

## 6.0 IMPLEMENTATION

The Water Quality Stewardship Plan (WaQSP) calls for the development and completion of specific implementation activities. Numerous general recommendations were developed in Chapter 4.0 as specific planning elements were explored. Additionally, in Chapter 5.0, countywide data was analyzed by sub-watershed in order to identify stressors and to make recommendations to address those stressors. This section will outline implementation strategies and opportunities by: 1) reviewing existing authorities necessary for WaQSP implementation, 2) delineating general implementation policies and practices, making recommendations for implementation projects and 3) identifying possible funding sources for implementation. Additionally, this section outlines the process for updating and amending the WaQSP document.

### 6.1 AUTHORITY

The Area-Wide Water Quality Planning Agency designation authorizes Salt Lake County to: 1) Plan water quality-related activities, 2) Provide for consistency of water quality related activities, and 3) Enforce water quality related ordinances. However, collaboration and coordination between agencies that hold authorities pertaining to water quality and watershed implementation activities is essential to successfully implement the WaQSP. This section describes the primary authorities necessary to implement recommendations from the WaQSP. Additional authorities are described in Appendix A.

### 6.1.1 Federal Water Quality Legislation

Congress enacted the “Federal Water Pollution Control Act Amendments (FWPCA) of 1972 (US Code; Title 33, 2006).” The goal of the FWPCA was to restore and maintain the “chemical, physical and biological integrity of the nation’s waters.” Congress recognized the necessity to delegate authority to the states to solve local water quality problems. The states were required to develop “water quality plans” and to delegate the necessary planning authority to various identified state and local government entities. The Clean Water Act (CWA or the Act) is an amendment to the FWPCA enacted in 1977. The CWA is the basic legal structure for regulating the discharge of any pollutant into the waters of the United States. The CWA was reauthorized by Congress in 1987. Many of the permitting, administrative and enforcement authorities have been delegated to the state (UAC; Title 19, 1953).

### 6.1.2 Water Quality Management Plans

The CWA required the development of regulations to meet the water quality goals established in the Act (CWA, 1972). The federal regulations establish the procedural requirements for the preparation of a state Water Quality Management Plan (40 CFR Part 131, 1998). A Water Quality Management (WQM) plan is a document identifying areas in the state with water quality problems and setting ambient water quality standards (UAC R317-2, 2007) and effluent limitations to be achieved in intrastate waters. The WQM plan is the basis for implementing sound water quality management decisions, implementing effective control programs and achieving water quality standards. One of the requirements of the WQM plan is the identification of regulatory programs and management agencies suitable to attain the water quality standards.

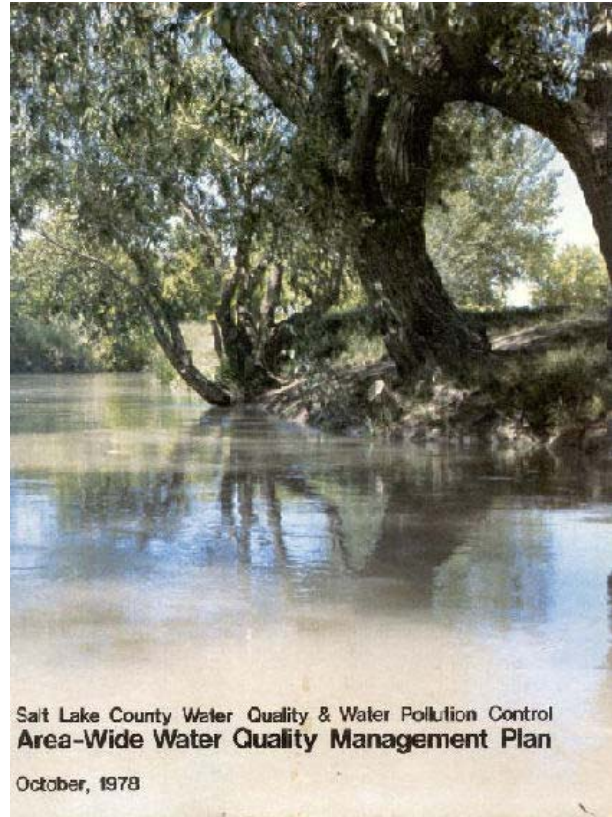


Corner Canyon Debris Basin, Lower Corner Canyon Sub-Watershed

### 6.1.3 Area-Wide Water Quality

Section 208 of the Act requires states to designate areas which, “as a result of urban-industrial concentrations and other factors, have substantial water quality control problems,” and to designate a regional planning organization for such areas to develop area-wide management plans for the control of pollution. With respect to point sources such as wastewater treatment plants, these plans are required to identify waste treatment facilities, specify construction priorities and develop a regulatory program.

The Salt Lake County Council of Governments (COG) was originally designated as the area-wide water quality planning agency under a grant from the Environmental Protection Agency (EPA) in 1975. In October 1977, the Salt Lake County Commission enacted Section 7-5-1 *et seq.*, of the Revised Ordinances of Salt Lake County, creating the Salt Lake County Department of Water Quality and Water Pollution Control (Enabling Ordinance No. 615, October 31, 1977), a permanent on-going water planning agency with countywide jurisdiction. On February 6, 1978, Governor Scott Matheson designated the Department of Water Quality and Pollution control as the area-wide water quality planning agency for Salt Lake County (Salt Lake County Code of Ordinances, Section 17.06.010, 1982). At that time, the Department of Water Quality and Water Pollution Control reported directly to the Board of County Commissioners. The area-wide water quality planning program was subsequently placed under the Flood Control Division in 1981. In 1985, the program was removed from the Flood Control budget; however, the Jordan River Watershed Council continued to meet on a regular basis. During this time, the water quality planning program was moved to the Salt Lake City-County Health Department, which was formally recognized as the Area-Wide Water Quality Management Agency by the State and EPA. In 1992, the water quality planning program was transferred again to the Salt Lake County Commissioners Staff Office where it remained until 1997 when it was transferred back to the Flood Control Division. While under the Salt Lake County Commissioners, the Water Quality Planning Program received funding for the Jordan River Restoration project sites as well as numerous other implementation projects.



Cover of original Area-Wide Water Quality Management Plan

### 6.1.4 County Water Quality Management Plan

In October 1978, the County released an Area-Wide Water Quality Management Plan. The Area-Wide Water Quality Management Plan was intended to be the “starting point for a continuous planning process directed toward achieving the restoration of the chemical, physical and biological integrity of the waters of Salt Lake County” (SLCo, 1978). The Area-Wide Water Quality Management Plan was to coordinate the water quality management practices of the various political entities in the County. The Area-Wide Water Quality Management Plan was based on the assumption that in the future, resource protection and public health values would place water quality management programs at about the same level of importance as police and fire protection (SLCo, 1979-1980).

The County’s Area-Wide Water Quality Management Plan presented the details of how water pollution control would be implemented,



including the details of municipal wastewater treatment facilities. On April 22, 1979, Governor Matheson adopted the Salt Lake County Water Quality Management Plan, finding it to be consistent with the requirements identified in the federal regulations (40 CFR Part 131, 1998). In addition, the Governor designated several county departments as management agencies to implement the approved plan. The designated county departments in existence in 1979 included: City-County Health Department; Flood Control; Planning; Surveyor; Building Inspection, and Water Quality and Water Pollution Control. EPA Region VIII subsequently approved the Salt Lake County Water Quality Management Plan on December 11, 1979.



Salt Lake City residential area, Lower Parley's Creek Sub-Watershed

In March 1982, the county's Area-Wide Water Quality Management Plan was updated (SLCo, 1979-1980). Prior to the time of the update, the Department of Water Quality and Water Pollution Control was consolidated with Flood Control as a Division within the Department of Public Works (Flood Control and Water Quality Division) (Ordinance No. 1473, 1982 amending Title VII of the Revised Ordinances of Salt Lake County). Among other things, the Division was assigned to assist the Board of County Commissioners (under the Commission form of government in place at that time) in the discharge of its responsibilities to maintain a water quality management program.

The new Division was responsible for maintaining a master plan for the preservation and enhancement of water quality (Salt Lake County Code of Ordinances, Section 17.04.020, 1982). At that time, the expected planning horizon was

from 1980 to 2000. During the years following the plan update, numerous water quality improvement activities occurred as part of the on-going water quality planning efforts of Salt Lake County. However, in January 2005, the Utah Department of Environmental Quality (DEQ) recommended that the Area-Wide Water Quality Management Plan be amended to support the issuance of a new Utah Pollutant Discharge Elimination System (UPDES) discharge permit that would allow treated effluent from a proposed wastewater treatment facility in Riverton to discharge to the Jordan River. This requested amendment initiated a renewed interest in the planning process and instigated the development of this Water Quality Stewardship Plan (WaQSP).

## 6.1.5 Agency Reviews and Approvals



Draper City residential area, Corner Canyon Creek Sub-Watershed

Many of the department level management agencies (Water Quality and Water Pollution Control, Flood Control, Planning, and Building Inspection) originally designated in the approved WQM plan became divisions in the re-organization of Salt Lake County government. Additionally, a change in the form of government from a Commission to a Mayor-Council occurred on January 1, 2001. The Public Works Department is now in the executive branch (Mayor) of county government. It is unclear whether the original WQM plan intended the planning function to be vested in the legislative or executive branch since both functions were consolidated in the earlier Commission form of government.



A review of the legal authority required to implement the WQM plan determined that the designated management agencies had the necessary legal authority to include water quality in their requirements for approval. It was noted, however, that the relationship among the various divisions in the Public Works Department needed to be formally established so that the requirements of each division are included in approved plans for development (County Attorney Opinion #80-515, June 9, 1980, letter to Gerald H. Kinghorn, Director). An effort should be made to increase the awareness of the WQM plan responsibilities imposed on the identified management agencies in the Department.



Discharge into Mill Creek, Lower Mill Creek Sub-Watershed

### 6.1.5.1 Permits and Approvals

**Flood Control Permit** Title 17 of the Salt Lake County Code of Ordinances defines the Flood Control Permit Program. Flood Control Permits are intended to serve the purposes of; installation of structures or bridges, stormwater discharges, utility line crossings, bank stabilization, or any other activity which occurs within twenty feet (6.1 meters) of the top of the channel bank of any Countywide Flood Control Facility.

**Facility Construction Permits** The EPA has delegated the implementation and compliance requirements of the CWA to DEQ. A UPDES discharge permit from DEQ is required for new “point source” discharges such as wastewater treatment plants. Each wastewater treatment entity in Utah was required to have developed a Facilities Management and Financial Plan (FMFP) by 1985 (UAC R317, 2007). These plans are a

prerequisite to the issuance of construction permits for new or significantly modified wastewater treatment facilities and for the certification of new or renewed UPDES discharge permits (UAC R317, 2007). The FMFP must include: 1) an evaluation of alternatives in sufficient detail to determine the most cost effective and environmentally sound treatment strategy; 2) a financial plan to pay for all project costs; 3) optimizing the operation and maintenance of existing facilities; and 4) be consistent with “all applicable state and federal laws” regarding pollution control. Since FMFPs were not required prior to 1985, these planning elements have not been included in the County’s Area-Wide WQM plan.

DEQ has adopted technical and procedural requirements for the development of wastewater projects. An engineering report must be prepared in support of an application for a facility construction permit (UAC R317, 2007). Among other things, the report must include location and design information, including the local land use and zoning in the area.



Great Salt Lake, Great Salt Lake Sub-Watershed

**Point Source Discharges** As noted above, a UPDES discharge permit is required for a point source (discernible, confined and discrete conveyance) to discharge to a waters of the state (UCA 19-5-107, 1953). Conformance with the approved area-wide WQM plan is necessary to issue a discharge permit (40 CFR § 120.12, 2000). DEQ’s regulations specifically prohibit the Executive Secretary of the Water Quality Board from issuing a permit for “any discharge inconsistent with a plan or plan amendment



approved under Section 208(b) of the Clean Water Act” (UAC R317, 2007).

The permit application requirements for new wastewater treatment plants must consider the following relevant factors: (1) existing controls on point or nonpoint sources, including total maximum daily load (TMDL) calculations for the water body segment (UAC R317, 2007), and relative contribution of the publicly owned treatment works (POTW); and (2) receiving stream characteristics, including possible known or unknown water quality impairment (UAC R317, 2007).



Trash in Copper Creek, Great Salt Lake Sub-Watershed

**Stormwater Discharges** Stormwater discharges are generated by precipitation and runoff from land, pavements and other surfaces. Stormwater runoff accumulates pollutants such as oil and grease, chemicals, nutrients and bacteria as it travels across land. Heavy precipitation or snow melt can also cause sewer overflows which in turn, may lead to contamination of water sources. Most stormwater discharges are considered point sources and are covered by the UPDES discharge permit system. A UPDES stormwater discharge permit (#UTS000001) has been issued by DEQ to Salt Lake County. The Public Works Department and the Salt Lake Valley Health Department entered into a Memorandum of Understanding to formalize a procedure for the enforcement of applicable statutes, ordinances and health regulations prohibiting the discharge of pollutants, contaminants or wastes into waterways and storm drainage systems.

**Dredge and Fill** Section 404 of the CWA regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Section 404 requires a permit from the U.S. Army Corps of Engineers before dredged or fill material may be discharged into waters of the United States. The Corp of Engineers administers the program, including individual and general permit decisions. In addition, the Corp conducts or verifies jurisdictional determinations; develops policy and guidance; and enforces the provisions of Section 404.

**Nonpoint Discharges** Nonpoint source discharges include all sources not explicitly permitted under Section 402 of the CWA, including sediments. The state is responsible for listing waters that are impaired. If a waterbody is listed as impaired, the state must then develop an analysis of the sources of pollutants causing the impairments and the reductions of each source necessary to address the impairments. Total Maximum Daily Loads (TMDLs) specify the maximum amount of a pollutant a waterway can assimilate and still meet the state’s water quality standards. The TMDL process (UAC, R317-1-7, 2007) links the development and implementation of control actions to the attainment and maintenance of water quality standards. In addition to the TMDL process, the State has developed the “Utah Nonpoint Source Pollution Management Plan” to guide implementation activities throughout the State.



Excavation near Corner Creek, Lower Corner Creek Sub-Watershed

### 6.1.6 Other Relevant Legal Authorities

Other federal, state and local laws regulate surface water *quantity* and *quality*. The quantity of water available for use is based on water rights. Water is public property (UAC, 73-1-1, 1953) and the regulation of water rights is a matter of state law. In the past, the primary issues involving water have been access and the quantity of water available for use. The body of western water rights law is extensive and beyond the scope of this limited review. It is important, however, to understand that the historical development of water rights law in the west and in Utah plays an important role in the planning process.

Currently water issues focus on the *quality* of the available water, including matters such as irrigation return flows, TMDLs, salinity, and instream uses. It is also interesting to note that some of the early statutory authorities addressing water rights, pre-dating modern environmental regulations, reference water quality. State wildlife resources authorities also prohibit the pollution of waters deemed necessary for wildlife purposes. City and County ordinances governing domestic water use, watersheds, flood control facilities, wastewater and health regulations also address water quality. In addition, the re-use of treated effluent is an emerging issue due to development, a prolonged drought and the potential impacts of climate change on water availability.

Many of these laws regulating quantity and quality are relevant and appropriate to consider in the WQM planning process. Although the County has



Lee Creek, Great Salt Lake Sub-Watershed

WQM planning responsibility, the legal authority for requiring compliance under the other laws is vested with other public and private entities. It is, therefore, important to first identify these “stakeholders” and second involve them in the planning process.

An outline of the other relevant and appropriate legal authorities which should be considered in the planning process is attached as Appendix A.



Rose Creek, Lower Rose Creek Sub-Watershed



## 6.2 POLICY

Salt Lake County is committed to the protection, enhancement and improvement of water quality and watershed health. In order to accomplish meaningful and effective WaQSP implementation, Salt Lake County will work with local management and regulatory agencies to identify and implement projects that:

1. Are directed toward the improvement and/or protection of water quality and watershed health in Salt Lake County.
2. Incorporate and address current Total Maximum Daily Load (TMDL) recommendations and 303(d) listings.
3. Mitigate flooding potential.
4. Involve multiple partners (e.g. local cities, developers, non-profit organizations, volunteer groups and land owners).
5. Are consistent with strategies outlined in current State and local plans (e.g. nonpoint source, UPDES, basin plans).
6. Provide for meaningful public involvement and promote awareness in the planning process.
7. Are based on solid scientific understanding and are technically feasible.
8. Incorporate management practices and public education.
9. Are financially, ecologically, and socially sustainable.
10. Provide for long-term maintenance and monitoring.

In identifying and reviewing proposed projects and/or management strategies, Salt Lake County, and its partners, will use the above criteria to direct decisions.



Albion Basin, Upper Little Cottonwood Creek Sub-Watershed



Riparian area in Upper Parley's Creek Sub-Watershed

## 6.3 PUBLIC AND STAKEHOLDER INVOLVEMENT

Public and stakeholder involvement is essential for successful implementation of the WaQSP. Salt Lake County, as the Area-Wide Water Quality Management Agency, is committed to facilitating a meaningful public and stakeholder process associated with WaQSP implementation. Salt Lake County will also oversee an ongoing Public Information (PI) effort that will provide continual outreach to the public and stakeholder groups.

This section: 1) describes existing stakeholder groups and outreach efforts, 2) reviews recent survey data that will direct future Public Involvement (PI) efforts, 3) outlines the stakeholder involvement and outreach efforts that will be employed for implementation of countywide recommendations, 4) outlines the stakeholder involvement and outreach efforts that will be employed for development and implementation of sub-watershed plans, and 5) establishes the ongoing PI effort associated with the WaQSP.

### 6.3.1 Stakeholder Groups and Outreach Campaigns

A number of stakeholder groups are active in Salt Lake County. Additionally, several groups have worked together on outreach campaigns to inform and educate the public on water quality and watershed related issues. These campaigns and stakeholder groups target specific issues within the watershed, some of which are more recognized by the public than others. Information about existing stakeholder groups is delineated in Table 6.1. Information about existing campaigns can be found in Table 6.2.

#### 6.3.1.1 Jordan River Watershed Council

In addition to the stakeholder groups and campaigns outlined above, Salt Lake County has organized and facilitated the Jordan River Watershed Council (JRWC), a stakeholder advisory group established to facilitate involvement in water quality and watershed issues. The JRWC was initially created in 1978 as a result of the Area-Wide Water Quality Management Plan. The JRWC contains representatives from federal, state, and local



Canoe trip, Jordan River Corridor Sub-Watershed

government agencies as well as various interests such as parks and recreation, agriculture and irrigation, Publicly-Owned Treatment Works (POTWs), stormwater, environmental concerns, headwaters and water supply concerns, community councils, and land use and development. Appendix J contains a complete list of organizations involved in the JRWC. Both countywide and watershed specific efforts will use the existing structure of the JRWC as one mechanism to facilitate stakeholder involvement in WaQSP implementation.

In order to facilitate involvement in WaQSP implementation, Salt Lake County will continue to facilitate the JRWC. Meetings will be held quarterly with the JRWC to distribute information regarding both countywide efforts and sub-watershed implementation efforts. Additionally, Salt Lake County will facilitate project and/or issue specific meetings with the JRWC on an at-will basis.

#### 6.3.1.2 Sub-Watershed Advisory Committees

In Chapter 5.0 major water quality stressors were identified for each sub-watershed. Recommendations have been made to address those stressors to improve water quality and watershed health. In order to effectively address sub-watershed stressors, Salt Lake County may organize Sub-Watershed Advisory Committees to coordinate and facilitate both sub-watershed plan development and implementation. These Sub-Watershed Advisory Committees will be chaired by a representative from the Salt Lake County Flood Control and Water Quality Division and should be co-chaired by an elected or appointed individual from the local jurisdiction. Sub-Watershed Advisory Committees should include: mayors from the overlapping cities in the sub-watershed, a



Table 6.1 Stakeholder Groups

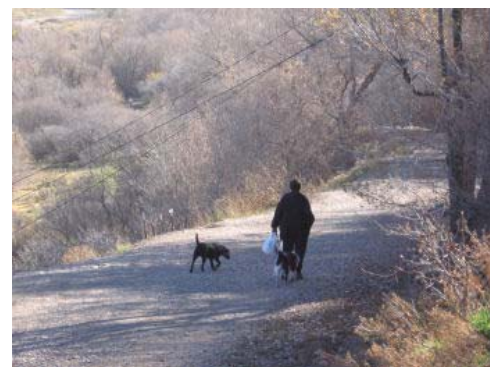
Salt Lake County Watershed Stakeholder Groups		
Government	Non-Profit	Recreational
<p><b>Cities</b></p> <ul style="list-style-type: none"> <li>· Town of Alta</li> <li>· Bluffdale City</li> <li>· Cottonwood Heights City</li> <li>· Draper City</li> <li>· Herriman City</li> <li>· Holladay City</li> <li>· Midvale City</li> <li>· Murray City</li> <li>· Riverton City</li> <li>· Salt Lake City</li> <li>· Sandy City</li> <li>· South Jordan City</li> <li>· South Salt Lake City</li> <li>· Taylorsville City</li> <li>· City of West Jordan</li> <li>· West Valley City</li> <li>· Unincorporated Salt Lake County</li> </ul>	<ul style="list-style-type: none"> <li>· Audubon Society</li> <li>· Bend in the River</li> <li>· Bonneville Resource Conservation and Development Council</li> <li>· Bonneville Shoreline Trail</li> <li>· Friends of Alta</li> <li>· Friends of Big Cottonwood</li> <li>· Friends of the Great Salt Lake</li> <li>· Great Salt Lake Keepers</li> <li>· Nature Conservancy</li> <li>· Pratt Trail</li> <li>· Save Our Canyons</li> <li>· Sierra Club</li> <li>· Tanner Nature Preserve</li> <li>· Tree Utah</li> <li>· Trout Unlimited</li> <li>· Utah Open Lands</li> <li>· Utah Rivers Council</li> <li>· Wasatch Mountain Connection Group</li> </ul>	<ul style="list-style-type: none"> <li>· SPLORE</li> <li>· Salt Lake Climbers Alliance</li> <li>· Salt Lake County Bicycle Alliance</li> <li>· Utah Golf Association</li> <li>· Wasatch Mountain Club</li> <li>· Many informal recreational groups and individuals who use the watershed for hiking, skiing, snowshoeing, camping, biking, picnicking, kayaking, and other outdoor activities.</li> </ul>
<p><b>County Agencies / Programs</b></p> <ul style="list-style-type: none"> <li>· Salt Lake County Stormwater Coalition - Planning and Development Services</li> <li>· Salt Lake County Health Department - Salt Lake Valley Health Department</li> </ul>		
<p><b>State Agencies</b></p> <ul style="list-style-type: none"> <li>· Division of Forestry, Fire and State Lands</li> <li>· Division of Resource and Conservation Management</li> <li>· Division of Water Quality</li> <li>· Division of Water Rights</li> <li>· Division of Water Resources</li> </ul>		
<p><b>Federal Agencies</b></p> <ul style="list-style-type: none"> <li>· USDA Forest Service - US Fish and Wildlife</li> <li>· Bureau of Land Management - Federal Emergency Management Agency</li> <li>· Army Corps of Engineers - Environmental Projection Agency</li> </ul>		

Note: Complete list of stakeholders is in Appendix J

representative from the County Council and representatives from the overlapping community councils. The structure of these advisory committees is detailed in Figure 6.1.

Although Sub-Watershed Advisory Committees will serve as the main advisory body for sub-watershed plans development and implementation, any recommendations and/or comments from the JRWC will be given full consideration in implementation decisions.

In addition to the existing campaigns and stakeholder groups, there are likely a number of



Dog walker in Lower Parley's Creek Sub-Watershed

Table 6.2 Existing Outreach Campaigns

Program	Agency(ies)	Lead Agency	Address	City, State, Zip	Phone	Purpose
<b>Water Quality</b>						
Adopt a Water Body	Utah Department of Environmental Quality, the Utah Department of Natural Resources and the Utah Department of Agriculture and Food	Division of Environmental Quality	288 North 1460 West	Salt Lake City, UT 84116	538-6516	A community involvement program designed to benefit Utah's water resources and be rewarding and educational for the volunteer groups involved.
Adopt a Watershed	EPA					To encourage stewardship of the nation's water resources
Keep It Pure	Salt Lake City Public Utilities		1530 South West Temple	Salt Lake City, UT 84115	483-6860	A watershed protection program with the theme "What you see in the watershed today, you may drink tomorrow."
We All Live Down Stream	Salt Lake County Stormwater Coalition—a partnership of Salt Lake County, the Cities in the County (Salt Lake, West Valley, Sandy, Murray, Bluffdale, Riverton, Draper, Midvale, Holladay, Herriman, South Jordan, West Jordan, Taylorsville and South Salt Lake Cities), Salt Lake Valley Health Department and the Utah Department of Transportation	Salt Lake County	2001 South State Street, Suite N3100	Salt Lake City, UT 84190	468-2711	The Coalition was formed to facilitate the cleanup of stormwater pollution in Salt Lake County by educating Salt Lake County residents about stormwater? What is it? Why is stormwater quality important? What are the methods to improve stormwater quality?



Table 6.2 Existing Outreach Campaigns—Continued

Program	Agency(ies)	Lead Agency	Address	City, State, Zip	Phone	Purpose
Conservation						
Rip Your Strip	Utah Rivers Council		1055 E. 2100 S., Suite 207	Salt Lake City, UT 84106	486-4776	Encourage property owners to xeriscape their parking strip to reduce water consumption.
Slow the Flow	Jordan Valley Water Conservancy District, Central Utah Water Conservancy District, Metropolitan Water District of Salt Lake and Sandy, Rural Water Association of Utah, Utah Division of Water Resources, Washington County Water Conservancy District, Weber Basin Water Conservancy District	Jordan Valley Water Conservancy District	8215 S. 1300 W.	West Jordan, UT 84088	565-4300	Encourage reduced water consumption through education.
Water Wise Utah	The organization is a partnership of Utah Education Network, KUED—7, The Utah Museum of Natural History, J. Willard Marriott Library and KUER—FM 90	Partnership for a National of Learners	1705 East Campus Center, University of Utah, Milton Bennion Hall, Rm 205	Salt Lake City, UT 84112	581-5176	Increase awareness of water issues and encourage reduced water consumption statewide.



Figure 6.1 Watershed Advisory Committee Structure



smaller groups that conduct outreach efforts and organize around specific issues that are not included in these lists. Additional groups and efforts will be included in the WaQSP planning process as they become known.

### 6.3.2 Public Survey

In order to inform and direct future Public Involvement (PI) efforts, a baseline assessment of Salt Lake County’s resident’s attitudes and understanding of water quality and watershed health was conducted in February of 2007 by Dan Jones & Associates (Dan Jones, 2007). The survey was conducted to assess:

- Familiarity with Salt Lake County watershed issues.
- Priorities regarding different watershed attributes.
- Opinions about various actions that affect watershed integrity.
- Land use priorities.
- Knowledge about the location and water quality of county creeks.
- Attitudes about possible regulatory actions that may affect the watershed.
- Views about Salt Lake County’s efforts to protect the watershed.

- Preferences for which funding methods ought to be used for watershed preservation.
- The frequency and types of outdoor recreational use by county residents.
- The importance of outdoor recreation in determining quality of life.

Results from this survey will be used as a primary guide to future countywide and sub-watershed specific PI efforts. Complete results from this survey are available in Appendix F; however, survey highlights are summarized below.

*Knowledge and Level of Concern* Two thirds, or 68% of those surveyed felt that they were very familiar or somewhat familiar with water quality concerns in the streams and rivers in Salt Lake County. Of the six characteristics of a watershed, water quality was viewed as the most important by 51% of the respondents.



Mill Creek, Upper Mill Creek Sub-Watershed



When read a list of potential issues facing the watershed, having an adequate water supply had the highest mean score of 4.76 on a scale of one through five, where one is no concern at all and five is great concern. Industrial water pollution came in as a close second with 4.61, while lowering water quality to promote economic development came in last at 1.67.

**Water Quality** Many survey respondents also felt that a healthy economy depends on good water quality in the watershed (mean score of 4.07).

**Land Use Priorities** Most Salt Lake County residents prefer to see open space or wetlands, river corridors in their natural condition, outdoor recreational areas and wildlife habitat to remain in about the same condition or have more of it. Conversely, about the same number of respondents would prefer to see less or about the same level of urban development.

**Creeks and Rivers** While most people know where the Jordan River, Emigration Creek and Little Cottonwood Creek are located, many respondents have never heard of Midas Creek or Bingham Creek (both located in the southwest quadrant of the valley). The water in the Jordan River is perceived by 76% to be of poor quality while Big Cottonwood Creek and Emigration Creek are thought to have good water quality (76% and 66% respectively). Bingham and Midas Creeks received a large amount of Don't Know responses which correlates to the lack of knowledge of where they are located.

**Regulations** In questions regarding development of regulations, the majority of respondents strongly favor the following:

- Requiring new developments to set aside natural open space (4.41)
- Requiring a set amount of trees to be planted (4.31)
- Requiring landowners to leave natural vegetation in place (4.21)

Survey respondents were somewhat neutral when asked if they felt Salt Lake County government is doing enough to protect our



Wood Hollow, Jordan River Corridor Sub-Watershed

watershed with 43% indicating that it probably is and 33% answering probably not.

**Funding** On a scale of 1 (Strongly Oppose) to 5 (Strongly Support), voluntary contributions (3.82) and assessing fees for the use of canyons and trails (3.5) as a means to fund future watershed projects. Bonding (3.43), fees added to sewer and water charges (2.93), small property tax increase (2.63) and small sales tax increase (2.39) received lower support.

**Recreational** Ninety-four percent of the respondents view outdoor activities as very important to somewhat important with the majority citing hiking or walking as their preferred activity. Seventy-four percent use creeks or river trails for hiking or biking. Twenty-seven percent participate in outdoor activities within six miles of their home and 30% drive 6-20 miles for their outdoor activities while the remainder of residents drive more than 20 miles for recreational activities.

**Information** The majority of respondents gather news and information about environmental issues from the local newspaper (37%) and television (31%).

These findings will be used, along with other watershed specific characterizations when formulating the messaging and thrust of the PI plan.



Picnic facility, Jordan River Corridor Sub-Watershed

### 6.3.3 Public Involvement (PI) in Countywide Implementation

Countywide recommendations were identified in Chapter 4.0 Watershed Planning Elements and are provided in Table 6.7. These recommendations range from improved stream gauging to the development of a countywide database of potential wetland areas and analysis of wastewater flow conveyance. Each of these recommendations will require unique input and collaboration between stakeholders. Generally, the public and stakeholder involvement process for countywide recommendations may include: meetings with the Jordan River Watershed Council (JRWC), workshops with critical stakeholders, public outreach workshops, Watershed Watch newsletter articles, brochures and direct mailings. However, detailed involvement efforts will be recommendation specific. As stated earlier, Salt Lake County will, at a minimum, adhere to 40 CFR 130.6(e) to establish a meaningful public input process in implementation of countywide recommendations.

### 6.3.4 PI in Sub-Watershed Implementation

The goal of the PI effort associated with sub-watershed plans is to encourage and facilitate sub-watershed committees who take responsibility for the implementation of the WaQSP within their individual sub-watersheds. Table 6.3 outlines the tasks that may be employed to establish and effectively facilitate these Watershed Advisory Committees.

### 6.3.5 Ongoing PI Efforts

The ongoing PI efforts are designed to: 1) Encourage stakeholders to take an active role in the long-term implementation of the WaQSP and 2) Increase awareness of the general public about the broader water quality functions and health, the WaQSP and the issues and stressors identified in Chapter 5.0. Ultimately, PI efforts will initiate community involvement and change the way people view the watershed. Since this entails the human component to the WaQSP, the ongoing PI plan needs to remain flexible and dynamic in order to anticipate and respond to changes in perceptions, political winds, budgets and behaviors.

#### 6.3.5.1 Existing PI Efforts

Currently, Salt Lake County is engaged in several public outreach and education efforts developed to inform and educate the public regarding water quality and watershed health. These existing efforts include: an annual Watershed Symposium, tabling events, publication of a bi-annual newsletter and maintenance of an informational website. In order to provide continual access to ongoing planning and implementation efforts associated with the WaQSP, Salt Lake County should continue to engage in tasks listed below. The anticipated frequency of these tasks is outlined in Table 6.4.

*Salt Lake Countywide Watershed Symposium* This is an annual two-day event that features panel discussions, presentations by local experts on pertinent issues surrounding water quality and watershed stewardship and field trips. The



Watershed Symposium Participants 2007



**Table 6.3 PI Tasks Associated for Sub-Watershed Plan Development and Implementation**

Task	Description
Task 1 - Work with the City / Stakeholder groups to form sub-watershed planning areas.	The stakeholders are identified in Table 6.1 and are the target audiences for the first phase of the education / information element of the PI campaign. The County will have already spent a fair amount of time visiting with each city and larger stakeholder during the draft comment period. This group is the most informed either through management of their cities, their professional lives or through an existing community interest group.
Task 2 - Form a pilot sub-watershed planning area	The WaQSP identifies water quality stressors in each sub-watershed in Chapter 5.0, Atlas of Opportunities. Using this information, Salt Lake County will work with local municipalities to identify a set of sub-watersheds that can be grouped to form a cohesive planning unit.
Task 3 - Identify the cities, agencies and interest groups who need to participate in the sub-watershed planning process.	<p>Form a committee of representatives for the sub-watershed. Over time, this committee will move from the County serving as the informer/educator to the committee actively participating in the implementation of the WaQSP. (Inform and Educate through to Involve.)</p> <p>Inform / Educate – This component is during the first phase of working with the sub-watershed committee. The areas of discussion will come from the WaQSP and, most likely, some that committee members also bring to the table. This is a dynamic time as issues come forward. The goal here is to create a sense of ownership in the planning process so if some areas fall outside the WaQSP or get too narrow, that is OK. Keep the overall goals for implementation at the top of the agenda.</p> <p>Involve – As the committee becomes more informed, the goal is to have them take over responsibility or stewardship for the sub-watershed and identify projects for implementation that are either programmatic or structural. This may come in the form of the city(s) stepping in, the formation of a non-profit (friends of.....) or a combination of both.</p> <p>County Role - The County will serve as a facilitator for this committee and assist in the long term planning efforts for the sub-watershed group.</p>
Task 4 - Create messaging for the sub-watershed group	Once the sub-watershed group is working cohesively they need to create a message to take to their area about their watershed. This is where the ultimate grass-roots activities take place.
Task 5 - Implement the sub-watershed plan and monitor	Work with the sub-watershed group to implement their plan through grass-roots efforts. These implementation processes will be identified within the Sub-Watershed Plan.

Symposium is designed for the general public, non-profit organizations, students and those working in watershed professions and serves as one of the quarterly JRWC meetings.

**Tabling Events** On an annual basis, Salt Lake County targets six (6) tabling events at various venues throughout the County. The purpose of these tabling events is to provide information to the public at large regarding water quality and watershed issues. Information is distributed at these events through printed materials and personal discussions with interested parties. These informational tables are provided at events such as Saturday markets, water fairs and other community events.



Children coming to Water Fair at Hogle Zoo 2006



Information board at Mill Creek Outdoors Festival 2008

**Watershed Watch Newsletter** In order to further inform and involve the public in water quality and watershed issues, a newsletter is developed and distributed on a bi-annual basis. This newsletter will contain information about current water

quality and watershed issues, upcoming events, personal stewardship tips and ways to be involved in countywide watershed stewardship. Newsletters will be distributed to libraries, recreation centers, outdoor retailers, senior center and coffee shops. Additionally, the newsletter will be posted on the Water Resources Program website.

**Website** In order to provide access to watershed information, technical publications and to inform the public regarding water quality and watershed issues, Salt Lake County will maintain a webpage on an on-going basis (<http://www.waterresources.slco.org>). The website is a main venue whereby documents relating to the water quality and watershed issues are posted. The main purpose of the website is to distribute information.

**Table 6.4 Existing PI Effort Frequency**

Outreach Task	Frequency
Continue to hold an annual watershed symposium for the public and stakeholder groups.	1/year
Continue the tabling events (6/year).	6/year
Continue the projection of the Water Watch twice a year.	2/year
Continue the development and maintenance of the website.	Ongoing
Continue to distribute information via the Jordan River Watershed Council	Ongoing

*Jordan River Watershed Council List Serve* In order to provide a mechanism whereby key stakeholders and the public at-large may receive updates regarding water quality and watershed studies, projects and issues, Salt Lake County will continue to distribute information via the JRWC email list serve.

#### 6.3.5.2 Additional PI Efforts

In order to augment existing PI efforts and to assure that ongoing public outreach efforts are effective and meaningful, additional PI tasks have been identified (Table 6.5). The purpose of these additional outreach efforts is to raise awareness and potentially achieve a positive behavior change in people's use of the watershed. These additional PI efforts will begin in year two of WaQSP implementation (2009) and will continue throughout the implementation cycle.

#### 6.3.5.3 Implementation of PI Efforts

PI efforts will use a variety of tools throughout the WaQSP implementation cycle. Table 6.6 provides a sample PI schedule.

*Note on television and radio* At this stage it is difficult to justify the expense of mass media expenditures. Due to the dynamic nature of public involvement, a media campaign may be feasible with other stakeholder partners in the future.





**Table 6.5 Additional PI Effort Tasks**

Task	Description
Task 1 - Identify common themes of the sub-watershed groups	As the County is working within the different sub-watershed groups, common themes will start taking place. These themes may take a variety of forms with regard to the four functions of a watershed (water quality, habitat, hydrology and social / recreational) and/or the stressors within the watersheds.
Task 2 - Develop messaging	Once the common themes are identified, the messaging is developed. The message should be simple and easily remembered such as those in other water campaigns (Slow the Flow and We All Live Downstream). From this messaging, develop a logo to be used on all outreach materials such as the website, print materials, presentations and give-away items.
Task 3 - Identify the audience	While this part of the campaign is for the entire county, target audiences need to be identified in order to refine how implementation takes place. These could be users of a particular watershed area or a specific age group. The audience could also be targeted to a group of behaviors. Since this phase takes place over 4-5 years, multiple target audiences may be identified.
Task 4 - Identify implementation tools and methods of the public outreach	<p>At this stage, the County should have a fairly good sense of how the sub-watershed groups are utilizing the WaQSP and the recommendations within. The implementation of the countywide public outreach will depend on how much education and information they think needs to take place within the targeted audiences. Below is a list of tools for implementation.</p> <ul style="list-style-type: none"> <li>- Website</li> <li>- Tabling events</li> <li>- Print materials (flyers, brochures, fact sheets)</li> <li>- Public interest articles</li> <li>- Give away materials (water bottles, key chains, magnets, etc.)</li> <li>- Newspaper, radio and television advertising</li> <li>- School programs</li> <li>- Speaking engagements to public groups (chambers of commerce, Rotary Clubs)</li> <li>- Informational displays in public places (libraries, post offices, trailheads, water agencies, fairs, community events)</li> </ul>

Table 6.6 Sample PI Schedule

PI Implementation	Year 1	Year 2	Year 3	Year 4	Year 5
On-going throughout	Jordan River Watershed Council	Jordan River Watershed Council	Jordan River Watershed Council	Jordan River Watershed Council	Jordan River Watershed Council
	Water Symposium	Water Symposium	Water Symposium	Water Symposium	Water Symposium
	Tabling events	Tabling events	Tabling events	Tabling events	Tabling events
	Water Watch newsletter	Water Watch newsletter	Water Watch newsletter	Water Watch newsletter	Water Watch newsletter
	Website	Website	Website	Website	Website
	Create one give-away item.	Create one give-away item.	Create one give-away item.	Create one give-away item.	Create one give-away item.
Activity in the year	Create Message with an easily recognized theme and logo.	Continue with booking 6 presentations.	Continue with the newspaper ads.	Continue with the newspaper ads.	Continue with the newspaper ads.
	Develop print materials to distribute at events and public places.	Run newspaper ads in the local weeklies.	Introduce the educational materials into the schools.	Continue with the schools.	Continue with the schools.
	Develop a presentation to “take on the road” and book 6 presentations	Develop educational materials for school programs.			Evaluate effectiveness of the campaign.



2007 Salt Lake Countywide Watershed Symposium

## 6.4 PRACTICES

The ultimate goal of WaQSP implementation is to improve watershed functions (i.e. water quality, hydrology, habitat and social services). In order to achieve improved watershed function, Salt Lake County, along with local stakeholders, will implement countywide studies and recommendations and facilitate development and implementation of sub-watershed plans. Countywide studies and assessments will inform and direct sub-watershed implementation plans and will coordinate countywide issues such as wastewater planning and water rights. Sub-watershed plans will identify specific capital improvement projects (CIPs) and will develop site plans and funding packages for these activities. Additionally, Salt Lake County will work with local municipalities to develop and adopt ordinances directed toward improving and/or protecting water quality and watershed functions as part of sub-watershed planning efforts. This section is written to detail practices for implementation of both countywide and sub-watershed implementation.

### 6.4.1 Countywide Implementation

In this multi-jurisdictional County, it is essential that countywide implementation projects accommodate various stakeholder concerns and utilize existing resources. Table 6.7 summarizes countywide recommendations that were identified in Chapter 4.0 Watershed Planning Elements. Many of these recommendations will require substantial funding over several years. Although specific funding packages and implementation schedules are not part of this WaQSP, some guidance is provided in Table 6.8.

### 6.4.2 Priority Implementation Tasks

Several countywide and sub-watershed specific implementation tasks have been given a high priority based on stakeholder input received as part of the WaQSP development. Salt Lake County will target these high priority tasks during this planning cycle, while continuing to work towards all of the countywide recommendations over time. In implementing priority tasks, Salt Lake County will review water quality and watershed needs to establish an adaptive management cycle that will address future concerns and incorporate the successes and failures of past implementation activities. The following recommendations are

given high priority in this planning cycle:

1. Encourage the adoption of Leadership in Energy and Environmental Design criteria.
2. Develop sensitive areas overlay zone ordinance template for use on the west side of unincorporated Salt Lake County and within cities.
3. Establish maximum impervious surface area ordinance for site developments within unincorporated Salt Lake County.
4. Develop a Countywide Water Quality Predictive Management Tool for water quality planning and compliance purposes.
5. Expand water quality and quantity data collection.
6. Develop a wetland assessment that augments existing data. Work with established programs to acquire easements and parcels adjacent to SLCo streams that contain wetlands.
7. Evaluate current Lower Jordan River flow management strategies for impact to water quality.
8. Implement Public Involvement Plan.
9. Maintain and update Stream Function Index (SFI).
10. Develop countywide water quality design criteria for stormwater management facilities.
11. Maintain and update Water Quality Stewardship Plan (WaQSP). As part of ongoing planning efforts, re-establish a core working headwaters group to facilitate inter-agency coordination and further define permit consistency review procedures.
12. Provide assistance, coordination, facilitation and oversight for water quality improvement grant applications.
13. Sample instream water quality during storm events.
14. Continue stream restoration/enhancement and maintenance efforts.
15. Implement BMPs for stormwater quality purposes.



**Table 6.7 Major Recommendations and Implementation Tasks for Countywide Activities**

Element	Scope	Major Recommendations	Implementation
Wastewater	<p>Provide a description of existing facilities</p> <p>Review emerging trends in wastewater technology</p> <p>Review current regulatory standards and trends</p> <p>Develop wastewater flow projections based on WFRC population projections</p>	<p>Formalize the planning and permitting process</p> <p>Perform an evaluation of service area build-out conditions to 2050 and beyond.</p> <p>Integrate the environmental and public process in the planning and permitting of future discharge facilities.</p> <p>Evaluate Countywide sewer capacity and flow routing alternatives (model).</p> <p>Evaluate ongoing Countywide wastewater planning process.</p>	<p>Salt Lake County should work with the State Division of Water Quality and stakeholders to finalize the wastewater planning and permitting process.</p> <p>Salt Lake County may work with local Publicly Owned Treatment Works (POTWs) and Improvement Districts to develop both the scope and funding for consistent area-wide master planning.</p> <p>Salt Lake County should integrate environmental and public process in the planning and permitting of future facilities.</p>



Wetlands along Jordan River, Jordan River Corridor Sub-Watershed



**Table 6.7 Major Recommendations and Implementation Tasks for Countywide Activities—  
Continued**

Element	Scope	Major Recommendations	Implementation
<b>General Stormwater Quality Policy</b>			
Stormwater	<p>Review of existing regulations</p> <p>Review existing conditions (stormwater flow and quality)</p> <p>Review the extent of stormwater impact</p> <p>Review current issues</p> <p>Review anticipated stormwater conditions</p>	<p>Incorporate water quality considerations into the evaluation of Flood Control Permits due to the Countywide drainage system influence on surface, irrigation, and groundwaters.</p> <p>Update the current stormwater quality management plan and the current GIS-based stormwater conveyance map.</p> <p>Sample instream water quality during storm events to assess the impacts to surface water quality. Continue to sample stormwater discharges, as required by the State stormwater permit for large municipalities.</p> <p>Participate in concurrent management programs relating to surface waters that convey stormwater within Salt lake County.</p>	<p>Salt Lake County may revise current flood control permit process to include potential water quality impacts to receiving streams/river.</p> <p>As part of the UPDES permit, Salt Lake County will update its stormwater quality management plan on a five-year cycle.</p> <p>The Salt Lake County Stormwater program may seek partners and funding to expand their sampling to include instream grab samples during storm events.</p> <p>Salt Lake County will continue to participate in ongoing planning efforts that relate to surface waters (e.g. TMDLs, SLC Watershed Management Plan, Salt Lake County FCOZ permit).</p>



Detention pond on Midas Creek during flood event

**Table 6.7 Major Recommendations and Implementation Tasks for Countywide Activities—  
Continued**

Element	Scope	Major Recommendations	Implementation
<b>Stormwater Treatment Policy</b>			
Stormwater— <i>Continued</i>		<p>Evaluate retrofitting existing regional stormwater facilities to incorporate water quality treatment components and encourage the use of post-construction water quality practices (i.e. constructed wetlands, bio-swales, wet ponds, and other natural best management practices) during the permitting of new stormwater conveyance and discharge systems.</p> <p>Develop countywide water quality design criteria targeting specific constituents for stormwater management facilities. Incorporated alternatives to meet specific needs of the cities.</p> <p>Conduct a feasibility study to identify specific irrigation canals that could be operated and maintained as water quality control facilities (i.e. linear detention basins) when not being used for transport of irrigation water.</p> <p>Design, construct and monitor one treatment BMP per year. Incorporate open space and recreational opportunities into these projects to meet requirements of the Clean Water Act (208(b)(2)(A)).</p>	<p>The Salt Lake County Stormwater Program, in conjunction with the Stormwater Coalition, may evaluate projects to retrofit existing regional stormwater facilities to incorporate water quality treatment practices.</p> <p>The Salt Lake County Stormwater Program, in conjunction with the Stormwater Coalition, may develop countywide design criteria for stormwater management facilities.</p> <p>Salt Lake County may work with the Board of Canal Presidents to conduct a feasibility study to identify specific canals that may be operated and maintained as Countywide water quality facilities.</p> <p>The Salt Lake County Stormwater program may seek partners and funding to construct and monitor one stormwater treatment BMP per year.</p>





**Table 6.7 Major Recommendations and Implementation Tasks for Countywide Activities—  
Continued**

Element	Scope	Major Recommendations	Implementation
Stormwater— <i>Continued</i>		<b>Funding/Fiscal Policy</b>	
		<p>Continue funding the overall stormwater coordinator Program and the municipal stormwater program in unincorporated County.</p> <p>Use drainage funding sources to implement or expand existing post-construction BMP implementation.</p> <p>Seek demonstration funds and/or grant monies to implement new stormwater quality improvement strategies.</p> <p>Continue to partner with other co-permittees for efficient programs.</p>	<p>Salt Lake County should continue to fund the stormwater coordination program and municipal stormwater program in unincorporated County.</p> <p>Salt Lake County may work with the stormwater coalition to implement or expand existing post-construction BMP programs.</p> <p>Salt Lake County may work with the Stormwater Coalition and other stakeholders to apply for and oversee grant monies to implement stormwater quality improvement strategies.</p> <p>Salt Lake County should continue to partner with co-permittees.</p>

**Table 6.7 Major Recommendations and Implementation Tasks for Countywide Activities—  
Continued**

Element	Scope	Major Recommendations	Implementation
Nonpoint Sources	<p>Review sources, regulations, existing conditions, anticipated conditions, and management plans regarding:</p> <ul style="list-style-type: none"> <li>- Agricultural runoff</li> <li>- Urban runoff</li> <li>- Construction runoff</li> <li>- Golf course and managed parks</li> <li>- Hydrologic modification and habitat alteration</li> <li>- Mining</li> <li>- On-site wastewater disposal</li> <li>- Landfills and industrial land treatment</li> <li>- Atmospheric deposition</li> </ul>	<p>Implement strategies in <i>A Utah Strategy to Address Water Pollution From Animal Feeding Operations</i> (AFO/CAFO Committee, 2001).</p> <p>Implement strategies in the State of Utah Water Plan for the Jordan River Basin (Utah Division of Water Resources, 1997).</p> <p>Implement recommended management practices for golf courses and parks.</p> <p>Avoid activities within the stream corridor and maintain suitable stream buffers.</p> <p>Flood control activities should be conducted in a sustainable way to promote stable channel conditions.</p> <p>Implement strategies in Nonpoint Source Management Plan for Abandoned Mines in Utah (Utah DEQ, 2005).</p> <p>Continue adherence to the Utah DWQ guidelines and Salt Lake Valley Health Department regulations pertaining to on-site waste disposal systems.</p> <p>Continue adherence to the Utah Solid and Hazardous Waste Act with regard to landfills.</p>	<p>Current nonpoint source strategies, outlined in the State nonpoint source plans, should be employed in all implementation activities.</p> <p>Discussions may be held with the Salt Lake County Parks and Recreation Department to identify ways in which management of County Parks and Golf Courses may be improved to reduce nutrient runoff.</p> <p>Salt Lake County Flood Control and Water Quality Division may develop and adhere to a flood control management manual that will accommodate, to the best extent possible, flood control requirements, stable channel conditions and the ecological health of the County streams.</p> <p>The Salt Lake Valley Health Department should continue to adhere to the guidelines and regulations pertaining to on-site waste disposal systems.</p>

**Table 6.7 Major Recommendations and Implementation Tasks for Countywide Activities—*Continued***

Element	Scope	Major Recommendations	Implementation
Water Supply	<p>Review existing systems and sources</p> <p>Review groundwater and drinking water quality standards</p> <p>Review master plans of principal water providers</p> <p>Describe existing water treatment facilities</p> <p>Identify effects of water supply strategies on water quality</p>	<p>Facilitate discussions between water supply, wastewater, and stormwater professionals to assure that water resources are viewed collectively in Salt Lake County.</p> <p>Support water reuse efforts.</p> <p>Support water conservation efforts.</p>	<p>Salt Lake County may continue to monitor water development activities to identify potential impacts to local streams and river.</p> <p>Salt Lake County should continue to facilitate discussions between water providers, wastewater treatment facilities and watershed managers through the Jordan River Watershed Council.</p> <p>Salt Lake County may support water reuse and conservation efforts.</p>



Bingham Creek Sub-Watershed



Big Cottonwood Creek, Upper Big Cottonwood Creek Sub-Watershed



**Table 6.7 Major Recommendations and Implementation Tasks for Countywide Activities—  
Continued**

Element	Scope	Major Recommendations	Implementation
Instream Flows	<p>Review existing stream flow conditions of all major streams and river in Salt Lake County</p> <p>Review anticipated changes to flow conditions of all major streams and river in Salt Lake County</p> <p>Identify methods to preserve and augment stream flow</p>	<p>Improve both quality and quantity of stream gage data in Salt Lake County.</p> <p>Further examine options for acquisition or reassignment of water rights to be used for instream flows.</p> <p>Ensure that a rigorous review process is conducted for any proposed changes to water rights and water use that could potentially reduce instream flows.</p> <p>Encourage the adoption of Leadership in Energy and Environmental Design criteria.</p> <p>Conduct a detailed instream flow study of the Jordan River and targeted tributaries that considers hydrology and physical habitat.</p> <p>Develop a management strategy for the releases from Utah Lake such that the flows in the Jordan River more closely resemble a natural flow regime.</p>	<p>Salt Lake County may work with local governments, State agencies, the USGS and irrigation companies to fund, install and maintain additional stream flow gages.</p> <p>Salt Lake County should work collaboratively with water right holders to identify opportunities for flow augmentation.</p> <p>Salt Lake County may work with the Division of Water Rights to ensure that a rigorous review process is conducted for proposed changes to water rights and uses. This should be done in accordance with existing DWRi programs.</p> <p>Salt Lake County may work with cities in encouraging incorporation of Leadership in Energy and Environmental Design criteria in neighborhood and site developments.</p> <p>With improved stream gage data, Salt Lake County may work with local stakeholders to conduct a detailed instream flow study of the Jordan River and key tributaries.</p> <p>Salt Lake County may work with the Utah Lake Commission to develop a management strategy for releases from Utah Lake that will accommodate both water right needs and the ecological health of the Jordan River.</p>



**Table 6.7 Major Recommendations and Implementation Tasks for Countywide Activities—  
Continued**

Element	Scope	Major Recommendations	Implementation
Habitat	<p>Document and assess existing aquatic, terrestrial and wetland habitat conditions of watersheds</p> <p>Review anticipated future aquatic, terrestrial and wetland habitat conditions of watersheds</p> <p>Identify habitat deficiency types</p> <p>Review mechanisms to preserve, conserve, and restore streams</p>	<p>Develop a wetland delineation that goes beyond existing data (NWI, SAMP, Jordan River WAIDS, Albion and Brighton Basins data).</p> <p>Develop a watershed-wide inventory and functional analysis of stream segments and/or riparian corridors that are interrupted or disconnected.</p> <p>Develop a comprehensive inventory of fish and eventually macroinvertebrates in County streams, river and lakes.</p> <p>Develop a staged, comprehensive geomorphological assessment of County streams and rivers.</p> <p>Conduct a Countywide delineation of past and current riparian corridors.</p> <p>Work with established programs to acquire easements and parcels adjacent to Salt Lake County streams and river.</p>	<p>Salt Lake County may work with the Open Space Committee, the University of Utah and other interested stakeholders to fund the development of a Countywide wetland database to assist with preservation efforts.</p> <p>Salt Lake County may incorporate data from the Stream Function Index (SFI) with both the WaQSP Habitat and Instream Flows Elements to develop a functional analysis of interrupted and/or disconnected stream segments.</p> <p>Salt Lake County may work with DWR to compile existing fish data and to identify potential funding mechanisms to conduct a countywide inventory of fish abundance and diversity.</p> <p>The State DWQ is currently developing macroinvertebrate standards for Waters of the State.</p> <p>Salt Lake County may work with local partners to identify funding for both geomorphological and riparian assessments of local streams.</p>

**Table 6.7 Major Recommendations and Implementation Tasks for Countywide Activities—  
Continued**

Element	Scope	Major Recommendations	Implementation
Headwaters	Review the characteristics of the Wasatch and Oquirrh mountains	Continue cooperative agreements between Salt Lake City, the Town of Alta, the USFS and Salt Lake County in order to maximize use of funds.	Salt Lake County may continue to work collaboratively with other management and regulatory agencies in the Wasatch Mountains.
	Review jurisdictional responsibilities in each of these areas	Re-establish core working headwaters group to facilitate inter-agency coordination.	The Salt Lake County may facilitate an inter-agency coordination group that will meet quarterly.
	Review plans written for the Wasatch and Oquirrh Mountains	Work with the Town of Alta, Salt Lake City, and the USFS to develop criteria for land acquisition in the Wasatch Mountains.	Salt Lake County may work with Salt Lake City, the USFS and the Town of Alta to develop criteria for land acquisition in the Wasatch.
	Make recommendations for future management of these resources.	Work with established programs to acquire critical headwater lands.	Salt Lake County may work with private and public partners to acquire critical lands in both the Wasatch and Oquirrh Mountains.
		Incorporate recharge area protection requirements into proposed Salt Lake County Source Water Protection Ordinance.	Salt Lake County may organize stakeholder meetings to explore visitor fee programs for Big and Little Cottonwood Canyons.
		Work with local stakeholder groups to explore visitor fee programs for Big and Little Cottonwood Canyons.	Salt Lake County may organize stakeholder meetings to explore enhanced public transportation in the Wasatch Mountains.
		Work with local stakeholders to explore enhanced public transportation programs in the Wasatch Mountains – specifically in the summer months.	





**Table 6.7 Major Recommendations and Implementation Tasks for Countywide Activities—  
Continued**

Element	Scope	Major Recommendations	Implementation
<p>Headwaters— <i>Continued</i></p>		<p>Continue to work collaboratively with management and regulatory agencies to sponsor public information and education campaigns for both the Wasatch and Oquirrh Mountains.</p> <p>Explore the possible establishment of a Watershed Protection Fund that could be used, in part, to support regular maintenance of facilities.</p> <p>Install sanitation facilities in heavily used rock climbing areas.</p> <p>Limit commercial and residential development to the most suitable sites.</p> <p>Enforce FCOZ to the fullest extent possible with minimal variances.</p> <p>Work collaboratively with management and regulatory agencies to identify long-term funding sources for land acquisition</p> <p>Key aspects of the FCOZ should be incorporated into the PCA Ordinance for development adjacent to the Oquirrh Mountains.</p> <p>Develop a comprehensive Watershed Function Index for the headwater areas.</p>	<p>Salt Lake County may work collaboratively with management and regulatory agencies to identify funding and develop informational material to enhance public information and education campaigns for both the Wasatch and Oquirrh Mountains.</p> <p>Salt Lake County may organize stakeholder meetings to discuss the development of a Watershed Protection fund.</p> <p>Salt Lake County may limit, to the maximum extent possible, commercial and residential to suitable sites in the Headwater areas.</p> <p>Salt Lake County may enforce FCOZ to the fullest extent possible with minimal variances.</p> <p>Salt Lake County may organize stakeholder meetings to identify funds to support long-term land acquisition and management programs.</p> <p>Salt Lake County may work with its partners to incorporate FCOZ requirements into the PCA Ordinance.</p> <p>Work with Salt Lake City, the USFS and other stakeholders to develop a Watershed Function Index.</p>

Table 6.8 provides cost estimates for high priority implementation tasks.

### 6.4.3 Sub-watershed Implementation

In order to address critical water quality and watershed concerns, Salt Lake County, with the assistance of Watershed Advisory Committees, will facilitate the development of sub-watershed plans that will result in site-specific projects and recommendations. As outlined in the *Handbook for Developing Watershed Plans to Restore and Protect Our Waters* (EPA, 2005), sub-watershed plans are required to identify and develop: a detailed implementation schedule, milestones, criteria to measure progress, monitoring component, financial and technical resources and an evaluation framework. Sub-watershed plans will be based on identified stressors and recommendations, stream data collected as part of the Stream Function Index (SFI) and stakeholder input. Additionally, sub-watershed plans will look to implementation of TMDL recommendations if applicable. It is anticipated that a primary monitoring component of these

plans will be the Stream Function Index (SFI) (Chapter 7.0).

Although the details of these sub-watershed plans are not yet determined, it is likely, based on recommendations identified in Chapter 5.0, that there will be four (4) major types of implementation activities for each sub-watershed. These types of implementation activities include: stream restoration, stormwater utility retrofitting, habitat enhancement and land use ordinances. It is estimated that the development of a sub-watershed plan will average \$20,000 per square mile. Based on this estimate, preparing sub-watershed plans for the entire Salt Lake Countywide Watershed is estimated to cost \$16 million.

In order to effectively use existing resources to develop and implement sub-watershed plans, Salt Lake County will work with local stakeholders to identify priority sub-watersheds. It is anticipated that these priority sub-watersheds will be identified in 2008 and that plan development and implementation will begin in 2009.



Riverbend restoration site along the Jordan River prior to construction (2000)



Riverbend restoration site along the Jordan River after construction (2002)

**Table 6.8 Major Recommendations and Implementation Tasks for Countywide Activities**

Countywide Recommendation	Key Participants	Total Cost	Possible Funding Mechanism
Task 1—Encourage the adoption of Leadership in Energy and Environmental Design criteria	Salt Lake County, 16 Cities	N/A	N/A
Task 2—Develop sensitive area overlay zone template for the west side of unincorporated Salt Lake County and within Cities	Salt Lake County, 16 Cities	N/A	N/A
Task 3—Establish maximum impervious surface for site developments within unincorporated County	Salt Lake County, 16 Cities	N/A	N/A
Task 4—Develop Countywide Watershed Water Quality Predictive Management Tool	Salt Lake County, State DWQ	\$300,000	State Nonpoint Source Funds
Task 5—Expand water quality and quantity data collection	Salt Lake County, State DWQ	\$48,750 per year	Cooperative effort
Task 6—Develop a wetland assessment that augments existing data. Work with established programs to acquire easements and parcels adjacent to SLCo streams	Salt Lake County, SLCo Open Space Committee, SLC, Utah Open Lands, Trust for Public Lands, 16 Cities	\$25,000*	Cooperative effort
Task 7—Evaluate current Lower Jordan River flow management strategies for impact to water quality	Salt Lake County, DWRI, DWQ	\$200,000	Cooperative effort

\* Note: Does not include land acquisition cost.



**Table 6.8 Major Recommendations and Implementation Tasks for Countywide Activities—Continued**

Countywide Recommendation	Key Participants	Total Cost	Possible Funding Mechanisms
Task 8—Implement Public Involvement Plan	Salt Lake County	\$10,000 per year	Salt Lake County
Task 9—Maintain and Update Stream Function Index (SFI)	Salt Lake County	N/A	Cooperative effort
Task 10—Develop Countywide water quality design criteria for stormwater management facilities	SLCo, SLCo Stormwater Coalition	\$100,000	Cooperative effort
Task 11—Maintain and Update Water Quality Stewardship Plan. Develop Consistency Review Procedures.	Salt Lake County, JRWC	\$750,000	Salt Lake County
Task 12—Provide assistance, coordination, facilitation and oversight for water quality improvement grant applications.	Salt Lake County, 16 Cities, JRWC	N/A	Cooperative effort
Task 13—Sample instream water quality during storm events	Salt Lake County	\$15,000 per year	Salt Lake County
Task 14—Stream restoration/enhancement and maintenance	Salt Lake County, DWQ, 16 cities	\$200,000 per year	Salt Lake County
Task 15—Implement BMPs for stormwater quality purposes.	Salt Lake County, SLCo Stormwater Coalition	\$50,000 per year	Salt Lake County



## 6.5 PROCEDURAL

The WaQSP is considered to be a dynamic/adaptive management planning process and will be updated every six (6) years. The next update of the WaQSP is scheduled for the year 2015. WaQSP updates will incorporate the most recent population and land use data and will address current Total Maximum Daily Load (TMDL) recommendations and 303(d) listings. Additionally, it is anticipated that with each update of the WaQSP, data will be collected and compiled into a Stream Function Index (SFI) report. With continued collection and analysis of water quality, habitat, hydrological and social data, Salt Lake County and our partners will be able to monitor changes to the Watershed on a continuous basis.

However, certain situations may develop (e.g. industrial uses may change or rapid and concentrated development may occur) where an amendment may be requested outside the scheduled WaQSP update cycle. This section is written to outline the WaQSP amendment process.

### 6.5.1 WaQSP Amendment Process

The process to amend the WaQSP is initiated by a formal written request to amend, which will be sent to Salt Lake County, attention Flood Control and Water Quality Division. As outlined in figure 6.2, Flood Control and Water Quality staff will conduct a cursory review to determine whether a WaQSP amendment is required.

To determine if an amendment is necessary, the cursory review will examine compatibility of the proposed amendment with existing permits and TMDLs as outlined in the WaQSP. If the proposed amendment is consistent with the WaQSP, a permit request may be sent to the State DWQ to proceed through their permit application process. If the proposed amendment is not consistent with the existing WaQSP (i.e. is not identified in the current WaQSP document), an amendment to the WaQSP will be required. It is noted that the Area-wide Water Quality Planning Agency (APA) (Salt Lake County) has the prerogative to refuse an amendment



Lake Mary, Upper Big Cottonwood Creek Sub-Watershed

request if in it's opinion the amendment is not in the best interest of the Salt Lake Countywide Watershed. Additionally, Salt Lake County may require that specific changes be made before proceeding with an amendment to the WaQSP.

Several workshops were held in 2006 and 2007 to discuss the process whereby the WaQSP should be amended. Based on results from these stakeholder workshops, the proposed WaQSP amendment process may incorporate, but is not limited to:

1. A regional programmatic approach
2. A transparent environmental and public process that:
  - Identifies community values
  - Includes stakeholder and public involvement
  - Develops public and political support and buy-in
3. Environmentally responsive facility planning with emphasis on sustainability
4. Includes planning and permitting requirements for design and construction of new discharge facilities.

### 6.5.2 WaQSP Amendment Expenses

If Salt Lake County chooses to proceed with an amendment process, the requesting entity will be required to fund expenses accrued as a result of the consistency review and amendment process. These costs may include, but are not limited to: an independent technical and/or engineering review, public outreach, a legal review, and any additional costs accrued as part of the review and amendment process. The decision to proceed with the WaQSP amendment process or to refuse a proposed amendment will be made by the Salt Lake County Council.

### 6.5.3 WaQSP Amendment Environmental Considerations

In order to assure that water quality and environmental considerations are fully addressed in any proposed amendment process, Salt Lake County will review the amendment to confirm that it is in harmony with the strategic targets, recommendations, and policies outlined in the WaQSP. If an amendment request is found to counteract, or violate, any of the WaQSP targets, recommendations and/or policies, Salt Lake County may require that additional management practices or mitigation efforts be employed to address these concerns. Additionally, Salt Lake County may require that an Environmental Assessment be conducted as part of the amendment process.



Parley's Creek, Lower Parley's Creek Sub-Watershed

### 6.5.4 WaQSP Amendment Public Involvement

In order to assure full and meaningful public participation in an amendment process, the requesting entity should follow the public involvement guidelines as outlined by 40 CFR 130.6 (e). The public involvement process may include, but should not be limited to:

- Open houses and public meetings where the public can: review a proposed amendment, review pros and cons for the amendment, provide equal time for opposing views, and have all oral or written comments recorded.
- Meetings with the JRWC to discuss the proposed amendment.
- Meetings with the local community council(s).
- Additionally, a responsiveness summary may be required that addresses specific comments, concerns or suggestions that were received as part of the public review process. Responsiveness summaries should be distributed through the JRWC list serve and may be delivered to the local community council(s).

### 6.5.5 WaQSP Amendment Approval

As stated earlier, the County Council may decide not to amend the WaQSP, or may require additional studies and/or mitigation. The County Council has authority to approve or disapprove a WaQSP amendment based on their assessment of potential impacts to the Salt Lake Countywide Watershed.



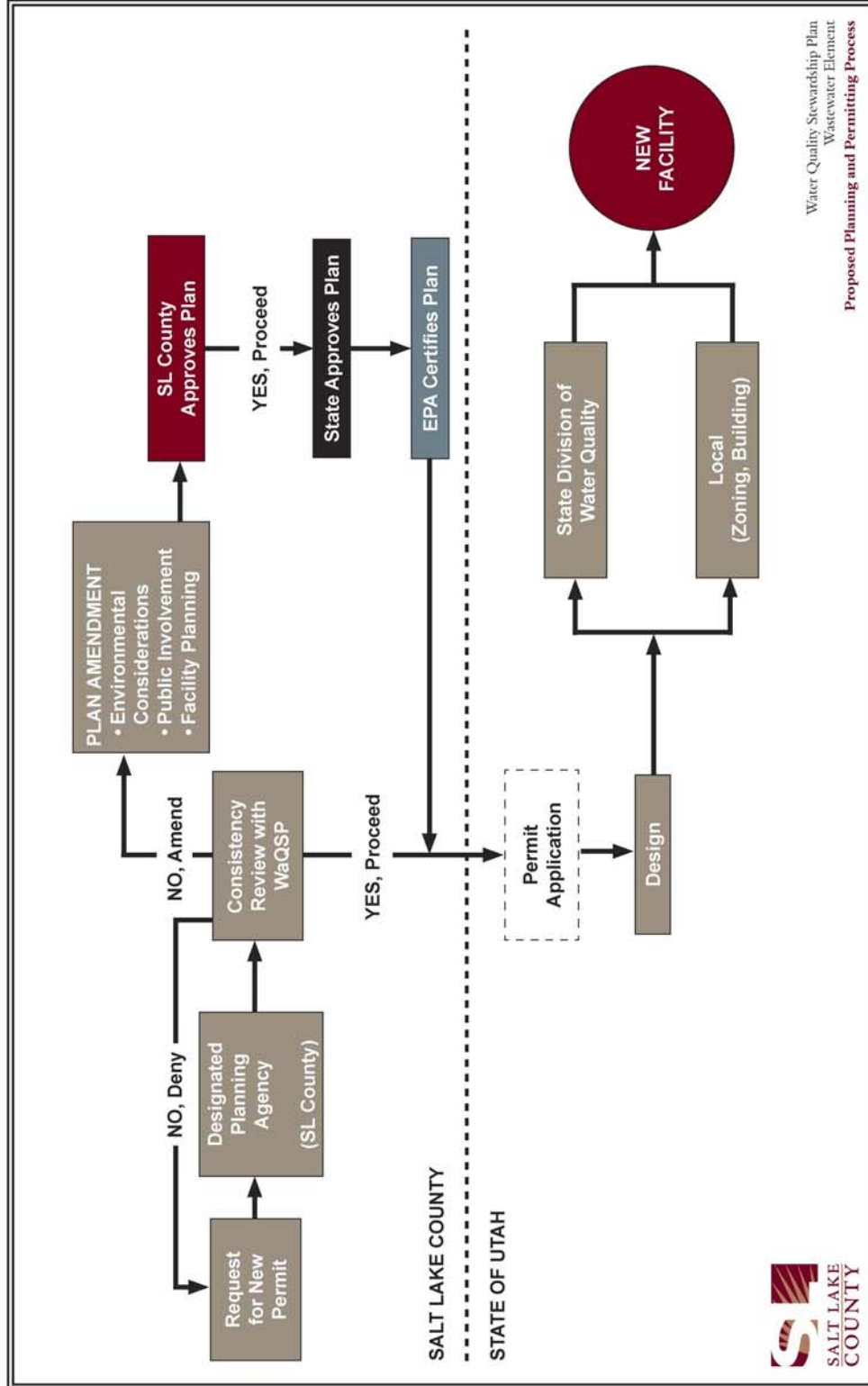


Figure 6.2 WaQSP Involvement in Discharge Permit Process