by a basin scale hydrologic cycle or equation. This equation can be expressed generally as “water inflow to the basin is equal to water outflow from the basin plus / minus changes in water storage within the basin”. With a conceptual understanding the hydrologic cycle within a basin, planners can gain an intuition on how future actions within the watershed may impact water resources.

2.1 Washington State Watershed Planning Process

The 1998 Washington State legislature passed House Bill 2514, codified into [RCW 90.82](#), to set a framework for addressing the State’s water resources issues. RCW 90.82 states:

“The legislature finds that the local development of watershed plans for managing water resources and for protecting existing water rights is vital to both state and local interests. The local development of these plans serves vital local interests by placing it in the hands of people: Who have the greatest knowledge of both the resources and the aspirations of those who live and work in the watershed; and who have the greatest stake in the proper, long-term management resources. The development of such plans serves the state’s vital interests by ensuring that the state’s water resources are used wisely, by protecting existing water rights, by protecting instream flows for fish and by providing for the economic well-being of the state’s citizenry and communities. Therefore the legislature believes it necessary for units of local government throughout the state to engage in orderly development of these watershed plans.”

Twelve State agencies signed a Memorandum of Understanding identifying roles and responsibilities for coordination under the Watershed Planning Act. This memorandum commits these agencies to work through issues in order to speak with one governmental voice when sitting at local planning unit tables. The following agencies signed this document:

- The Department of Agriculture
- The Conservation Commission
- The Department of Community, Trade and Economic Development
- The Department of Ecology
- The Department of Fish and Wildlife

- The Department of Health
- The Department of Natural Resources
- The Department of Transportation
- The Interagency Committee for Outdoor Recreation
- The Puget Sound Water Quality Action Team
- The Salmon Recovery Office, within the Governor's Office
- The State Parks and Recreation Commission

The purpose of the 1998 Watershed Management Act (WMA) is to provide a framework for local government, interest groups and citizens to collaboratively identify and solve water related issues in each of the 62 Water Resource Inventory Areas (WRIAs) of Washington State.

The WMA does not require watershed planning but instead enables a group of initiating agencies to:

- Select a lead agency;
- Apply for grant funding;
- Define the scope of the planning; and,
- Convene a local group called a planning unit for the purpose of conducting watershed planning.

The initiating agencies include all the counties within the WRIA, the largest city and water purveyor within the WRIA. Indian tribes with reservation lands within the watershed must be invited to participate as an initiating government. Although their participation is optimal, participation is not required for watershed planning to proceed. Although there are no treaty reservation lands in WRIAs 55 and 57, the Spokane Indian Tribe's ancestral land (also referred to as ceded territories) covers a large portion of WRIA 55 and a smaller portion of WRIA 57 (Figure 1.1). The ancestral land is the original land area occupied and used by the Spokane Tribe. The boundary of the ancestral lands shown on Figure 1.1 is based on information provided by the Spokane Tribe's Department of Natural Resources. The Spokane Tribe was invited to participate but has chosen to only monitor progress through minutes and agendas.

Upon successful completion of Phase I, the State may grant funds to the planning unit to conduct watershed planning. Under the law, the Planning Unit (PU) has considerable flexibility to determine the planning process, focus on areas or elements of particular importance to local citizens, assess water resources and needs, and recommend management strategies. The WMA identifies four topics that can be addressed within the watershed assessment plan: water quantity, water quality, habitat, and instream flow. Water quantity must be addressed if grant funds are accepted and is a required component. Water quality, habitat and instream flows may be addressed but are

optional. The law specifies certain types of information that must be gathered and a range of water resource management strategies that need to be addressed.

The law also includes constraints on the activities of planning units. For example, the PU does not have the authority to change existing laws, alter water rights or treaty rights, change treaties, or require any party to take an action unless that party agrees.

Four phases of watershed planning are identified in the WMA:

- Phase I - Organization (\$50,000)
- Phase II - Assessment (\$200,000)
 - ⇒ Level 1 Assessment: A compilation and review of existing data (within time and budget limitations) relevant to defined objectives. If the Planning Unit decides that the existing data is sufficient to support the management requirements of all or some of the issues, the Planning Unit may choose to skip Level 2 and move on to Level 3 for these issues.
 - ⇒ Level 2 Assessment: Collection of new data or conduct additional analysis of existing data within the time frame of the planning process to fill data gaps and to support decision needs.
 - ⇒ Level 3 Assessment: Long term monitoring of selected parameters following completion of the initial watershed plan to improve management strategies.

Supplemental assessments may be conducted in the following focused areas

- ⇒ Multipurpose Storage (\$100,000): To conduct a detailed assessment of multipurpose water storage opportunities or for studies of specific multipurpose storage projects which opportunities or projects are consistent with and support the other elements of the planning unit's watershed plan developed under RCW 90.82.
 - ⇒ Instream Flow Assessment (\$100,000): To establish new minimum instream flow regulations, or amend existing regulations; and,
 - ⇒ Water Quality Assessment (\$100,000): To conduct water quality assessment in fulfillment of RCW 90.82.090 and to support development of watershed plan.
- Phase III - Planning (\$250,000)

The WMA calls for a consensus approval of the watershed plan by all members of the PU, or a consensus of the initiating governments and a majority vote by the remaining members of the PU. Following approval by the PU, the WMA calls for a joint session of the legislative session bodies of all counties in the watershed to consider the plan. The counties can recommend changes to the plan but the PU must agree to make the changes for them to be effective. Once the plan has been approved by the county legislative bodies and the PU, the county and state agencies are required to implement the plan. Phase III must be completed within four years of initiating Phase II work.

- Phase IV - Implementation (\$400,000)

The PU must provide a detailed implementation plan to provide water for agriculture, commercial, industrial and residential use, and instream flows, including timelines and milestones. The plan must clearly define coordination, oversight responsibilities, needed regulations (ordinances, interlocal agreements or rules), and funding sources. The funds are distributed over up to five years of implementation, and require 10% matching funds, which may consist of in-kind goods and services.

2.2 The WRIA 55 and 57 Planning Unit

WRIAs 55 and 57 each have compelling issues for watershed planning and were combined for the planning effort because of a unique hydraulic connection between the two river systems via groundwater. The initiating agencies for the Little Spokane (WRIA 55) and the Middle Spokane (WRIA 57) Planning Unit are listed below. The initiating agencies accepted Spokane County as the lead agency. The role of the lead agency is to take responsibility for administering watershed assessment grant monies and to be a point of contact through which information is channeled.

	Contact	Department
Initiating Agency		
Spokane County	Ms. Terry Liberty	Planning
Pend Oreille County	Mr. Neil White	Planning
Stevens County	Mr. Dennis Sweeney	Planning
City of Spokane	Mr. Lloyd Brewer	Environmental Programs
Vera Water and Power	Mr. Steve Skipworth	Operations Director
Whitworth Water District	Ms. Susan McGeorge	Manager
Lead Agency		
Spokane County	Mr. Stan Miller	Utilities

In 1998, the initiating agencies formed a planning unit by asking various agencies, organizations and businesses to appoint a member. In addition, interested members of the public were invited to join. In October 2001, the invited members of the planning unit were:

Other Government or Regulatory Agencies

- City of Deer Park
- Town of Millwood
- Spokane Tribe
- Spokane Regional Health District
- Washington State Department of Ecology

Purveyors

- City of Spokane Water Department
- Stevens County PUD #1
- Spokane Aquifer Joint Board

Industry

- Kaiser Aluminum and Chemical Company
- Inland Empire Paper
- WFPA
- Central Premix
- Avista Utilities

Agriculture

- Washington State Dairy Federation
- General Agriculture

Community Development

- Spokane Area Chamber of Commerce
- Spokane Economic Development Council
- Spokane Valley Chamber of Commerce

Citizen Representation

- Friends of the Little Spokane River
- Community Assembly and Neighborhood Services
- Spokane Area League of Women Voters
- Water Quality Advisory Committee
- Citizens at Large

Environmental

- Washington Environmental Council
- The Lands Council

Development

- Spokane Home Builders Association
- Association of Realtors

River Users

- Spokane Fly Fishing Club
- Spokane Canoe and Kayak Club

Technical Support Agencies

- Spokane County Conservation District
- Pend Oreille County Conservation District
- Stevens County Conservation District
- Spokane Aquifer Joint Board
- Washington State Department of Natural Resources

- Washington State Department of Health
- Washington State Department of Ecology
- Washington State Department of Fish and Wildlife
- U.S. Geological Survey
- U.S. Environmental Protection Agency
- Eastern Washington University

2.2.1 Phase II Watershed Planning Optional Components

The WMA requires that the initiating agencies use Phase II grant monies to address water quantity issues. The law provides that grant money may be requested to address water quality, fish habitat, and instream flows, at the option of the initiating agencies. The initiating agencies for WRIA 55 and 57 chose to address water quality as it relates to flow in addition to addressing quantity issues. The Planning Unit has submitted applications for funding to support instream flow studies in both WRIs 55 and 57. Requests for funding to support water quality and storage considerations studies were made in the application for a Phase III grant.

2.2.2 Planning Unit Goals and Objectives

The WRIA 55 and 57 PU have defined the following six objectives. It is important to appreciate that these objectives may be modified in the future and that the list below represents the objectives as of October 2001. The scope of work for this report (Level 1, Phase II of Watershed Planning) is to compile the information that will be used in Level 2, Phase II to address these objectives.

1. Determine the impact of groundwater recharge from the SVRP Aquifer on flows in the Little Spokane River at and near Dartford including recharge from water purveyed from the SVRP Aquifer.
2. Refine data for evaluating the effect of surface water and groundwater withdrawals on flows in the Little Spokane River.
3. Determine the effect of the interaction between the Spokane River and the SVRP Aquifer on the quantity and quality of groundwater and surface water at varying river flow conditions.
4. Refine estimates of recharge to the SVRP Aquifer from adjacent sub-basins.
5. Evaluate the effect of increased withdrawals on recharge to the Spokane and Little Spokane Rivers using a groundwater model which incorporates refined surface water / groundwater exchange information.
6. Develop a tool for evaluating water quality impacts (resulting from changes in river flow) of point source discharges on the Spokane and Little Spokane Rivers.
7. Evaluate the impact of Post Falls Dam operations on surface water and groundwater quality and quantity.

2.2.3 Phase II, Level 1 Assessment Process

A listing of the information types and strategies for the watershed planning elements selected for the Little Spokane and Middle Spokane Basins are provided in Table 2.1. The assessment activities described in this document were defined and overseen by the WRIA 55 and 57 PU. Members of the PU were asked to submit relevant information to Spokane County staff. Spokane County staff also compiled needed information (such as climatic data and river flows) from governmental and educational organizations. Decisions on the information to be assessed were made by the PU members during scheduled meetings. Effort was made by Spokane County staff to compile the information to a manageable form. The information was supplied to Golder in electronic format where possible, and if not, hard copy information was supplied. A listing of the information compiled for the Level 1 assessment is included in Appendix A as a bibliography (Appendix A1), a directory of spreadsheet, text and database files (Appendix A2) and a directory of Geographic Information System (GIS) files (Appendix A3). Draft materials produced by Golder were provided to the PU for review. Review comments were discussed and incorporated prior to preparation of the final document.

2.3 Related Planning and Regulatory Programs

The Watershed Management Act recognizes that water resources planning by federal, state, city, county and district entities and others occur under a variety of authorities. To take advantage of existing work and to avoid duplication, planning units are required to consider all existing plans and related planning activities. Relevant plans and programs should be looked at as sources of: 1) existing information; 2) water resources impact and mitigation studies; and, 3) authority to implement watershed plan recommendations.

The following lists federal, state and local programs and plans relevant to watershed planning in WRIAs 55 and 57:

Federal Programs

- National Environmental Policy Act (NEPA).
- The Federal Clean Water Act;
- The Federal Safe Drinking Water Act;
- United States Environmental Protection Agency's (EPA's) Sole Source Aquifer Designation;
- The Federal Clean Water Act (CWA) Section 303(d);
- The Federal Total Maximum Daily Load (TMDL) process;
- The Federal Endangered Species Act (ESA);

State Programs

- State Environmental Policy Act (SEPA);
- Washington State Water Quality Guidelines;

- The Washington Department of Health's Wellhead Protection Program;
- Washington State Department of Health (DOH) Water Quality Monitoring;
- The Washington Department of Ecology's (Ecology's) Shorelands and Water Resources Program;
- State-designated Scenic River Corridor program;

Local Programs

- Local Comprehensive Planning and the Growth Management Act (GMA);
- Critical Area Ordinances and the Growth Management Act (GMA);
- Groundwater Management Areas;
- Spokane Water Quality Management Program;
- Spokane County Utilities Sewer Service Area Expansion;
- Spokane County and City Stormwater Management / Underground Injection;
- Local Agricultural Programs; and,
- Adjacent Watershed Planning Efforts.

2.3.1 Federal Programs

2.3.1.1 National Environmental Policy Act (NEPA)

National Environmental Policy Act (NEPA) is triggered by various actions including the investment of federal funds or watershed planning actions by federal agencies. If it is anticipated that NEPA will be invoked during the watershed planning process, NEPA requirements should be reviewed so that they can be incorporated early in the watershed planning process.

2.3.1.2 The Federal Clean Water Act

The Federal Clean Water Act (CWA) is the primary legislation controlling water quality in the United States. The goals of the CWA are:

- To develop technology to eliminate the discharge of pollutants;
- To achieve water quality high enough to be protective of fish and recreation;
- To prohibit the discharge of toxic pollutants; and,
- To construct publicly owned waste treatment facilities and to develop area-wide waste treatment management planning processes.

Three facets of the CWA are described below.

2.3.1.2.1 Federal Clean Water Act (CWA), NPDES

A National Pollutant Discharge Elimination System (NPDES) Permit is required for all point discharges to surface waters. Although the EPA is responsible for implementing this act, states may elect to develop and regulate their own programs providing their programs are at least as stringent as the federal program. Washington State has elected to assume responsibility for invoking the Federal Clean Water Act. The Department of Ecology (Ecology) has the primary responsibility for enforcing the CWA.

2.3.1.2.2 Federal Clean Water Act (CWA), Section 303(d)

The Federal Clean Water Act (CWA), Section 303(d), requires States to develop a list of water bodies that are not expected to meet water quality standards after implementation of technology-based pollution controls. These controls include enforceable best management practices for non-point sources. The EPA requires that these controls be completed or scheduled for completion within two years of the waterbody's listing. The 303(d) list contains all those water bodies that require some additional management activities.

2.3.1.2.3 Total Maximum Daily Load (TMDL) Process

The Federal Clean Water Act (CWA) directs that a Total Maximum Daily Load (TMDL) be established for all water bodies listed under Section 303(d). The EPA defines a TMDL as the sum of all pollution loads allocated to various sources and/or reserves after a public participation process. The TMDL is established so that pollution does not exceed the loading capacity of the waterbody segment. The TMDL also includes recommendations on how to control the pollution impairing the water as well as a monitoring program to ensure the effectiveness of these pollution controls.

2.3.1.3 The Federal Safe Drinking Water Act

The Federal Safe Drinking Water Act (SDWA) ensures public water systems meet national standards for the protection of public health. This act establishes primary and secondary drinking water standards. Primary standards are established for those contaminants that pose a human health risk. Secondary standards are based on aesthetic factors such as color and taste. The Washington State Department of Health (DOH) has responsibility for implementing the Federal Safe Drinking Water Act.

2.3.1.4 Sole Source Aquifer Designation

The Sole Source Aquifer (SSA) Protection Program is authorized by Section 1424(e) of the Safe Drinking Water Act of 1974 (Public Law 93-523, 42 U.S.C. 300 et. Seq). It states that:

"If the Administrator determines, on his own initiative or upon petition, that an area has an aquifer which is the sole or principal drinking water source for the area and which, if contaminated, would create a significant hazard to public health, he shall publish notice of that determination in the Federal Register. After the publication of any such notice, no commitment for federal financial assistance (through a grant, contract, loan guarantee, or

otherwise) may be entered into for any project which the Administrator determines may contaminate such aquifer through a recharge zone so as to create a significant hazard to public health, but a commitment for federal assistance may, if authorized under another provision of law, be entered into to plan or design the project to assure that it will not so contaminate the aquifer.”

The EPA defines a sole or principal source aquifer as one that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. These areas have no alternative drinking water source(s) that could physically, legally, and economically supply all those who depend upon the aquifer for drinking water.

The EPA designated the Spokane Valley Rathdrum Prairie (SVRP) Aquifer a sole source aquifer in 1978 in response to the concern of area residents. The SVRP Aquifer was the second aquifer in the United States to receive this designation. The SVRP Aquifer is the sole source of drinking water for most of the people living in Spokane County (Washington) and Kootenai County (Idaho). At present, aquifer protection efforts are managed by Spokane County’s Water Quality Program in Washington and by the Idaho Department of Environmental Quality (IDEQ) and the Panhandle Health District (PHD) in Idaho.

Proposed projects with federal funding which have the potential to contaminate a designated sole source aquifer are subject to EPA review. Proposed projects that are funded entirely by state, local, or private concerns are not subject to EPA review. EPA does not endorse using SSA status as the sole or determining factor in making land use decisions that may impact ground water quality. However, it does recommend that site-specific hydrogeological assessments be considered along with other factors such as project design, construction practices, and long-term management of the site.

2.3.1.5 Endangered Species Act (ESA)

There are no species listed under the Endangered Species Act in WRIAs 55 and 57. Grand Coulee Dam blocks anadromous salmonids from the Upper Columbia. ESA issues are therefore not considered as a component of watershed planning in WRIA 55 and WRIA 57.

2.3.2 State Programs

2.3.2.1 State Environmental Policy Act (SEPA)

The State Environmental Policy Act (SEPA) was adopted in 1971 to ensure that environmental values were considered during decision-making by state and local agencies. Adoption of the watershed plan and any associated implemented projects will invoke SEPA for cities, counties and other agencies subject to SEPA. The methodology for watershed planning is similar to that for a SEPA programmatic Environmental Impact Statement (EIS). Therefore, it may streamline the planning process and reduce SEPA requirements in subsequent implementation of watershed plan recommendations if the watershed planning process is structured in a similar way to that of an EIS (see Section 11.3.1 and Table 11-1 of EES’s 1999 Guide to Watershed Planning and Management).

Although this Level 1, Phase II data compilation report is not directly subject to SEPA review, it does follow the SEPA structure by summarizing existing conditions within WRIs 55 and 57 using best available science. This Level 1, Phase II data compilation report is completed in support of the Phase III Watershed Plan. The Phase III Watershed Plan is subject to SEPA review.

2.3.2.2 Washington State Water Quality Guidelines

Ecology has broad authority over surface water and groundwater quality (WAC 173-200 and WAC 173-201). Effective implementation of Ecology's water quality programs is a key component of watershed planning. Watershed planning in WRIs 55 and 57 must incorporate Ecology's standards and implementation guidance for surface water and ground water quality in any land-use or development issues.

2.3.2.3 Wellhead Protection

All Group A public water systems relying on groundwater (WAC 246-290) are required by the state of Washington to have a wellhead protection program. The City of Spokane prepared a protection plan for its wells, and the Spokane Aquifer Joint Board (SAJB) prepared a wellhead protection plan on behalf of the other purveyors withdrawing groundwater from the Spokane Valley portion of the SVRP Aquifer (i.e., the SVRP Aquifer within Washington State). This area is within WRI 57 and the southern portion of WRI 55 (Figure 5.8). The individual water purveyors, land use regulators, and the Washington State Department of Health (DOH) are responsible for these wellhead protection programs.

2.3.2.4 Washington State Department of Health (DOH) Water Quality Monitoring

The Washington State DOH oversees compliance of public water systems with water quality monitoring requirements. Based on the source water assessment classifications given by DOH, public water systems are required to monitor various parameters at various frequencies at each of their water sources. The water quality monitoring results are reviewed by DOH to ensure compliance with water quality standards and with monitoring requirements. In addition, Washington DOH oversees the Consumer Confidence Report (CCR) federal rule (40 CFR 141 Subpart O) which was adopted as a state rule (WAC Chapter 246-290 Part 7 Subpart B) in June 2000. It became effective as a state requirement on August 21, 2000. This state regulation requires Group A community water systems to provide their customers with a report each year about the quality of water being served by the system. Group A water systems serve 15 or more connections or 25 or more people. This regulation does **not** apply to transient non-community (TNC), non-transient non-community (NTNC) or Group B water systems. The Consumer Confidence Report is required to be delivered to water system customers and the State Department of Health before July 1 of each year.

2.3.2.5 Ecology's Shorelands and Water Resources Program

Ecology's Shorelands and Water Resources program is charged with managing Washington State's water resources to ensure that the waters of the state are protected

and used beneficially. An important component of water management relies on permitting and enforcement of water rights. The authority of Washington State and Ecology over water rights is outlined in the Revised Code of Washington (RCW) 90.03 and 90.44. In order to make water management decisions (for example granting or declining a permit for water use), Ecology must determine that the proposed water use passes four statutory tests (RCW 90.03.290): 1) the use will be beneficial; 2) the use will be in the public interest; 3) the water is available; and, 4) the use will not impair senior water users.

In addition to the four statutory tests listed above, Ecology must also consider other water management issues mandated by State and Federal Law including:

- Washington State water quality guidelines (WAC 173-200 and WAC 173-201)
- Preservation of instream flows (WAC 173-500);
- Preservation of aquatic habitat for endangered species (Environmental Species Act)

2.3.2.6 State-Designated Scenic River Corridor Program

In 1991, the Washington State Legislature designated the lower eight-mile reach of the Little Spokane River as a State Scenic River corridor. A river management plan is being developed to preserve the unique qualities of this portion of the river, which includes a diverse and biologically rich riparian wetland zone. The Washington State Parks Department is the lead agency.

2.3.3 Local Programs

2.3.3.1 Local Comprehensive Planning and the GMA

Future land use designation efforts under the Growth Management Act (GMA) require participating counties to accommodate a proportionate share of the state's projected 20-year population growth. The GMA identifies thirteen broad goals to guide local governments in the planning process. Included in the goals is encouragement of development in urban areas with existing or planned public facilities and services, reduction of urban sprawl, conservation of natural resources, protection and enhancement of the environment, and adequate provision of necessary public facilities and services.

City and county comprehensive plans are important to consider within the context of watershed planning because cities and counties: 1) govern land use within their corporate boundaries; and 2) have a great deal of responsibility for choosing and financing infrastructure that both effect and mitigate impacts on water resources. Historically, water resources have been addressed through a variety of focused means (e.g., sewer plans, storm water plans and shoreline management programs). City and county comprehensive plans are a means to coordinate more narrowly focused efforts over a broader jurisdictional area and at a watershed scale. Comprehensive plans define

existing conditions, provide a forum for evaluating and making important public decisions, and provide authority to implement many potential watershed plan recommendations.

The Growth Management Act (GMA, Chapter 36.70A RCW) has provided the mechanism to coordinate comprehensive plans for a variety of purposes, including achieving water resources goals. The most significant provision of the GMA bearing on the power and importance of city and county comprehensive plans is the requirement that all government decisions, including capital budget decisions, must be consistent with the comprehensive plan. The plan provides the policy basis and the authority for both short-term actions (e.g., infrastructure investments) and long-term solutions to water resource issues (e.g., shifts in land use configurations). Under GMA, local governments must make sure services are available prior to development. Theoretically, this includes examining the availability of water rights.

2.3.3.2 Critical Area Ordinances and the GMA

The GMA combined with Article 11 of the Washington State Constitution mandates every county and city in Washington to adopt policies and development regulations that designate and protect critical areas. Critical areas are defined as: wetlands; areas with a critical recharging effect on aquifers used for potable water; frequently flooded areas; geologically hazardous areas; and, fish and wildlife habitat conservation areas (WAC 365-190-080). Spokane County set forth the goals and policies in the Natural Environment Element of the Generalized Comprehensive Plan to guide the County in carrying out its mandate to designate and protect critical areas (Spokane County, 2001). The goals and policies related to critical areas will be implemented by updating the Spokane County Critical Areas Ordinance (Spokane County, 1996), including adoption of critical aquifer recharge areas designation and regulations, and updating the Spokane County Shoreline Master Program (Spokane County, 1975).

2.3.3.3 Groundwater Management Areas

The concept of a groundwater management area is embedded in Washington Administrative Code. Under the provisions of the code, Ecology designates a groundwater management area after petition by local government. The community then develops a management plan for groundwater protection based on existing data and any new data collected. Funding for developing groundwater management area plans has been available through the CWA.

In Spokane County and WRIA 55, the Deer Park basin has been designated a Groundwater Management Area. A groundwater management plan for the basin was developed in 1992 but has not been formally adopted. Portions of the plan have been molded into the Spokane County Conservation District's Dragoon Creek Watershed management plan.

2.3.3.4 Spokane Water Quality Management Program

Spokane's Water Quality Management Program (WQMP) is set up as a joint County-City effort to direct the implementation of the Water Quality Management Plan. The plan (Spokane County, 1979) was approved as the guidance document for protection of the SVRP Aquifer within Washington by the Spokane City Council and the County Commissioners in the spring of 1979. The WQMP recommended that planning activities for the aquifer sensitive area recognize that the aquifer has a limited capacity to accept pollutants without degradation of the aquifer's water quality. The water quality management plan recognized the importance of the aquifer as a drinking water resource, recommended a goal of nondegradation; and, except to the extent that the Spokane River could impact the aquifer, placed a premium on aquifer water quality over river water quality. The WQMP also recommended mitigation for pollutant loading so as to allow for additional development without increasing the total pollutant load to the aquifer. Over the last 20 years, the WQMP has provided a wide variety of services and administered a number of regulation adoption efforts.

2.3.3.5 Spokane County Utilities Sewer Service Area Expansion

Spokane County has an on-going program of sewer interceptor construction within the designated urban area. To date, about half the residents within that area have been connected to the system. The current construction schedule will result in completion of the County sewer system by 2015. At that time, it is expected that at least 90% of the homes and businesses within the urban area will be connected.

2.3.3.6 Spokane County and City Stormwater Management / Underground Injection

Increased emphasis on underground injection control (UIC) and compliance with TMDLs by EPA and Ecology are having a significant impact on the City and County stormwater management programs. The UIC program is forcing both the City and County to evaluate the need for pre-treatment in the more than 10,000 stormwater injection wells that were installed prior to the passage of pretreatment requirements in 1980. The UIC program may require higher levels of stormwater treatment than current practice. The water quality standards for discharge and the amount of water subject to treatment may increase.

2.3.3.7 Local Agricultural Programs

The Farm Service Agency (FSA), the Natural Resources Conservation District (NRCS), the Washington State Department of Natural Resources (DNR), and the Spokane County Conservation District (SCCD) oversee local agricultural programs. Current programs include:

- The Environmental Quality Incentive Program – a cost share program that assists with installation of environmental practices such as dairy waste facilities and reduced or no-till management systems (NRCS).
- The Production Flexibility Contract – which supports program crop (wheat, barley, oats and corn in WRIAs 55 and 57) production (NRCS).

- The Conservation Reserve Program – which provides an annual rental payment to farmers willing to plant wildlife habitat. This program includes support for installation of filter strips and riparian buffers adjacent to streams (FSA).
- The Stewardship Incentive Program – which helps forestry landowners establish management plans and provides assistance for plan implementation (DNR).
- The Spokane County Buffer program – which helps farmers protect and replant the shoreline buffers to protect water quality (SCCD).

2.3.3.8 Wetland and Riparian Programs

- Wetland Reserve Program – administered by the NRCS, which gives financial incentives to enhance wetlands in exchange for retiring marginal land from agriculture.
- Forestry Riparian Easement Program – managed by the Small Forest Landowner Office within the DNR, which partially compensates small forest landowners in exchange for a 50-year easement on qualifying timber next to streams or rivers.
- Spokane Riparian Inventory and Assessment Project – an SCCD project to inventory and assess riparian areas throughout Spokane County.

2.3.3.9 Adjacent Watershed Planning Efforts

Watershed planning is currently being conducted in WRIA 59 (Colville River), WRIA 62 (Pend Oreille River) and WRIA 56 (Hangman Creek). All three of these adjacent WRIAs are also within Phase II of the Watershed Planning process. The lead agencies for WRIAs 59, 62 and 56 are Stevens County Conservation District, Pend Oreille Conservation District and Spokane County Conservation District, respectively.

2.4 Technical Information Development

Continued research to improve understanding of local water resources is being completed with grant funds focused on specific information needs or public utility funds to develop information for drinking water, stormwater and wastewater management. Currently, there are several on-going programs (in addition to the WRIA 55 and WRIA 57 assessments) to collect technical information. These additional programs are briefly described below.

2.4.1 Spokane Aquifer Coordinated Monitoring Program

This program is managed by Spokane County and involves:

- Collection and interpretation of regional aquifer quality data from quarterly sampling;
- Incorporation of purveyor drinking-water-compliance monitoring data into regional interpretations; and,

- Preparation of annual water quality reports.

2.4.2 USGS Stream Gaging Program

The USGS operates the most extensive network of stream gaging stations in the state. In the WRIA 55 and WRIA 57 area, the USGS has been collecting stream flow data since 1895 with the Spokane River at Spokane streamflow gage. The USGS currently operates eight satellite stream gaging stations within WRIsAs 55 and 57 that provide readily available data that can be downloaded from the Internet. The USGS stream gaging sites within WRIsAs 55 and 57 that are currently or have been monitored in the past are listed on Table 5.2 and located on Figure 5.2a.

2.4.3 Spokane County Conservation District Little Spokane River Studies

The Spokane County Conservation District (SCCD) is currently completing a number of water quality and quantity studies on the Little Spokane River. Summaries of these studies are provided below.

2.4.3.1 Nitrogen Sampling

As a result of recent land development within the Little Deep Creek and Deadman Creek sub-basins (Figure 1.2), the SCCD is currently evaluating the nitrogen levels in Little Deep Creek and Deadman Creek. Sampling began January 2001 and will continue through September 2002.

2.4.3.2 Macro Invertebrate Sampling

Benthic macro invertebrate samples are being collected in a fall 2000 to fall 2002 study. Samples are collected during the fall and spring from approximately 25 sites within WRIA 55. Dr. Lang of the Eastern Washington University Biology Department will identify samples. Sampling follows the Washington State Department of Ecology protocols developed by Rob Plotnikoff.

2.4.3.3 Water Quantity

The SCCD operates five stream flow monitoring stations within WRIA 55 (Figure 5.2a). All stations were installed September 1999 in conjunction with the Pend Oreille Conservation District study (POCD, 2000) and record stream depth and water temperature at one-hour intervals. Water depths will be converted to mean daily stream depths followed by mean daily stream flows. SCCD is currently compiling the 2000 water year's stream flow data. The stations monitored are:

- LS-1 Little Spokane River, Scotia Road near Newport WA.
- LS-3 Otter Cr., Elk to Hwy Road near Elk WA.
- LS-4 Little Spokane River, Deer Park-Milan Rd. near Riverside, WA.
- LS-5 Dragoon Cr., Crescent Road, Chattaroy

- LS-6 Deadman Cr., 15628 North Little Spokane Drive Spokane, WA.

With the exception of LS-1, all depth recorders were removed for repair by May 2001, and replaced between July and November of 2001.

2.4.4 Ecology / Army Corps of Engineers Spokane River Water Quality Modeling

Ecology and the Army Corps of Engineers are developing a 2D longitudinal / vertical, laterally averaged, hydrodynamic water quality model in support of TMDLs for the Spokane River. Ecology will be providing the Corps with groundwater inflows to and outflows from the river based on spreadsheet calculations that compare flow records in a downstream direction from the Post Falls Gage to the Long Lake outlet. Differences in flows between successive gaging stations in a downstream direction (including significant discharge to or withdrawals from the river by industry) represent a loss to or gain from the aquifer. The spreadsheet model is based primarily on 1991-1992 water year data. The model will be capable of predicting how water quality in the Spokane River will be impacted by groundwater and watershed changes only if the flows and concentrations entering and leaving the model resulting from these changes can be provided as input to the model. The model output predicts water surface elevations, velocities, temperatures and water quality for up to 21 constituents. The model is UNIX & PC compatible.

2.4.5 USGS Northern Rocky Mountain Water Quality Assessment

To address water resources protection at a national level, Congress appropriated funds in 1986 for the USGS to begin a pilot program in seven project areas to develop and refine the National Water Quality Assessment (NAWQA) Program. In 1991, the USGS began full implementation of the program. The NAWQA program builds upon an existing base of USGS water quality studies as well as those of other Federal, State and local agencies. The objectives of the NAWQA program are to:

- Describe current water quality conditions for a large part of the Nations' freshwater rivers and aquifers;
- Describe how water quality is changing over time;
- Improve understanding of the primary natural and human factors that affect water quality conditions.

The Northern Rockies Intermontane Basins (NROK) study area (which includes areas in eastern Washington, northern Idaho and western Montana) is one of 59 study units selected by the USGS for full-scale implementation of the NAWQA program. The NROK study area includes the SVRP Aquifer (see Figure 5.8 and 5.9). Biological, hydrological and hydrogeological (on-going) studies of the SVRP Aquifer area are planned within the NROK study area.

In 2000, 18 wells were drilled by the USGS within 0.6 miles of the Spokane River between Post Falls, Idaho and Harvard Bridge near Spokane, Washington. These wells, and an

additional 7 wells drilled for Ecology and Spokane County, were sampled 8 times from August 2000 to August 2001. Samples were analyzed for major ions, trace elements and stable isotopes (oxygen / deuterium). Ten of the wells were instrumented with continuous data loggers that recorded temperature and pressure. Continuous measurements of temperature, stage and specific conductance were also recorded at the USGS gage on the Spokane River at Post Falls. Elevations of the wells and elevations along cross-sections of the river channel were surveyed. This data will be summarized and interpreted in a USGS Water Resources Investigations Report. The USGS data and results (if available) will be incorporated into the water resources management model for WRIA 57.

2.4.6 Washington Department of Natural Resources Geologic Mapping

During the last ten years, the Washington Department of Natural Resources (DNR) has completed several studies to improve the geological mapping of the 14 USGS map quads that encompass the Spokane area. These studies include:

- Remapping the Quaternary geology of the Missoula Flood deposits;
- Refining areas of bedrock geologic mapping; and,
- Reconciliation of bedrock and Quaternary geology in conjunction with the Natural Resources Conservation Service.

Some of the geologic cross-sections completed as a component of this effort are included within this report as the Figure 4.14 series.

2.4.7 Soil Survey Update

The Natural Resources Conservation Service (NRCS), with support from the Spokane County Conservation District (SCCD) and Spokane County, is collecting data to update the 1968 Soil Survey for Spokane County. The project, which started in 1998, is expected to be completed by 2004. The soils information within this report is based on the 1968 Spokane County Soil Survey, as more up to date information is not yet available.

2.4.8 Stormwater Basin Planning

Spokane County's Stormwater Utility has recently completed the Chester Creek Basin and the Glenrose-Moran Prairie Basin Plans and is currently working on plans for the West Plains, North Spokane Plains and Spokane Valley. These plans include information on the quantity of water flowing out of the basin to the aquifer under various development scenarios. Spokane County is beginning a two-year study of stormwater quality and the efficiency of several treatment options.

2.4.9 Avista Dam Relicensing

Avista's license for its Spokane River Hydroelectric Project from the Federal Energy Regulatory Commission (FERC) expires in 2007. The license, FERC #2545, includes five

hydroelectric developments. Avista must initiate the relicensing process in 2002, which is likely to include information collection in 2003 and 2004. Although this process is scheduled to occur after the development of a watershed management tool for WRIA 55 and 57, any relevant information collected and analyzed by Avista may be incorporated into the watershed management process and the watershed management tool updated as needed.

Watershed Management Act Technical Assessment Requirements for WRIA 55 and WRIA 57

Component	Technical Assessment Requirements of the Watershed Management Act (WMA)	Status
<p>Water Quantity RCW 90.82.070(1)</p>	(a) An estimate of the surface water and groundwater present in the management area;	<p>Complete.</p>
	(b) An estimate of the surface water and groundwater available in the management area, taking into account seasonal and other variations;	
	(c) An estimate of the water in the management area represented by claims in the claims registry, water use permits, certificated rights, existing minimum instream flow rules, federally reserved rights, and any other rights to water;	
	(d) An estimate of the surface water and groundwater actually being used in the management area;	
	(e) An estimate of the water needed in the future for use in the management area;	
	(f) Identification of the location of areas where aquifers are known to recharge surface water bodies and areas known to provide for the recharge of aquifers from the surface; and	
	(g) An estimate of the surface water and groundwater available for further appropriation, taking into account the minimum instream flows adopted by rule or to be adopted by rule under this chapter for streams in the management area including the data necessary to evaluate necessary flows for fish.	<p>To be completed within Phase III.</p>
<p>Water Quality RCW 90.82.090</p>	(1) An examination based on existing studies conducted by federal, state and local agencies of the degree to which legally established water quality standards are being met in the management area;	<p>Complete.</p>
	(2) An examination based on existing studies conducted by federal, state and local agencies of the causes of water quality violations in the management area, including an examination of information regarding pollutants, point and non-point sources of pollution, and pollution-carrying capacities of water bodies in the management area. the analysis shall take into account seasonal stream flow or level variations, natural events and pollution from natural sources that occurs independent of human activities;	<p>Complete as per WRIA 55/57 Ecology grant agreement.</p>
	(3) An examination of the legally established characteristic uses of each of the nonmarine water bodies in the management area;	<p>Complete.</p>
	(4) An examination of any total maximum daily load established for nonmarine water bodies in the management area, unless a total maximum daily load process has begun in the management area as of the date the watershed planning process is initiated under RCW 90.82.060;	
	(5) An examination of existing data related to the impact of fresh water on marine water quality;	<p>Not applicable.</p>
	(6) A recommended approach for implementing the TMDL established for achieving compliance with water quality standards for the nonmarine water bodies in the management area, unless a TMDL process has begun in the management area as of the date the watershed planning process is initiated under RCW 90.82.060; and	<p>To be completed within Phase III.</p>
	(7) Recommended means of monitoring by appropriate government agencies whether actions taken to implement the approach to bring about improvements in water quality are sufficient to achieve compliance with water quality standards.	