

1.0 INTRODUCTION

“Plans are only good intentions unless they immediately degenerate into hard work” (Drucker, 1990). With that in mind, Salt Lake County (County) seeks to protect and improve water resources and meet community resource goals in Salt Lake Countywide Watershed through implementation of recommendations that are included in this Water Quality Stewardship Plan (WaQSP). Prior to isolating specific recommendations and implementation activities, it is necessary to review the history of water quality planning and management in the County. Therefore, this chapter: 1) reviews the area-wide water quality management authority, 2) reviews studies and implementation activities that have occurred over the past thirty (30) years, 3) defines the purpose of the WaQSP, 4) reviews guiding principles of the WaQSP planning effort, 5) discusses parallel water quality programs, and 6) defines a WaQSP update schedule.

1.1 BACKGROUND

In the 1970's, Salt Lake County developed an Area-Wide Water Quality Management Plan under the authority of the State of Utah and with the assistance of federal monies. Following Clean Water Act Section 208 guidelines, the plan was “required to propose implementable solutions to area-wide water quality and pollution problems, both from point and non-point sources” (SLCo, 1978). Between 1975 and 1978, the Salt Lake County Planning Commission was the acting Area-Wide Water Quality planning entity. On February 6, 1978, with the completion of the Area-Wide Water Quality Management Plan, Salt Lake County Government was designated the Area-wide Water Quality Planning Agency (APA) by then Utah Governor Scott M. Matheson.

The primary goals outlined in the 1978 Plan were to provide a continuous planning process directed toward restoring and maintaining the chemical,



Aerial Photo of Salt Lake Countywide Watershed



physical and biological integrity of surface waters in Salt Lake County. The Council of Governments (COG), in conjunction with the Salt Lake County Planning Commission, hired staff to conduct water quality planning and subsequently created the Water Quality and Water Pollution Department. The Water Quality and Water Pollution Department functioned as the primary water quality planning authority until 1985, when the Salt Lake County Health Department took over this responsibility. Responsibility was again shifted in 1992 when water quality planning was placed directly under the Salt Lake County Commission. The County Commission retained this responsibility until 1997 when the Public Works Department of Salt Lake County took on the charge of area-wide water quality planning.

1.2 AUTHORITY

The Area-wide Water Quality Planning Agency (APA) 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. Over the last twenty-nine (29) years, Salt Lake County has worked collaboratively with numerous local government and non-profit organizations to monitor, protect, and restore water quality throughout the County. The original Area-Wide Water Quality Management Plan has been the primary guide in these efforts.

1.3 ACCOMPLISHMENTS

The ongoing water quality planning process has resulted in numerous implementation activities. Major flood events in the mid-1980's provided a catalyst for several studies to assess water quality and watershed health in Salt Lake County. Table 1.1 summarizes major studies that were conducted following publication of the 1978 Area-Wide Water Quality Management Plan. Table 1.2 summarizes major water quality implementation activities that have been conducted since the 1978 plan was published.

1.4 PLAN AMENDMENT AND UPDATE

In August of 2005, South Valley Sewer District (SVSD) made a request to amend the Area-Wide Water Quality Management Plan. The plan



Harker's Creek Spring, Coon Creek Sub-Watershed

amendment was submitted to Salt Lake County in 2005 and subsequently approved by the State and EPA in 2007. In the process of re-visiting the 1978 plan, it became apparent that numerous factors such as land use, population projections, jurisdictional boundaries, water quality requirements/impairments, water supply/use, and wastewater treatment processes have changed significantly since the late 1970's. As a result, the Salt Lake County Council allocated funds to develop a Salt Lake Countywide Watershed, Water Quality Stewardship Plan (WaQSP). This Plan updates the existing Area-Wide Water Quality Management Plan and contains essential elements found in the original Management Plan. Additionally, the Plan incorporates guidance from the recently published Handbook for Developing Watershed Plans to Restore and Protect Our Waters (EPA, 2006).

Table 1.1 Major Water Quality Studies (1979—present)

STUDY	YEAR	FOCUS
Updating and consolidation of wastewater treatment facilities	1979—1982	Planning and construction of four wastewater treatment facilities that replaced nine smaller facilities.
Jordan River Fishery	1980	Fishery potential of the Jordan River as affected by wastewater treatment alternatives.
Evaluation of Expected Trophic State and Thermal Stratification in Lampton Reservoir	1980	Potential eutrophication problems in the proposed reservoirs on the Jordan River.
Area-Wide Water Quality Management Plan update	1982	Updating of the 1978 Area-Wide Water Quality Management Plan.
Salt Lake County Area-Wide Water Study	1982	Comprehensive assessment of surface waters, water supplies, use, and availability of future development for culinary purposes.
Trihalomethane Compounds and their Precursors in Salt Lake County	1982—1983	Watershed streams, drinking water treatment plants, and distribution systems were monitored to determine the seasonal watershed precursor load and correlation to trihalomethane formation.
Nationwide Urban Runoff Program	1979 - 1981	Concentrated assessment of stormwater runoff quality and its “shock-load” impacts to the Jordan River and its tributaries. Ultimately, this study resulted in the present 14 county-wide Stormwater Management Plans.
Jordan River Terrestrial Wildlife Inventory	1984	Wildlife inventories in response to the proposed construction of the Lampton and Riverton dams on the Jordan River.
Jordan River Wetland Advance Identification (WAIDS) Study	1984—1986	Approximately 2,000 acres of wetlands along the Jordan River corridor were mapped, with functional values described and prioritized (Cost \$80,000).
Jordan River Channel Stability Evaluation	1986	Identification of erosion problem segments along the Jordan River.
Jordan River Fisheries Evaluation	1987	Updated Jordan River Fishery evaluation based on an electro-shocking inventory of the Jordan River fishery in 1985.



Table 1.1 Major Water Quality Studies (1979—present) - Continued

STUDY	YEAR	FOCUS
Jordan River Wetlands: Macroinvertebrates and Water Quality	1986	Salt Lake City-County Health Department sampled macroinvertebrates (aquatic insects) and water quality in reference wetland basins along the Jordan River corridor.
Jordan River Wetland Wildlife Evaluation	1986	Examined birds and other wildlife in wetland areas along the Jordan River during summer and early autumn, 1986.
Fishery and Macroinvertebrate Studies of the Jordan River in Salt Lake County	1986	Determined the nature and extent of aquatic life in the Jordan River, major limiting factors, and whether further improvements in water quality would result in greater fish diversity.
Jordan River Nonpoint Source Management Plan for Hydrologic Modifications	1988	Identified past flood control activities on the Jordan River as the principal source of de-stabilization of many stream segments.
Albion Basin Wetland Advance Identification Project	1992—1995	Project to identify lower montane and subalpine wetlands in Albion Basin (\$40,000).
Brighton Basin Wetland Advance Identification Project	1997—1999	Inventory of montane and subalpine wetlands within a 7,000 acrea area in Upper Big Cottonwood Creek Sub-Watershed (\$40,000).
The Jordan River Nature Park: A Plan for Urban Wildlife Habitat in Murray, Utah	1990	Detailed site analysis of the Jordan River reach between 4800-5400 South, and addresses existing conditions, planting design utilizing principally native seed and vegetation, implementation phasing, monitoring and management concepts, city and community support.
Jordan River Corridor: Conceptual Master Plan for the Narrows to 11800 South	1993	Comprehensive open space corridor plan for the Jordan River that included the communities of Bluffdale, Draper and Riverton.
Level II Stream Morphology Classification of the Jordan River	1997	An assessment of river stability as well as a review of known river characteristics.

Table 1.2 Water Quality Implementation Efforts (1989—present)

STUDY	YEAR	FOCUS
Wasatch Canyons Stormwater Monitoring Project	1989—1991	Monitoring of stormwater runoff from the Wasatch Canyons (\$45,000).
Jordan River Restoration Demonstration Project (Murray City)	1991—1992	Construction of ecosystem restoration project in Murray City along the Jordan River (\$80,000).
Decker Lake Restoration Project	1993—1996	Construction of Decker Lake for use as a stormwater detention and treatment facility (\$2.0 million).
Jordan River Restoration Projects in Murray, Sandy, West Jordan Rivertion, and South Jordan.	1994—2001	Several ecosystem restoration sites along the Jordan River originally identified as part of the 206 Projects (\$3.45 million).
Alta Fen Pilot Project (EPAs Rocky Mountain Headwaters Initiative)	1994—2002	Construction and operation of a pilot waste treatment facility using adsorption to reduce zinc loads to Little Cottonwood Creek (\$200,000).
Wetland acquisition project along the Jordan River	1993—1997	Purchased approximately 150 acres of wetlands identified in the Jordan River WAIDS (\$1.5 million).
Jordan River Restoration Projects (Army Corps of Engineers Ecosystem Restoration Plans)	2004—2006	Several ecosystem restoration projects along the Jordan River originally identified as part of the 206 Projects (\$1.6 million)



1.5 STAKEHOLDER INVOLVEMENT

The WaQSP was developed over a three (3) year period with the assistance of Salt Lake County staff, Consulting engineers, and the Jordan River Watershed Council (JRWC). The Plan has been reviewed by numerous stakeholders and presented to the public through: meetings with city officials and the JRWC; presentations to the Council of Governments (COG), Conference of Mayors, Township Planning Commissions and Community Councils; public workshops; newsletters development and distribution at approximately 100 locations; outreach at public festivals/gatherings, and a Countywide Watershed Symposium. Additionally, a Blue Ribbon Panel of local water quality and planning experts was assembled to offer advice on the Plan. Refer to acknowledgements for a listing of participants.



Salt Lake Watershed Symposium 2007

1.6 PURPOSE

The purpose of the Water Quality Stewardship Plan (WaQSP) is to provide a framework of goals and policies that will forge water quality stewardship consistent with Congressional, State, and local agency goals, and represent the needs of the population in Salt Lake County. As such, the WaQSP provides a planning, construction, and management process to restore, maintain, and mitigate water quality in Salt Lake County. Additionally, the Plan seeks to institutionalize water quality stewardship of current and future county and municipal governments to accommodate the rapidly changing characteristics of Utah’s most densely populated urban area in a sustainable

manner and assure the health of local waterways in the future.

In order to institutionalize water quality stewardship, the WaQSP:

- Establishes an adaptive management system.
- Integrates existing planning efforts.
- Identifies opportunities for collaboration, restoration, and improvement.
- Assists with the identification of funding sources.

The interrelationship between social, physical, chemical, and biological factors is seen as an essential component in the promotion of long-term sustainability. Thereby, the WaQSP instigates a holistic approach that incorporates riparian health, aquatic habitat, in-stream water quality, and public outreach to protect and improve the ecological health of Salt Lake County’s waterways.

1.7 PRINCIPLES

Guiding principles of the WaQSP include protection of the physical, biological, and chemical components of watershed health. To develop and implement a comprehensive Water Quality Stewardship Plan (WaQSP), Salt Lake County has worked towards the following universal goals: 1) Provide for high quality waters that support the nationwide goals of “fishable” and “swimmable”, 2) Provide leadership and facilitate implementation and coordination of water quality projects with stakeholders, and 3) Develop a dynamic plan and process, with stakeholder support, that will guide Salt Lake County’s water quality improvement efforts.

1.8 CURRENT WATER QUALITY PROGRAMS

Several programs investigating components of the Salt Lake Countywide Watershed have been conducted, or are being conducted, at the present time. While these studies have a different focus than the WaQSP, they are integral components of a successful watershed plan. A brief description of five (5) of these studies is presented below; further details should be obtained from the original documents.

1.8.1 Total Maximum Daily Load (TMDL) Program

In accordance with the Clean Water Act (CWA, 1972), EPA requires states to establish water quality standards designed to protect, restore, and preserve water quality. In conjunction with the water quality standards, states determine beneficial use support of waterbodies for various uses such as drinking water, recreation, and aquatic wildlife. If a waterbody does not meet water quality standards, Section 303(d) of the Clean Water Act requires its inclusion in the “impaired” waters list, commonly referred to as the “303(d) list”. Section 303(d) requires the preparation of a plan to restore water quality in these impaired waters, called a Total Maximum Daily Load (TMDL) study.

A TMDL study includes the calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. Part of the TMDL process includes the development of an implementation strategy to improve water quality in the impaired waterbody.

The water quality of waters in the Salt Lake Countywide Watershed, and the status of TMDL studies, is integral to this Plan and the development of projects to improve water quality. Additional information on impaired waterbodies and TMDLs is provided in Chapter 3, Section 3.13.2., Table 1.3 provides information regarding the status of the TMDLs in the Salt Lake Countywide Watershed.

Little Cottonwood Creek, Segment 2 has the only completed TMDL study in the Salt Lake Countywide Watershed (DWQ, 2002). Dissolved



Lambs Canyon Creek, Upper Parley's Creek Sub-Watershed

zinc concentrations in the upper reaches exceeded water quality standards for the designated beneficial use (cold water fishery). Emigration Creek TMDL is currently under development as well as the Jordan River TMDL. Additionally, water quality studies are ongoing for areas of the Great Salt Lake. Although, not technically within the TMDL program, these efforts are integral to watershed planning in Salt Lake County. Therefore, TMDL findings will be integrated into future WaQSP planning and review process.



Columbus-Rexall Drainage, Little Cottonwood Creek Sub-Watershed



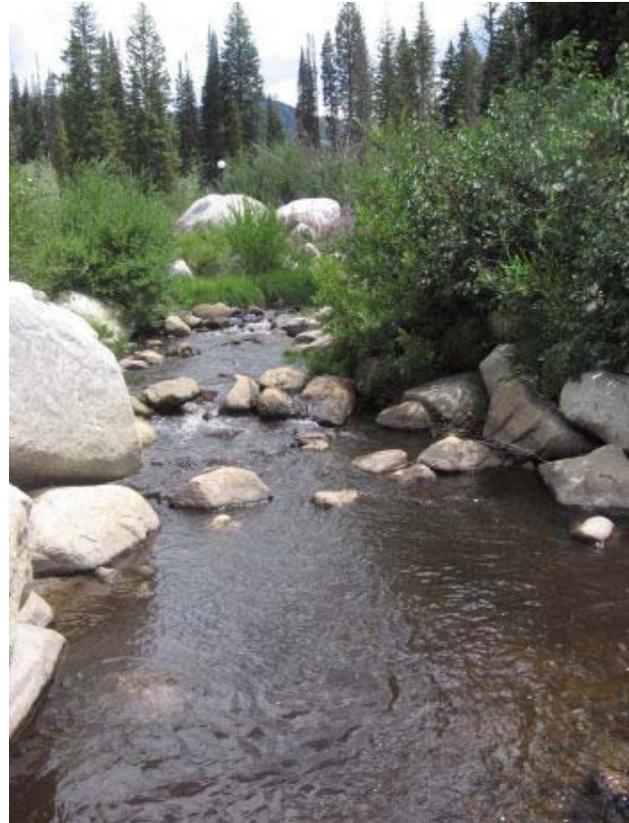
Table 1.3 TMDL Status of Streams/River in the Salt Lake Countywide Watershed

Waterbody	Stream Segment	Cause of Impairment	Integrated Report Category	TMDL Status
Big Cottonwood Creek Segment 1	Big Cottonwood Creek and tributaries from the Jordan River to the Big Cottonwood Water Treatment Plant	Temperature	5A	TMDL needed
Emigration Creek	Emigration Creek and tributaries from Foothill Blvd. to headwaters	E. coli	5A	TMDL in process
Jordan River Segment 1	Jordan River upstream from Farmington Bay and contiguous with Davis Co. line	DO, TDS	5A	TMDL in process
Jordan River Segment 2	Jordan River from Davis Co. line upstream to North Temple	E. coli, DO	5A	TMDL in process
Jordan River Segment 3	Jordan River from North Temple to 2100 South	E. coli	5A	TMDL in process
Jordan River Segment 5	Jordan River from 6400 South to 7800 South	E. coli, Temperature, TDS	5A	TMDL in process
Jordan River Segment 6	Jordan River from 7800 South to Bluffdale	Temperature, TDS	5A	TMDL in process
Jordan River Segment 7	Jordan River from Bluffdale to the Narrows	Temperature, TDS	5A	TMDL in process
Little Cottonwood Creek Segment 1	Little Cottonwood Creek and tributaries from the Jordan River confluence to the Metropolitan Water Treatment Plant	Temperature, TDS	5A	TMDL needed
Little Cottonwood Creek-2	Little Cottonwood Creek from confluence to Water Treatment Plant to headwaters	Zinc	4A	TMDL Approved
Parleys Creek-1	Parleys Creek and tributaries from 1300 East to Mountain Dell Reservoir	Habitat alterations	4C	TMDL not required

1.8.2 Jordan River Corridor Study

Envision Utah, a public and private partnership promoting quality growth in Utah (Envision Utah Website), is currently preparing a study of the Jordan River Corridor that is designed to promote an ideal and regional corridor for the Jordan River. This plan is called Blueprint Jordan River – A Lake to Lake Vision and is currently in the early stages of plan development. The scope for this study involves three (3) phases:

- 1) Scoping and Background Analysis – Meeting with various jurisdictions to get their commitment to participate in the process and get their feedback.
- 2) Develop and Compare Scenarios – Envision Utah will facilitate workshops for stakeholders to participate in the development of a recommended corridor vision. Stakeholders will be providing input on factors such as recreational opportunities, adjacent land use, river trail, land trails, and other relevant issues.
- 3) Developing the Vision – Alternative scenarios will be presented to the public, following which a preferred alternative will be determined. A series of policy goals will be developed for implementation. Recommendations will include an action plan with suggested timing for improvements, and may involve zoning land acquisition, capital improvement plans, parks and recreation planning, etc.



Big Cottonwood Creek, Upper Big Cottonwood Creek Sub-Watershed

Key to WaQSP implementation is the development of Sub-Watershed plans. Blueprint Jordan River will provide a vital public component that will be used when identifying implementation activities for the Jordan River Corridor Sub-Watershed. This process began during the spring of 2007, and is anticipated to be complete by fall of 2008.

1.8.3 Salt Lake City Watershed Study

Salt Lake City originally developed a Watershed Management Plan in 1988 that was designed to protect the city's drinking water source watershed. The boundaries for the Salt Lake City Plan include portions of the Wasatch Mountains, primarily those areas directly contributing to streams for drinking water protection, as opposed to the entire Salt Lake Countywide Watershed.

The Salt Lake City Plan was updated in 1999 (Salt Lake City, 1999) and was designed to identify new issues and concerns that had arisen since the 1988 plan. The purpose of the 1999 plan was to achieve a desired future condition in the Wasatch Canyons



Jordan River, Jordan River Corridor Sub-Watershed





that maintains excellent water quality and continues to strive for superior water quality. This plan emphasized water quality first, and multiple use (e.g. recreation, development etc.) of the watershed second.

Protecting headwater resources is a critical component of preserving overall watershed health. The Salt Lake City watershed planning effort has provided leadership in hydrologically, ecologically, and socially important areas of the Wasatch Mountains for the past 20 years. Coordination with Salt Lake City is crucial to successful implementation of the WaQSP in the Wasatch Mountains.

1.8.4 Jordan River Trails Master Plan

Salt Lake County is preparing a master plan for nearly 50 miles of trail along the Jordan River Corridor. The Master Plan addresses the multi-purpose trail adjacent to the River as well as an urban water trail navigable by small non-motorized watercraft. The Jordan River Trails Master Plan summarizes and addresses solutions to gaps in the trail system, hazards, safety, signage, and access. The Plan also establishes standards for future trail facilities. The project began in late August 2006. A final document was published in June of 2008.

As the Jordan River Parkway Trail is one of the most heavily used recreational systems in the County, this effort represents a key opportunity to identify and install recreational facilities that are compatible with environmental resources.



Park adjacent to the Jordan River, Jordan River Corridor Sub-Watershed



Emigration Canyon, Upper Emigration Creek Sub-Watershed

1.8.5 Salt Lake County Open Space Acquisition

Mayor Peter Corroon and the County Council established the Open Space Trust Fund in 2005 to preserve Salt Lake County's remaining natural and open lands.

In conjunction with the Trust Fund, the Open Space Trust Fund Advisory Committee was created to make recommendations on open space acquisitions. Since 2005, the Committee has leveraged \$2.75 million to acquire and protect more than 2,291 acres of open space valued at \$19.5 million. The Committee is currently processing applications for acquisition of open space that will protect land, expand open space preserves, protect critical watershed, and provide access for recreational purposes.

All acquired open space lands must be located within Salt Lake County and may be preserved, enhanced and restored in order to maintain or improve the natural, scenic, ecological, cultural, hydrological, or geological values of the property. A small portion of acquired lands may extend into another contiguous county. Notably, open space may include manmade structures of historical significance.

To date, two major areas have been purchased with the assistance of the Open Space Trust Fund. Nearly 1,200 acres in Emigration and Corner Canyon Creek sub-watersheds were purchased with the assistance of numerous partners.

One of the major water quality stressors in Salt Lake County is the development of open space. Preserving critical watershed lands is one of the most critical aspects of overall water quality stewardship.

1.9 FUTURE UPDATES

With funding mechanisms in place, it is anticipated that the WaQSP will be updated every six (6) years. Future updates will include all essential components of this initial WaQSP and will accommodate changing physical and socio-political conditions in Salt Lake County. It is anticipated that this Plan will next be updated in the year 2015.



Albion Basin, Upper Little Cottonwood Creek Sub-Watershed



Draper City, Lower Corner Canyon Creek Sub-Watershed



Bingham Creek Sub-Watershed