



State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF WATER QUALITY
Walter L. Baker, P.E.
Director

Water Quality Board
Myron E. Bateman, Chair
Shane E. Pace, Vice-Chair
Clyde L. Bunker
Steven K. Earley
Gregg A. Galecki
Jennifer Grant
Dr. James VanDerslice
Michael D. Luers
Alan Matheson
Walter L. Baker
Executive Secretary

Utah Water Quality Board Meeting
DEQ Board Room 1015
195 N 1950 W
Salt Lake City, UT 84116
August 24, 2016

Work Meeting Begins @ 8:30 a.m.

Financial Assistance 201 Lisa Nelson

Board Meeting Begins @ 9:30 a.m.

AGENDA

- A. **Water Quality Board Meeting – Roll Call**
- B. (Tab 1) **Minutes:**
Approval of Minutes for May 25, 2016 WQ Board Meeting Myron Bateman
- C. **1. Executive Secretary’s Report** Walt Baker
2. Utah Algal Bloom July 2016 Kevin Okleberry & Jodi Gardberg
- D. (Tab 2) **Funding Requests:**
1. Financial Report Emily Cantón
2. Utah Lake Water Quality Studies: Request for 1 Million Dollar Hardship Grant
..... Scott Daly
3. Hinkley Town: Introduction to Request for Hardship Grant for Sewer Improvements
..... Skyler Davies
4. Summit County: Introduction to Request for Hardship Grant for Sewer Construction
..... Beth Wondimu
**5. Spanish Valley: Introduction to Request Hardship Grant/Loan for Construction of
Collection System** Beth Wondimu
6. Kane County Water Conservancy District: Request for Hardship Grant
..... Lisa Nelson
- E. (Tab 3) **Other Business:**
1. Nonpoint Source Pollution Program Annual Report Jim Bowcutt

Next Meeting September 28, 2016
DEQ Board Room 1015
195 N 1950 W
Salt Lake City, UT 84116



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MINUTES
UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY
UTAH WATER QUALITY BOARD
195 N 1950 W
Salt Lake City, UT 84116
June 22, 2016

UTAH WATER QUALITY BOARD MEMBERS PRESENT

Clyde Bunker
Gregg Galecki
Michael Luers
Shane Pace
Steven Earley
Myron Bateman
James VanDerslice
Alan Matheson

Excused: Jennifer Grant

DIVISION OF WATER QUALITY STAFF MEMBERS PRESENT

Walter Baker, Leah Ann Lamb, Jenny Potter, Nicole Froula, Linda Gould, Ally Gagon, Lisa Nelson, Calah Worthen, Beth Wondimu, Skyler Davies, Marsha Case, Jodi Gardberg, Lonnie Shull, Jake VanderLaan, Kim Shelley, Emily Cantón, John Mackey, Jim Bowcutt, Ben Holcomb, Jeff Ostermiller, Mark Stanger, Michela Gladwell, Emilie Flemer.

OTHERS PRESENT

<u>Name</u>	<u>Organization Representing</u>
Amy Christensen	DEQ
Donna Spangler	DEQ
Scott Baird	DEQ
Matt Masziale	Salem City
Randy Brailsford	Mayor Salem City
Jason Broome	Forsgren Association
Nick Patterson	Forsgren Association
Jordan Mathis	Tri County Health
Justin Atkinson	Sunrise Engineering
Keith Goodspeed	Tri County Health
Jesse Stewart	Salt Lake City
Michael McBride	Tri County Health
Ron Winterton	Duchesne County
RoJean Rowley	Mayor Duchesne City
Rob Dubuc	Western Resource Advocates

Chuck Richins
Byron Colton
Aaron Averett
Keith Broadhead
Bruce Ward
Rudd Conover
Jim Olson

Duchesne City
Duchesne City
Tri County Health
Epic Engineering
Salem City/Forsgren
Forsgren Associates
Olson Consulting

Myron Bateman called the Board meeting to order at 9:03 AM and took roll call for the members of the Board and audience.

APPROVAL OF MINUTES OF THE MAY 25, 2016 MEETING

Motion: It was motioned by Mr. Luers to approve the minutes for May 25, 2016 Board meeting. Mr. Pace seconded the motion. The motion was unanimously passed. Mr. Galecki and Mr. VanDerslice abstained from voting.

BOARD BUSINESS

Introduction of New Board Member: Dr. James VanDerslice, Research Associate Professor with the University of Utah, was introduced to board members and staff as the member representative trained in public health.

Attendance Requirements of Water Quality Board Members: Mr. Baker discussed with the board Rule R305-8, Board Member Attendance Requirements: "The purpose of this rule is to establish standards for board members attendance at regularly scheduled board meetings. This rule is authorized by Section 19-1-201(1)(d)(i)(A)."

Board Elections: Annually the board must conduct elections to choose a chair and vice-chair. Mr. Baker conducted the election.

Motion: Following a discussion, a motion was made by Mr. Bunker that Mr. Bateman remains Chair of the Board and Mr. Pace remain as Vice-Chair of the Board. Mr. Earley seconded the motion. The motion was unanimously passed.

EXECUTIVE SECRETARY REPORT

- Mr. Baker discussed with the board that a meeting was held on June 21, 2016 with the Utah Home Builders Association to discuss new requirements for the small MS4 permit program. With urbanization becoming a much bigger deal, it is important that a numeric value on narrative criteria to prevent post-construction storm water run-off be established. This will assist in establishing a consistent framework for all development greater than one acre. Further, developers can receive credit for the design elements that are currently being used in their developments. The implementation date for the new "90th Percentile" provision has been postponed from July 1 to December 1 to allow time for this adjustment. DWQ will meet developers to come up with an agreement on EPA's new requirements.

- Living Rivers has appealed the Executive Director's decision on the PR Springs project, and now it will go to the Utah Court of Appeals. The Court of Appeals will review the record and make a decision. DWQ will keep the board updated on the outcome process.
- The Utah Lake Commission meeting will be held tomorrow June 23, 2016. The Draft 2016 Integrated Report will be one of the topics discussed. Mr. Baker will bring to the board meeting in August the outcome and discussion from this meeting.

FUNDING REQUESTS

Financial Reports: Ms. Cantón updated the Board on the Loan Funds, and Hardship Grant Funds, as seen in the Board Packet on pages 6-8.

Duchesne City Project *Funding Authorization Request:* Ms. Nelson presented to the board staff recommendations for funding Duchesne. The authorization was a grant in the amount of \$400,000 and a loan in the amount of \$2,700,000 for a 30 year term with an interest rate of 0.25% and a design advance of \$206,000. This project will be for an upgrade and rehabilitation of the City's lagoon wastewater treatment plant.

Special Conditions:

- Should Duchesne City obtain additional funding for the project from other sources that result in a substantive change in the affordability determination, the Board reserves the right to revise its authorization.
- Duchesne City must agree to continue to participate annually in the Municipal Wastewater Planning Program (MWPP).
- Duchesne City must complete a Water Conservation and Management Plan.
- Duchesne City must raise monthly sewer rates within twelve months of the Board's authorization sufficient to cover current sewer expenses and must raise rates at least one year prior to the first WQB annual debt payment sufficient to cover debt service coverage for the life of the loan.

Motion: **Following a discussion, a motion was made by Mr. Early to approve the funding request of a \$400,000 grant, a loan for \$2,700,000 with an interest rate of 0.25%, with a term of 30 years, and an advance of \$206,000 to help pay for design and bidding expenses. Authorization includes all special conditions. Mr. Luers seconded the motion. The motion passed with Mr. Bunker opposing the motion.**

Salem City *Introduction Loan Request:* Ms. Nelson presented to the board a request for a loan for Salem City in the amount of \$13,000,000 at 1.15% interest with a term of 20 years. The loan would be used to construct a new mechanical wastewater treatment plant. The plant is necessary to meet the upcoming EPA ammonia standard. The city also requested an advance of \$875,000 to help fund the upfront pre-construction costs.

Motion: **Following a discussion, a motion was made by Mr. Pace to approve the loan for Salem of \$13,000,000 at 1.15% with a term of 20 years, and an advance of \$875,000 to start the upfront pre-construction costs. Mr. Galecki seconded the motion. The motion unanimously passed.**

Tri-County Stonegate *Grant Authorization Request:* Ms. Nelson presented to the board a request for a grant of \$221,000 to address the public health and water quality concerns associated with failing and improperly functioning onsite systems in Stonegate Subdivision.

Special Conditions:

- TriCounty Health Department will obtain at least \$221,000 to fund the balance of the project from either the Permanent Community Impact Board (CIB) or other sources.
- TriCounty Health Department will submit written documentation of easement ownership and maintenance responsibility for the land drain until such time as it is decommissioned.

Motion: Following a discussion, a motion was by Mr. Bunker to disapprove the grant request. Mr. Galecki seconded the motion. The motion failed on a four to three vote.

Motion: Following further discussion another motion was made by Mr. Pace to approve the grant for \$221,000 provided all special conditions are met, and added three additional conditions:

- TriCounty Health Department will verify with staff that the project will be funded by EPA 1st round funds and applied to the Green Project Reserve requirement.
- TriCounty Health Department will obtain \$15,000 as local contribution from the developer, Stonegate Development, and apply those funds to the project.
- TriCounty Health Department will commit to performing routine monitoring water quality at the outfall of the land drain to ensure the land drain is not exacerbating the water quality problem.

Mr. Earley seconded the motion. The motion passed with Mr. Galecki, and Mr. Luers opposing the motion.

OTHER BUSINESS

2016 Integrated Report (IR): Ms. Gardberg presented to the board the 2016 Integrated Report. On June 10, 2016 DWQ released the Draft 2016 IR for a 60 day public comment period. The Draft IR is available on DWQ's website, located here: <http://waterquality.utah.gov/>. Ms. Gardberg, Mr. Ostermiller, Ms. Flemer, Mr. Vander Laan, and Ms. Worthen highlighted the report for the Water Quality Board. A public hearing will be held on July 19, 2016 from 2:00 p.m.-5:00 p.m. at 195 N. 1950 W. Salt Lake City UT 84116 in the DEQ Board Room 101. Myron Bateman will serve as the hearing officer.

State Nonpoint Source Annual Report for FY2016: Mr. Bowcutt will present the State Nonpoint Source Annual Report to the board at the August 24, 2016 board meeting.

To listen to the full recording of the Board meeting go to: <http://www.utah.gov/pmn/index.html>

**Next Meeting August 24, 2016
DEQ Board Room 1015
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Salt Lake City, UT 84116**

Myron Bateman, Chair
Utah Water Quality Board



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UL

MEMORANDUM

TO: Water Quality Board

FROM: Jodi Gardberg, Standards and Technical Services Section Manager

THROUGH: Walter L. Baker P.E.

DATE: August 9, 2016

SUBJECT: Harmful Algal Bloom in Utah Lake and the Jordan River

On July 13, 2016, the Utah Lake State Park contacted the Department of Environmental Quality (DEQ) Division of Water Quality (DWQ) and reported an unusually large algal bloom extending from Provo Bay to the State Park Harbor.

Sampling and analysis confirmed an extensive bloom of cyanobacteria, including a species that has the potential to produce three types of cyanotoxins. Cyanobacteria cell count concentrations in some areas were three to four times the health risk threshold considered dangerous by the World Health Organization (WHO, 1999). As a result, the Utah Department of Health (DOH) and the Utah County Health Department officially closed the lake to the public on July 15, 2016 based on the DOH/DEQ harmful algal bloom guidance (see link below).

Utah Poison Control received hundreds of calls from members of the public who were experiencing symptoms of exposure including gastrointestinal distress, vomiting, headaches, and rashes after recreating in the lake before the closure.

On the same day the lake was closed, aerial reconnaissance showed the bloom moving into the Jordan River. Numerous canals on the east and west side of the valley draw their secondary water from Utah Lake and the Jordan River. DWQ received a flood of phone calls from members of the public who received their secondary water from the Jordan River and wanted to know if it was safe for them to use this water for crop irrigation, livestock watering, and food production. On July 16, 2016, the Department of Agriculture and Food (DAF) issued a strong advisory against using the water for irrigation or livestock watering.

Since July 13, DWQ has collected water samples, with the aid of Salt Lake and Utah County Health Departments and Salt Lake City Metropolitan Water District, on Utah Lake, Jordan River, their tributaries, and canals and analyzed samples for cyanobacteria species identification, cyanobacteria cell-count concentrations and the presence of cyanotoxins. Numerous multi-agency conference calls were conducted to coordinate the effort, discuss results, dispense information to the public, and discuss actions.

With a decrease in algal cell concentrations and confirmation that cyanotoxins were at low-risk or non-detect levels in the Jordan River, "Warning" signs along the river have been changed to "Caution" signs at access points. Likewise, the canals have been reopened and secondary water was deemed safe to use by the DAF for irrigation and livestock watering. On July 28, Utah Lake was re-opened to boating, but not swimming, waterskiing or full-immersion water sports and on August 2, a "Caution" advisory was issued that opened the lake to swimming and other water activities but to avoid areas of scum. DWQ and partners continue to sample weekly on Utah Lake, the Jordan River, its tributaries, and canals and will do so until 2 consecutive samples are low in cyanobacteria cell counts and toxin levels.

Federal, state, and local agencies involved:

- Local: Utah County Health Department, Salt Lake County Health Department, Salt Lake City, Irrigation companies, water districts, other affected municipalities
- State: Utah Department of Environmental Quality (Division of Water Quality and the Planning and Public Affairs Office); Department of Natural Resources (Division of Wildlife Resources, Parks and Recreation, Forestry, Fire and State Lands, Public Information Office); Department of Health; Department of Public Safety
- Federal: US Fish and Wildlife Service, Environmental Protection Agency

DEQ personnel involved: Ben Holcomb, Walt Baker, Erica Gaddis, Jodi Gardberg, Jimi Harris, Jake Vander Laan, Chris Bittner, Jeff Ostermiller, Kevin Okleberry, Scott Daly, Sandy Wingert, Marshall Baillie, Calah Worthen, Suzan Tahir, Dan English, Rob Bird, and Brent Shaw, Ben Brown, Alex Anderson, and Ryan Parker.

OPP personnel involved: Donna Spangler, Christine Osborne, Amy Christensen, Terry Davis, Jodie Swanson, Pam Jacob, and multiple field staff:

- Daily web updates at: <http://deq.utah.gov/locations/U/utahlake/algal-bloom.htm>
- DOH/DEQ guidance used to determine appropriate level of health risk and action for harmful algal blooms:
<http://www.deq.utah.gov/Pollutants/H/harmfulalgalblooms/docs/2015/08Aug/HABGuidanceUDOHHFinal.pdf>

Conditions that can cause harmful algal blooms: high temperatures, ample sunlight and calm conditions in nutrient-rich waterbodies.

LOAN FUNDS FINANCIAL STATUS REPORT

STATE REVOLVING FUND (SRF)	State Fiscal Year 2017	State Fiscal Year 2018	State Fiscal Year 2019
Funds Available			
2014 Capitalization Grant	1,292,466	-	-
2015 Capitalization Grant	4,726,800	-	-
2016 Capitalization Grant	4,507,700	-	-
Principal Forgiveness	4,657,415	-	-
State Match	2,867,354	-	-
SRF - 2nd Round	95,186,399	115,899,167	62,264,553
Interest Earnings at 0.9%	856,678	1,043,093	560,381
Loan Repayments	11,209,356	12,442,293	12,632,187
Total Funds Available	125,304,167	129,384,553	75,457,121
Project Obligations			
Logan City	-	(39,131,000)	(30,000,000)
Loan Authorizations			
Duchesne City	(1,000,000)	(1,000,000)	(700,000)
Moab City	(8,405,000)	(2,000,000)	-
Salem City	-	(10,000,000)	(3,000,000)
Planned Projects			
Nutrient Projects - Various	-	(14,989,000)	(17,671,500)
*San Juan Spanish Valley SSD	-	-	(500,000)
Total Obligations	(9,405,000)	(67,120,000)	(51,871,500)
SRF Unobligated Funds	\$ 115,899,167	\$ 62,264,553	\$ 23,585,621

UTAH WASTEWATER LOAN FUND (UWLF)	State Fiscal Year 2017	State Fiscal Year 2018	State Fiscal Year 2019
Funds Available			
UWLF	\$ 19,319,874	\$ 18,535,405	\$ 23,920,975
Sales Tax Revenue	3,587,500	3,587,500	3,587,500
Loan Repayments	2,610,484	3,156,170	2,837,662
Total Funds Available	25,517,859	25,279,075	30,346,137
General Obligations			
State Match Transfer	(2,867,354)	-	-
DWQ Administrative Expenses	(1,358,100)	(1,358,100)	(1,358,100)
Project Obligations			
Helper City	(1,157,000)	-	-
Murray City	(1,110,000)	-	-
Loan Authorizations			
Eagle Mountain City - White Hills	(490,000)	-	-
Projects Requesting Funding			
None at this time			
Total Obligations	(6,982,454)	(1,358,100)	(1,358,100)
UWLF Unobligated Funds	\$ 18,535,405	\$ 23,920,975	\$ 28,988,037

LOAN FUNDS

FINANCIAL STATUS REPORT

HARDSHIP GRANT FUNDS (HGF)	State Fiscal Year 2017	State Fiscal Year 2018	State Fiscal Year 2019
Funds Available			
Beginning Balance		\$ 768,814	\$ 1,487,516
Federal HGF Beginning Balance	5,244,394	-	-
State HGF Beginning Balance	1,027,496	-	-
Interest Earnings at 0.9%	56,447	6,919	13,388
UWLF Interest Earnings at 0.9%	43,470	41,705	53,822
Hardship Grant Assessments	1,464,583	1,346,351	1,225,888
Interest Payments	310,326	323,727	282,239
Advance Repayments	-	-	-
Total Funds Available	8,146,716	2,487,516	3,062,852
Project Obligations			
Big Plains - Planning Grant	(38,000)	-	-
Duchesne City - Construction Grant	(400,000)	-	-
Eagle Mountain City - White Hills - Construction Grant	(580,000)	-	-
Emigration Sewer Imp Dist - Planning Grant	(60,000)	-	-
Francis City - Construction Grant	(513,000)	-	-
Tooele County - Planning Grant	(95,000)	-	-
Tri-County - Construction Grant	(221,000)	-	-
Wellington City - Planning Advance	(32,000)	-	-
Non-Point Source Project Obligations			
(FY11) Gunnison Irrigation Company	(48,587)	-	-
(FY11) DEQ - Willard Spur Study	(113,326)	-	-
(FY12) Utah Department of Agriculture	(689,758)	-	-
(FY13) DEQ - Great Salt Lake Advisory Council	(260,717)	-	-
(FY14) UACD	(47,394)	-	-
(FY15) DEQ - Ammonia Criteria Study	(70,674)	-	-
(FY15) DEQ - Nitrogen Transformation Study	(123,849)	-	-
(FY16) DEQ - Harmful Algal Bloom Study	(94,000)	-	-
(FY16) DEQ - San Juan River Monitoring	(194,615)	-	-
FY 2012 - Remaining Payments	(23,334)	-	-
FY 2013 - Remaining Payments	(29,714)	-	-
FY 2014 - Remaining Payments	(119,041)	-	-
FY 2015 - Remaining Payments	(295,713)	-	-
FY 2016 Allocation	(715,179)	-	-
FY 2017 Allocation	(1,000,000)	-	-
FY 2018 Allocation	-	(1,000,000)	-
FY 2019 Allocation	-	-	(1,000,000)
Planned Projects			
*DEQ - Utah Lake/Jordan River Algal Bloom - Hardship Grant	(1,000,000)	-	-
*Hinckley Town - Hardship Grant Advance	(160,000)	-	-
*Kane County Water Conservancy Dist - Planning Grant	(53,000)	-	-
*San Juan Spanish Valley - Design Advance/Construction Grant	-	-	(2,000,000)
*Summit County - Construction Grant	(400,000)	-	-
Total Obligations	(7,377,902)	(1,000,000)	(3,000,000)
HGF Unobligated Funds	\$ 768,814	\$ 1,487,516	\$ 62,852

**LOAN FUNDS
FINANCIAL STATUS REPORT
State of Utah
Wastewater Project Assistance Program
Project Priority List**

Ranking	Project Name	Funding Authorized	Total Points	Point Categories			
				Project Need	Potential Improvement	Population Affected	Special Consideration
1	Moab City	x	120	50	24	6	40
2	Salem City	x	108	50	12	6	40
3	White Hills - Eagle Mountain	x	106	40	5	1	60
4	San Juan Spanish Valley SSD		86	25	0	1	60
5	Hinckley Town		82	60	20	2	0
6	TriCounty Health Dept (Stonegate)	x	76	70	5	1	0
7	Duchesne City	x	52	10	0	2	40
8	Summit County		51	10	0	1	40



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MEMORANDUM

TO: Water Quality Board

THROUGH: Walter L. Baker, P.E.

FROM: Scott Daly

DATE: August 8, 2016

SUBJECT: Request for Water Quality Board to approve a hardship grant for a maximum of \$1,000,000 to conduct research for support of Phase 2 of the Utah Lake Water Quality Study

The Division of Water Quality is conducting a two-phased water quality study on Utah Lake to determine the role of excess nutrients on impairments to the aquatic life and recreational beneficial uses and to determine appropriate nutrient levels in the lake. Hardship Grant funding is requested to assist the Division in obtaining contractual assistance to complete Phase 2 tasks defined below following an overview of ongoing Phase 1 efforts.

Phase 1 Overview

DWQ initiated Phase 1 of the Utah Lake study in 2015 in response to nutrient related impairments identified in DWQ's Integrated Report and in response to harmful algal bloom events on Utah Lake in recent years.

Phase 1 of the study consists of five work elements led by DWQ staff and representative stakeholder subcommittees. DWQ anticipates completing the majority of the Phase 1 work elements in 2016 and launching a Phase 2 study to identify appropriate nutrient management scenarios in winter 2016-2017.

Phase 1 work elements and related progress are discussed below with additional information available in the attached work plan document and the DWQ project webpage (<http://deq.utah.gov/locations/U/utahlake/utahlake.htm>):

1) Stakeholder Outreach and Public Involvement

DWQ is committed to a stakeholder and public involvement process to facilitate transparent decision making with engaged stakeholders to help guide decisions and outcomes for the Utah

Lake Water Quality project. The plan is built on the belief that good stakeholder participation in a water quality project involves: 1) informed Water Quality Subgroup members who understand the elements of the scientific principles and regulatory process that underpin DWQ's decisions; 2) purposeful public meetings at appropriate milestones in the project; and 3) transparent and documented public input into DWQ and partners' work products.

DWQ assembled a large group of stakeholders representing a broad range of interests in the watershed including representatives from local municipalities, POTWs, and state and local governments. In addition to this group, DWQ created a subgroup of stakeholders to inform decisions for each of the following work elements: data and information management, beneficial use assessment, nutrient loading, and model development. These subgroups are responsible for defining the lakes' hydrologic and ecological processes, data gaps and future research needs, and alternatives that are politically, financially, and technically feasible.

2) Data and Information Management

This element will consolidate and synthesize all data sources, make it available to stakeholders, and coordinate ongoing and future monitoring activities on Utah Lake. DWQ has met with the Data and Information Management Subgroup to coordinate ongoing monitoring activities and identify data sources available to this study. This information is currently being compiled into a centralized database that will be the foundation for data analysis for the beneficial use assessment, load analysis and modeling work elements.

3) Beneficial Use Assessment

This work element will evaluate all available data in the context of the lake's designated beneficial uses and its existing uses, including the narrative water quality standard. The initial results of this work are reflected in the 2016 Integrated Report. The report is available for public comment on our website through September 9th, 2016 (<http://www.deq.utah.gov/ProgramsServices/programs/water/wqmanagement/assessment/currentIR2016.htm>). Forthcoming work on this element will include an investigation of appropriate recreational use designations to protect recreational users and an assessment of aquatic life use designation to include evaluation of early life stages. DWQ will also evaluate TDS and cyanotoxins to assess support of the agricultural and secondary water uses, respectively.

4) Load Analysis

DWQ is developing a bulk phosphorus load analysis to update estimates developed during the initial study completed in 2008. As requested by the POTW community, the loading estimate would provide more detailed estimates of tributary loading to the lake and more accurately account for wet-weather events and low flow conditions. We intended to apply a load duration curve approach using tributary and Discharge Monitoring Report data to characterize loading for spring runoff, storm runoff, low flow periods, and seasonal load distributions. This work will be completed in the coming months as data become available.

5) Model Selection and Development

DWQ has been working with the modeling subgroup of stakeholders to determine the most appropriate approach for simulating water quality in Utah Lake. DWQ evaluated a number of potential water quality models to determine their ability to simulate water quality dynamics observed in Utah Lake while utilizing current available datasets. The final documentation for this

selection process, detailing the preferred approach, was completed and circulated to the modeling subgroup.

However, we have momentarily delayed work on this effort to determine if a proposal by the University of Utah will meet the needs of DWQ and the Utah Lake stakeholder group. The University of Utah recently received a grant from the EPA to characterize eutrophication in the Jordan River and Utah Lake watersheds in response to climate change. The proposal utilizes the same suite of modeling tools proposed by DWQ and we are working with the University of Utah to develop a collaborative model package to meet the needs of DWQ and stakeholders and to avoid development of competing products.

DWQ will meet with the water quality model stakeholder subgroup in late August to determine the best path for collaboratively completing this work.

Phase 2 Overview

Phase 2, scheduled to begin in early 2017, will further investigate water quality conditions in Utah Lake and will result in one of three alternatives: 1) Total Maximum Daily Load, 2) Site Specific Nutrient Criteria, or 3) Use Attainability Analysis, should it be determined that nutrient concentrations in the lake are being attenuated naturally thus obviating the need for a more extensive nutrient control strategy.

The water quality model developed in Phase 1 will serve as the primary tool to evaluate the water quality and ecological responses expected from a reduction of nutrient inputs and the carp removal effort. This will require a greater understanding of the unique biological, physical, and chemical interactions in the Utah Lake system.

The research questions presented below generalize the areas of research intended for this funding request. These questions will be fully developed by the Utah Lake Stakeholder group at the completion of Phase 1.

What is the ecological influence on water quality conditions in Utah Lake?

- How do carp populations influence water clarity and nutrient cycling?
- Is it feasible and desirable to shift Utah Lake from a turbid water stable state to clear water stable state?
- Do historical nutrient conditions recorded in the paleo record demonstrate a shift in ecological condition?
- What are realistic ecological endpoints for Utah Lake?

What are the characteristics of nutrient loading to Utah Lake

- What are the origin, timing, and magnitude of nutrient loading from point and nonpoint sources in the watershed?
- How will nutrient loading characteristics change with increasing population and urbanization?
- How does biological uptake and nutrient cycling influence tributary nutrient loading seasonally?

What is the role of internal lake processes on nutrient cycling and biological availability?

- What is the influence of phosphorus mineralization on in-lake nutrient concentrations?
- How do the physical properties of Utah Lake (wave action, temperature, turbidity) influence water quality?
- What is the role of the food web on nutrient cycling in Utah Lake?
- How does legacy loading of nutrients from lake bed sediments influence water column nutrients?

What are the appropriate beneficial uses for Utah Lake?

- What is the desired water quality condition of Utah Lake for recreational users?
- Do recreationists change behavior based on water quality conditions?

Can Harmful Algal Blooms (HAB) be predicted in Utah Lake?

- What is the linkage between in-lake nutrients and presence of harmful cyanobacteria?
- What indicators of water quality physical characteristics can be used to predict HABs?
- How can satellite imagery be used in conjunction with in-lake monitoring sondes to monitor and predict blooms?

What are the economic and social costs of HABs in Utah Lake?

- What was the total economic cost associated with the July 2016 HAB event?
- What indicators of water quality physical characteristics can be used to predict HABs?

What are the potential treatment options for HAB events in Utah Lake?

- Are there viable options for mitigating internal nutrient loads?
- Are there economically and environmentally viable treatment options for HABs?

DWQ intends to complete Phase 2 related research by 2019. Following completion of these studies, the results will be incorporated into either a site-specific standard, TMDL or Use Attainability Analysis.

UTAH LAKE WATER QUALITY WORK PLAN 2015-2019



Winter
2016

DWQ's next steps towards improving the water
quality of Utah Lake

Utah Lake Water Quality Work Plan 2015-2019

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BACKGROUND

Utah Lake is a highly productive lake that experiences extensive algal blooms in the late summer and fall (Psomas and SWCA, 2007). Utah Lake is considered hypereutrophic which means it is very nutrient rich and can be characterized by frequent and severe nuisance algal blooms and low transparency. Concerns associated with elevated nutrient concentrations include the growth of nuisance phytoplankton and periphyton, low dissolved oxygen, elevated pH, and the potential for cyanotoxins from blue-green algae.

Utah Lake was listed on Utah's 2004 §303(d) list for exceedances of the state criteria for total dissolved solids (TDS) concentrations and exceedances of the pollution indicator value for total phosphorus. A TMDL study was initiated in 2004, and a validation and evaluation report (Psomas, 2005) and pollutant loading and impairment assessment report (Psomas and SWCA, 2007) were completed. Action on the TMDL was subsequently suspended to evaluate the effects of invasive carp removal by the Division of Wildlife Resources and to better understand the relationship between measured total phosphorus concentrations and observed impairments to the lake's designated beneficial uses.

Since the Utah Lake study was produced, 10 years of focused data collection on the lake and its tributaries will permit the Division of Water Quality to evaluate in more detail water quality effects on beneficial uses, water quality trends, and linkages to the management goals of Utah Lake. The Division of Water Quality (DWQ) has developed this workplan to chart the path forward towards evaluating the impairment on Utah Lake, developing tools that can be used to make water quality related decisions, and incorporate the work of stakeholders and partners also working on Utah Lake.

DWQ will spend 2015-2016 dedicated to confirming and validating impairments in Utah Lake by assessing chemical and biological transformations as reflected in phytoplankton, zooplankton and fish abundance data to determine changes in ecosystem health. With this robust data set, DWQ will produce a water quality model that reflects current advancements in predicting the effects of nutrients in shallow lake systems to help better identify water quality endpoints. Additionally, DWQ is dedicated to understanding the frequency, occurrence and impact of harmful algae blooms (HAB) in Utah Lake.

This document details the steps DWQ will take from 2015 through 2019 to better understand, assess and make informed management decisions to improve the health and function of Utah Lake.

OBJECTIVES

The key questions this workplan is designed to answer the following questions in two phases:

Phase 1:

1. What are the current water quality concerns in Utah Lake? Do the current data reflect historic impairments, or new water quality impairments exist in the lake? What trends do the water quality parameters indicate? Should the water body be delisted from the current TDS and phosphorus listings based on a full assessment of current conditions?
2. What are the connections amongst the water quality parameters and effects on aquatic life? Have water quality changes coincided with changes in fish populations, macroinvertebrate populations, phytoplankton and zooplankton species abundance?
3. Are the current uses of Utah Lake reflected in the current beneficial use of an infrequent primary contact (2B) waterbody? Does the recreational use survey (completed by Utah Lake Commission) support upgrading the Lake from a 2B to a frequent primary contact (2A) use?
4. What is the influence of nutrient loading, from both point and nonpoint sources, in driving the productivity of Utah Lake? How does nutrient loading vary by season and by hydrological condition? What are the current sources of nutrients, and the future expected sources, and how would changes in the nutrients affect water quality conditions of the lake?
5. What is the appropriate management goal for the lake, i.e. should the lake be clear or turbid? Has the lake ever been in a clear state, and if so, is restoration to a clear lake a desirable and achievable goal?
6. What is the quality of water, including nutrients, algae, and organic matter, that is exported from Utah Lake to the Jordan River.

Phase 2:

Following Phase 1, Phase 2 will be informed by data gathered and assessed during Phase 1, including all water quality data collected as well as a beneficial use assessment, a pollutant source and nutrient loading analysis, and a predictive water quality model. Three potential alternatives or a combination thereof for Phase 2 have been identified as A) a TMDL for Utah Lake based on current impairments, B) Site Specific Standards for impairments resulting from natural, un-alterable conditions that preclude attainment of state criteria, and/or C) a Use Attainability Analysis of Utah Lake's designated beneficial uses.

PHASE 1 SCOPE OF WORK

Task 1: Stakeholder Outreach and Public Involvement

DWQ has outlined a public involvement process to communicate current information and research and ensure collaborative decision making with engaged stakeholders to guide next research steps and water quality improvement actions for Utah Lake's future. This plan is built on the belief that good stakeholder participation in a water quality project involves 1) an informed Water Quality Subgroup who understands the elements of the scientific principles and regulatory processes that underpin DWQ's decisions; 2) purposeful public meetings at appropriate milestones in the project, and 3) transparent and documented public input into DWQ and partners' work products.

Water Quality Subgroup

Utah Lake Water Quality Work Plan 2015-2019

The stakeholder community interested in the outcome of this workplan for Utah Lake is broad. The experience of stakeholders responsible for managing Utah Lake will be critical in identifying data gaps, understanding the watershed and lake's hydrologic and ecological processes, and developing a path forward that is politically, financially, and technically feasible. DWQ has initiated a Utah Lake Water Quality Subgroup, as defined in Table 1. To be added to this list, please contact DWQ directly.

Table 1. Utah Lake Water Quality Subgroup

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Ann Merrill	Department of Natural Resources- Water Resources	annmerrill@utah.gov
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The Water Quality Subgroup will contribute to the study in the following ways:

- 1) All technical documents and analyses will be provided to the Water Quality Subgroup before being finalized. Comments from the Water Quality Subgroup will be accepted in written form and DWQ will provide a comment response summary for each document.
- 2) Utah DWQ staff will present analytical methods and findings to the Water Quality Subgroup before being finalized. Meetings will be scheduled at key milestones in the Utah Lake water quality study. These milestones are included in Figure 2 at the end of this document.
- 3) Independent studies conducted by members of the Water Quality Subgroup may be incorporated into this work plan to provide a comprehensive understanding of Utah Lake water quality.

Stakeholder Consultation

DWQ will engage with stakeholder groups throughout the implementation of this workplan. In addition to the Utah Lake Commission, DWQ will consult with the Utah Lake POTW consortium when important documents and decisions arise. DWQ anticipates that through engaging the Utah Lake Commission, involved stakeholders can request additional engagement with their respective agency or group.

Utah Lake Coordinator

DWQ supports the creation of a local watershed coordinator position for the Utah Lake watershed. DWQ recognizes the need for ensuring dedicated local representation and will explore options with partners to recruit and support a watershed coordinator position for the Utah Lake watershed in 2016.

Public Meetings

Public meetings will be the primary venue for the public to learn about the project, ask questions, and contribute knowledge. DWQ will organize and facilitate public meetings to be scheduled at key project milestones. Materials for public meetings will be based on DWQ work products for each milestone. Each public meeting will begin with a presentation of completed work followed by a presentation of next steps for the project. The meetings will conclude with an open discussion of the completed work and the methods proposed. The overall objective of each meeting is to present the progress and future direction of the project in an easy-to-understand format, while also soliciting ideas, data, information, and opinions from the public and stakeholders.

DWQ will use the Utah Lake Commission's comprehensive membership database as the main resource for inviting participants to these meetings. We will also engage board members from each of the POTWs surrounding Utah Lake to participate. Additionally, DWQ will use the Provo River Watershed Council's listserv and the Central Utah Water Conservancy District's listserv to publicize upcoming meetings at least one month in advance. A calendar of events related to Utah Lake Water Quality can be accessed at: <http://www.deq.utah.gov/Divisions/dwq/water-quality-calendar.htm>.

Deliverables:

1. Utah Lake Symposium/Workshop

2. Presentations to Utah Lake Water Quality Subgroup at key project milestones (estimated 1 presentation every 4-6 months once workshop begins)
3. Up to 2 public meetings/year
4. Meetings with key stakeholder groups as requested or necessary.
5. Comment response summary for all work products produced by DWQ and reviewed by the Utah Lake Water Quality Subgroup (Table 1).

Task 2: Data and Information Management

Various agencies and organizations have been monitoring the ecology and water quality of Utah Lake and its tributaries for many years. DWQ will compile all available data from partners and other groups into a data management system that can be used for the remainder of this workplan and by others for their own analyses. DWQ anticipates the development of four separate databases, one each for chemical data, hydrologic data, biological data, and physical data.

Data acquisition

Table 2 summarizes the sources of data that DWQ intends to acquire and compile for use in the Utah Lake water quality study. DWQ welcomes the submission of additional datasets provided by academic institutions, other agencies, and partners.

Table 2. Summary of data to be used in Utah Lake water quality study. . Other data will be used as deemed useful and important.

Data Type	Uses in Utah Lake Water Quality Study	Temporal Extent	Spatial Extent	Source
Water Chemistry Database				
Water Chemistry	Model Calibration/validation, load analysis, beneficial use assessment	1990-2012 and 1995-2014 (Number sites sampled during each month): 1995 (May, 1; July, 4; Sep, 3), 1997 (Jul, 5; Sep, 5), 1999 (Jul, 7; Aug, 5); 2001 (Jul, 5; Sep, 5), 2002 (Jun, 5; Aug, 5, Oct, 2), 2003 (Jul, 5), 2004 (Jun, 5; Jul, 6; Sep, 1), 2005 (Jun, 6; Jul, 6; Aug, 2; Sep, 5), 2006 (May, 6; Jun, 6; Jul, 6; Sep, 6), 2007 (Jun, 6; Jul, 6; Aug, 6; Sep, 5), 2008 (Jul, 7; Aug, 7; Sep, 8), 2009 (Jun, 8; Jul, 8; Aug, 8; Sep, 8; Oct, 8), 2010 (Jun, 8; Jul, 8; Aug, 8; Sep, 1), 2011 (Aug, 8; Sep, 8; Oct, 8), 2012 (May, 8; Jul, 8; Aug, 8; Sep, 8), 2013 (Jun, 7; Jul, 8; Sep, 8; Oct, 5), 2014 (Jun, 8; Jul, 7; Sep, 6; Nov, 6)	4917310, 4917320, 4917370, 4917390, 4917450, 4917500, 4917520, 4917600, 4917770	DWQ (Lenora Sullivan) * See Attachment 1 for more information.
			4994790, 4994950, 4994960, 4995038, 4995040, 4995120, 4995200, 4995250, 4995260, 4995410, 4995420, 4995440, 4995580, 4996000, 4996020, 4996030, 4996100, 4996190, 4996280, 4996310, 4996410, 4996550, 4996560, 4996570, 4996690, 5919850, 5919860	CUWCD and Payson, Salem, Spanish Fork, Springville, Provo WWTP
Sediment Core Data	Historic conditions of Utah Lake. Indicates whether it is possible to head towards a clear state or a turbid state.	Once	3 sites at Utah Lake Outlet (a, b, c). 10 more samples collected but not analyzed.	UVU (Eddy Cadet)
Hydrology Database				

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Hydrology	Model calibration/validation, load analysis	Varied	09282000, 09312600, 09312700, 10147000, 10147500, 10148200, 10148400, 10148500, 10148510, 10149000, 10149400, 10149500, 10150000, 10150500, 10152000, 10152001, 10152500, 10152700, 10153000, 10153100, 10160800, 10161000, 10161500, 10162850, 10163000, 10164500, 10165500, 10166000, 10166430, 10166605	USGS *See Attachment 2 for more information.
Lake Level	Lake volume/area to determine relative biomass and density changes with carp removal. Also needed to better understand how physical changes in the structure and size of the lake (as well as drought) may relate to water quality and zooplankton.	Beginning in about the last part of April, 2014, daily readings are based on the CUWCD gage reading each morning.	Utah Lake Storage Content, Utah Lake Storage Content (Gage Reading)	Utah Division of Water Rights (Ben Anderson) http://www.waterrights.utah.gov/cgi-bin/dvrtview.exe?Modinfo=StationView&STATION_ID=503&RECORD_YEAR=2015
High Frequency Database				
Continuous sonde data in lakes (DO, pH, Temp, conductivity)	Beneficial use assessment	15 minute increments. September 2015- November 2015	4917310 (UTAH LAKE 0.5 MI W OF GENEVA DISCHARGE #15-A), 4917770 (UTAH LAKE OUTSIDE ENTRANCE TO PROVO BAY), 4917710 (UTAH LAKE 1 MI NE OF LINCOLN POINT #03)	DWQ (Suzan Tahir)

Continuous sonde data in lakes (DO, pH, Temp, conductivity)	Beneficial use assessment	30 minute intervals. 8/30/2005-9/7/2005	Orem (near Powell Slough), Near Timpanogos WWTP Outlet (deep and shallow), Jordan River outlet (deep), Long Bar, Provo Bay (deep), Spanish Fork Delta	DWQ (Suzan Tahir)
Continuous sonde data in lakes (DO, pH, Temp, conductivity)	Beneficial use assessment	30 minute intervals. 9/18/2007-9/21/2007	Utah Lake Lincoln Beach, Provo Bay, Provo Bay Outlet, West of Timpanogos	DWQ (Suzan Tahir)
Continuous sonde data in lakes (DO, pH, Temp, conductivity)	Beneficial use assessment	30 minute intervals. 5/26/2008-6/13/2008	Jordan Outlet	DWQ (Suzan Tahir)
Biology Database				
Phytoplankton	Beneficial use assessment. Assess with chemical water quality to determine changes in ecosystem health.	1995-2014 (Number sites sampled during each month): 1995 (Sep, 1), 1997 (Sep, 1), 1999 (Aug, 1); 2001 (Sep, 4), 2005 (Sep, 4), 2006 (Sep, 3), 2007 (Aug, 1; Sep, 1), 2008 (Jun, 4, Jul, 7; Aug, 7; Sep, 7), 2009 (Jun, 7; Jul, 8; Aug, 7; Oct, 8), 2010 (Jun, 8; Jul, 8; Aug, 8;), 2011 (Aug, 8; Sep, 8; Oct, 8), 2012 (May, 8; Jul, 8; Aug. 1; Sep, 8)		USU (Jereme Gaeta)
Phytoplankton	Beneficial use assessment. Assess with chemical water quality to determine changes in ecosystem health.	Number of samples/year: 2005 (4), 2006 (5), 2007 (2), 2008 (23), 2009 (16), 2010 (24), 2011 (61), 2012 (25), 2013 (2)	Deer Creek Reservoir, Provo River, Jordanelle Reservoir, Utah Lake	Rushforth Phycology, DWQ (Suzan Tahir)

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Zooplankton	Assess with chemical water quality to determine changes in ecosystem health	1995 (Jun-Oct), 1996 (Jun-Sep), 1997 (May-Oct), 1998 (Jun, Jul, Sep), 2002 (Jun-Dec), 2003 (Jan, Feb, Apr-Oct), 2004 (Feb-Apr, Jun-Sep, Nov), 2005 (Feb-Oct), 2008 (Sep-Nov), 2009 (Apr-Nov), 2010 (May-Oct), 2011 (Sep-Nov), 2012 (May, Jun), 2013 (May-Oct), 2014 (May, Jun, Aug-Oct), 2015 (May-Oct)	2002-2005, 2008-2010: 6 locations within Provo Bay. 2011-2015: 9 locations (each including a pelagic and littoral sampling station) within Utah Lake (as USU labels them 1E, 1W, 2E, 2W, 3E, 3W, 4E, 4W and PB)	USU *See Attachment 3 for more information.
Fish data	Overall species abundance			
Carp removal	Biomass reduction			June Sucker Recovery Implementation Program (Mike Mills)

Data Analysis

1. DWQ will identify, compile, review, and analyze data for Utah Lake and its tributaries from 1990 to present.
2. Statistical analyses of these data will be executed specific to potential changes in, and interactions among the water quality, phytoplankton, zooplankton and other biological and chemical ecosystem components. Statistical tests will be applied to determine what changes among variables are associated with changes in data and how they interrelate. A seasonal analysis will also be completed to identify seasonal variation in the pollutants and biological populations of concern and to explore whether multivariate mixed effects approaches (both linear and non-linear) may be more robust and appropriate approaches to detect changes not only among years, but temporal and seasonal.
3. Analyses will be conducted to evaluate possible water quality parameter trends.
4. Spatial or temporal gaps in the data will be identified to assess if any additional sampling that may be required and supplemental monitoring recommended. We also wish to determine relationships among water quality, zooplankton and phytoplankton with higher trophic levels (macroinvertebrates and fishes) in addition to anthropogenic drivers of change including carp removal and drought (lake level).

Database Development

1. In collaboration with stakeholders, DWQ will insure that all data collected by outside researchers, agencies and entities is accounted for and stored at a central location within DWQ. DWQ will review all relevant reports and literature to develop a synthesis document that summarizes relevant aspects of the ecosystem, water quality, fish management, and recreation. Other resources that should be incorporated into the synthesis should be provided to DWQ in fall 2015.
2. DWQ will gather all currently available data and house it in a DWQ Utah Lake Water Quality Management Database. This database will include past water chemistry, flow data, high frequency data, zooplankton, phytoplankton, fish and macroinvertebrate studies.
3. DWQ will use Excel to organize and maintain the database.

Online Database

DWQ will establish and utilize a website specific to Utah Lake water quality. It is found at:

<http://www.deq.utah.gov/locations/U/utahlake/utahlake.htm>

This page will be the central online location for items relating to the Utah Lake workplan, relevant data and literature, document drafts and public announcements and meetings. A link to the Excel database will be included with all relevant Utah Lake data.

Literature Review

DWQ will compile and review all available and relevant reports, studies and investigations completed for Utah Lake, its tributaries and watershed and develop a synthesis document. Included in this literature review will be a thorough evaluation of LaVere Merritt's paper "Utah Lake: A Few Considerations" (March, 2014) and a formal written response.

Deliverables:

1. The creation of Excel databases that includes all available water chemistry, flow data, high frequency data, zooplankton, phytoplankton, fish and macroinvertebrate studies for Utah Lake and tributaries.
2. A compilation and summary of all reports, studies and investigations relevant to Utah Lake and its tributaries. Summary and review of LaVere Merritt's 2014 paper.
3. Data gap analysis and summary of additional monitoring needs (determined as part of the Utah Lake Fall 2015 workshop and model development data gap analysis).

Actions/Decisions that will be informed:

A robust and complete data set will provide a solid foundation on which to build the predictive water quality model and determine trends in conditions over time. The model will also help identify gaps in data that will be collected in 2016. Additionally, it will also allow for an assessment of impairment, delisting and possible refinement of assessment unit areas.

A data gap analysis will be done to inform what is necessary to sample in summer 2016.

Combined with Task 3, these data analyses will inform the possible upgrading of the recreational use class designation to 2A (protected for frequent primary contact recreation where there is a high likelihood of ingestion of water or a high degree of bodily contact with the water. Examples include, but are not limited to, swimming, rafting, kayaking, diving, and water skiing.)

A thorough data analysis will also help to determine if Utah Lake is experiencing an ecosystem shift from a turbid state, dominated by free-floating algae that reduce water clarity and limits rooted aquatic vegetation growth to a clear water state, dominated by rooted aquatic plants that reduce resuspension of bottom sediments and potentially phosphorus uptake by cyanobacteria.

Task 3: Beneficial Use Assessment

Utah Lake is protected for the following designated uses:

- 2B** Protected for infrequent primary contact recreation such as boating, wading, or similar uses.
- 3B** Protected for warm water species of game fish, including the necessary aquatic organisms in their food chain.
- 3D** Protected for other aquatic wildlife.

4 Protected for agricultural uses including irrigation of crops and stock watering.

Utah Lake was listed on Utah's 2002 303(d) list for exceedances of the state water quality pollution indicator threshold value for total phosphorus (TP) of 0.025 mg/L, and total dissolved solids (TDS) for irrigation and stock watering of 1,200 mg/L and 2,000 mg/L respectively (Utah Administrative Code R317-2-14). The warm water fishery beneficial use of the lake is identified as being impaired due to excess TP and blue-green algal dominance and the agricultural beneficial use is listed as impaired due to high concentrations of TDS.

Water quality data will be evaluated using DWQ's current assessment methods to determine whether the lake is violating Utah's numeric or narrative standards. In addition, supplementary data and information will be used to evaluate each use in Utah Lake.

Aquatic Life

DWQ will analyze temperature, DO, pH, toxic metals, phytoplankton and zooplankton data, and trophic state grab sample data along with available high frequency data to evaluate if requirements for warm water aquatic species and organisms are currently being supported.

Recreation

In 2013, the Utah Lake Commission conducted a survey on the uses of Utah Lake. The data from this report will characterize the current recreational uses in Utah Lake, and whether the 2B beneficial use classification for infrequent contact such as wading and boating sufficiently classifies the lake's uses, or if there needs to be a use class change to a 2A beneficial use classification for frequent contact such as swimming.

Additionally, an evaluation of chlorophyll a, phytoplankton and cyanobacteria data will be performed to determine if nuisance algae and harmful algae blooms have direct and indirect effects on recreational uses or public perceptions of the uses of the lake.

Secondary Water Uses

Utah Lake water is utilized extensively for agricultural and secondary irrigation, both from within the watershed and from its outflow into the Jordan River. An evaluation of water quality data associated with TDS and cyanotoxins will be conducted to assess if irrigation and stockwatering uses are currently being protected.

Deliverables:

1. Beneficial use assessment report that addresses aquatic life, recreational use and agricultural water uses.

Actions/Decisions that will be informed:

1. The assessment of data will determine whether current impairments to designated beneficial uses occur, and whether the waterbody should remain listed on the State's 303(d) list.
2. The beneficial use assessment will inform whether Utah Lake should be split into more than one assessment unit for purposes of standards development, TMDLs, and impairment determinations.
3. The beneficial use assessment will inform the public health advisory process for Harmful Algae Blooms (HAB) for faster sampling response and communications to the public when HABs re-occur.

Task 4: Source and Nutrient Loading Analysis

A substantial amount of new data has been collected since the 2007 analysis on nutrient loading conducted by PSOMAS. DWQ will compile, review, and analyze this new data and update the loading analysis to incorporate a broader set of hydrologic conditions and nonpoint sources. The revised analysis will be based on the most recent water quality and hydrologic data available for tributaries to Utah Lake, as well as DMR data available for each of the POTWs. DWQ will calculate the important statistical measures such as minimum and maximum values, mean, median, and variance. Seasonal and trend analyses will also be completed to identify seasonal variation in the pollutants of concern and long term water quality trends.

The following four hydrologic conditions will be defined for tributaries to Utah Lake using USGS continuous flow gage data and precipitation data from Utah Lake's watershed:

- Spring melt and runoff
- Storm events (summer and fall)
- Rain on snow events
- Base flow

Median water quality concentrations for each tributary will be calculated separately for each of the four hydrologic periods. Median water quality data associated with each hydrologic condition will be paired with daily flow values for each tributary to develop a more refined loading analysis for phosphorus and nitrogen into Utah Lake. These load analyses will also be a primary input to the Utah Lake water quality model (see Task 5). In addition to tributary loads, data for wastewater treatment plants that discharge into Utah Lake or its tributaries will be used to parse the proportion of the total load that is associated with point source discharges. Finally, work is under way to develop a method to estimate the nutrient load that runs off directly to the lake, rather than through a tributary or wastewater discharge.

Deliverables:

1. The water and nutrient budget completed for Task 4 will be used to support the model build and calibration (Task 5), when possible.
2. Updated water budget and flow data for Utah Lake and tributaries. Written characterization and evaluation of the water quality and flow data for the tributaries within the watershed, as well as calculated current loads specific to distinct hydrologic events (spring runoff, storms and dry weather) from the tributaries and permitted discharges using available water quality, hydrologic, and meteorological data. Water inflows will be estimated using empirical models for several small ungauged tributaries.
3. Loading analysis to identify and quantify the watershed sources of pollutants.
4. Calculate pollutant loads apportioned to each source
5. Estimate a watershed-wide water budget.
6. Summarize load by season and hydrologic condition including spring runoff, wet weather, and dry weather

Actions/Decisions that will be informed:

1. The assessment of data will help determine whether there are current impairments to designated beneficial uses and whether the waterbody should remain listed on the State's 303(d) list.
2. Data input to build the predictive water quality model.
3. Form the basis of pollutant load allocations
4. Working alongside stakeholders, identify additional monitoring or future studies.

5. Identify hot spots of pollutant loading that need to be addressed through regulatory or voluntary programs.

Task 5: Model Development

DWQ will develop a water quality model for Utah Lake to evaluate the relationship between nutrients and degradation of beneficial uses, specifically nuisance algae, and to evaluate the effects of alternative nutrient loading scenarios. DWQ will work with stakeholders to select the most appropriate model to simulate nutrient dynamics within Utah Lake. Examples of models that will be considered include the Water Quality Simulation Program (WASP) supported by EPA (Wool et al., 2005) and CE-QUAL-W2 (Cole and Wells, 2003). The need for additional research and experiential work where it may benefit this study will also be explored. DWQ will work in partnership with stakeholders to determine prioritization and funding of these studies. Such studies could include long term placement of data sondes to assess diurnal and seasonal fluctuations and recommendations for establishing nutrient targets in Utah Lake.

Following is a list of key processes that would ideally be represented in a nutrient model of Utah Lake:

- Mixing
 - a. Vertically fully mixed
 - b. Lateral mixing between bays/open water
- Nutrient cycle
 - a. P cycle
 - b. N cycle
 - c. Si cycle
- Phosphorus internal loading dynamics
 - a. Adsorption/desorption
 - b. Settling/resuspension
 - c. Hysteresis associated with P load reduction
 - d. Phosphorus outputs to receiving waters (Jordan River)
- DO
 - a. Decomposition of organic matter
 - b. Diel fluctuation due to photosynthesis and respiration
- pH
 - a. Inorganic carbon
 - b. Diel fluctuation due to photosynthesis
- Harmful algal bloom (HAB) formation
 - a. Diatoms
 - b. Green algae
 - c. Blue-green algae (cyanobacteria)
 - d. Algal succession from greens to blue-greens
- Transition from turbid state to clear state, and vice versa
 - a. Transparency
 - b. Phytoplankton
 - c. Macrophytes
- Food web dynamics

- a. Zooplankton
- b. Benthivorous fish (carp)
- c. Biodiversity/June Sucker protection

Deliverables:

1. *Utah Lake Model Selection Technical Memorandum* summarizing available data, models considered, selection criteria, evaluation results, and recommended model.
2. *Utah Lake Model Development and Calibration Report* with model build and calibration methods and results, including recommendations for supplemental data collection to support model calibration and validation.
3. Validated model to identify appropriate water quality endpoints for various parameters of concern, including nutrients and TDS.
4. *Nutrient Scenario Technical Memorandum* with methods and results of alternative nutrient management scenario analysis including effects on key lake parameters including nutrient concentrations, algal concentrations, and algal composition. The model will be used to simulate nutrient management scenarios including reduced nutrient loading from the tributary watershed and POTWs. Nutrient management scenarios could be incorporated into a possible future TMDL.

These documents will include the following specifics:

1. Update Water Quality Model
 - a. Model selection and scoping with stakeholders
 - b. Compilation of existing data
 - c. Data gap analysis
 - d. Model build
 - e. Model calibration and validation
 - f. Model calibration report
 - g. Nutrient scenario analysis
 - h. Summary report
2. Update Water Budget and flow data: Gather all existing information on inflows and outflows on Utah Lake from 2003 to present.
 - a. Pollutant load analysis
 - b. Experimental work
 - c. Additional monitoring
 - d. Assess if Utah Lake is experiencing an ecosystem shift as a result of Carp removal efforts

An assessment of whether additional experimental work and data collection is necessary will be informed by the results of the load analysis (Task 4), data compilation (Task 2) and the model development associated with this Task 5.

Actions/Decisions that will be informed:

1. Water quality endpoints for Utah Lake that would inform necessary nutrient reductions.
2. Determine inflows, outflows, influence of evaporation, discharges and effects on the Jordan River.
3. Loading analysis results will be used to identify management strategies for addressing existing and future water quality concerns resulting from human activities. The results will be used to indicate problem areas or 'hot spots' under existing and future land use conditions.

4. Experimental work will help to answer questions that current data or modeling may not be able to assess.
5. DWQ is developing an assessment methodology for assessing high frequency and continuous data sets. A broader sample set will allow a more comprehensive data analysis.
6. End goals for realistic expectations for Utah Lake will be determined.

PHASE 2 SCOPE OF WORK

After completing gathering and assessing data during Phase 1, a beneficial use assessment, a source and nutrient loading analysis and developing a nutrient model, decisions for Phase 2 will be informed. Three alternatives in Phase 2 have been identified as A) a TMDL for Utah Lake based on potential current impairments, B) Site Specific Standards for Utah Lake if impairments indicate this alternative is best or C) a Use Attainability Analysis for different uses identified for Utah Lake. Phase 1 will also inform additional experimental work and data collection in Phase 2.

Alternative A: TMDL for Utah Lake

If confirmed impairments on Utah Lake are identified, there would be cause to initiate a TMDL (Total Maximum Daily Load). A TMDL identifies the total pollutant loading that a waterbody can receive and still meet water quality standards and/or support its designated beneficial uses, and specifies a pollutant allocation to specific point and nonpoint sources. TMDLs account for all the sources of a pollutant, including: discharges from wastewater treatment facilities; runoff from homes, agriculture, streets or highways; and atmospheric deposition. In addition to accounting for past and current activities, TMDLs must consider future growth that may increase pollutant loads.

Tasks:

1. TMDL Development with stakeholder involvement
 - a. Determination of the pollutant(s) of concern.
 - b. Calculation of the lake's assimilative capacity.
 - c. Quantification of the pollutant sources to the lake.
 - d. Predictive analysis of pollution in the lake and determination of total allowable pollutant load.
 - e. Allocation (with a margin of safety) of the allowable pollutant load among the different sources in a manner that water quality standards and beneficial uses are supported.
2. Possible Off-ramp to Technology Based Phosphorus Effluent Limits (TBPEL)

Deliverables:

1. Approved TMDL for Utah Lake.

Actions/Decisions that will be informed:

1. Nonpoint load allocations and implementation strategies; point-source waste load allocations and permit limits

Alternative B: Site Specific Standards for Utah Lake

In some locations, the nationally recommended aquatic life criteria may be considered under- or overprotective if the species in a waterbody have different sensitivities than those reflected in the national criteria data set. For this reason, site specific criteria may be developed to address such conditions.

Site specific standards may be established should natural, un-alterable conditions in Utah Lake preclude attainment of state criteria. Site specific standards provide a level of protection to their respective designated beneficial uses in a specific waterbody by taking into account the biological, chemical and physical conditions at the site.

Tasks:

1. Define the site boundaries.
2. Determine the effect of biological, physical, or chemical characteristics on sensitivity or bioavailability and toxicity.
3. Calculate numerical criteria by applying the recalculation procedure, the water-effect ratio procedure, or the resident species procedure.
4. Possible Off-ramp to Technology Based Phosphorus Effluent Limits (TBPEL)

Deliverables:

1. Site specific standard approved by EPA

Actions/Decisions that will be informed:

1. If impairment is confirmed, a TMDL may not be needed and a site specific standard could be established.

Alternative C: Use Attainability Analysis

Waters must be protected for the most sensitive of their uses. The first part of the Use Attainability process is to determine what uses exist for each water body segment (as to be performed in Phase 1, Task 3 in the Beneficial Use Assessment.) Upon this assessment, the most sensitive use, that which requires the most stringent water quality criteria, must be acknowledged as a designated use and therefore must be protected. Uses that currently exist, or have existed since November 25, 1975, cannot be removed or downgraded.

A Use Attainability Analysis (UAA) reviews and potentially modifies a waterbody's designated uses, when the uses have not existed since 1975 or are un-attainable. It is a scientifically based assessment of the beneficial uses that a water body could support, given reasonable effluent limits and implementation of best management practices. If the existing uses have associated criteria that are less stringent than the designated uses, then the next step is to determine if the designated uses are attainable if all best management practices and effluent limits are in place and effective. If the designated use is shown to be unattainable, the final step is to determine what the highest attainable use would be if all practices and effluent limits were in place. This process constitutes the body of the UAA and is followed by the agency's rulemaking process to change the designated use(s). These designations are reviewed every three years to determine if the designation is still appropriate.

Tasks:

1. Determine if a Use Attainability Analysis (UAA) is appropriate for Utah Lake. A UAA considers the physical, chemical, biological, and economic use removal criteria described in EPA's water quality

standards regulation (40 CFR 131.10(g)(1)-(6)). Under 40 CFR 131.10(g) states may remove a designated use which is not an existing use, as defined in § 131.3, or establish sub-categories of a use if the State can demonstrate that attaining the designated use is not feasible because:

- a. Naturally occurring pollutant concentrations prevent the attainment of the use; or
- b. Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met; or
- c. Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or
- d. Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use; or
- e. Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses; or
- f. Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact.

2. Possible Off-ramp to Technology Based Phosphorus Effluent Limits (TBPEL)

Deliverables:

1. UAA approved by the U.S. EPA

Actions/Decisions that will be informed:

1. If impairment is confirmed, a TMDL may not be needed and a UAA could be developed with a subsequent change to the lake's designated beneficial uses.

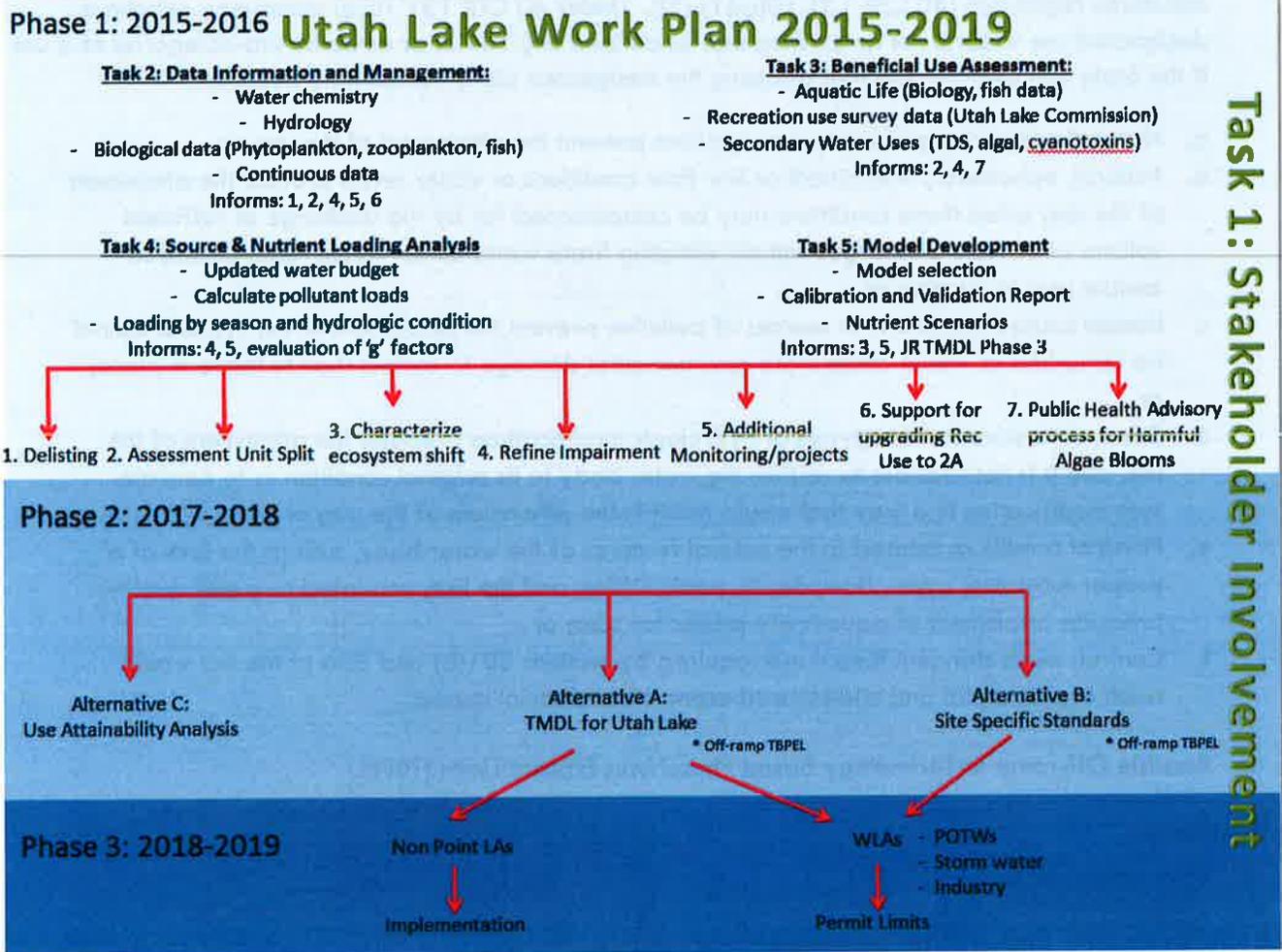


Figure 1: Draft flow chart of Utah Lake Workplan 2015-2019.

SCHEDULE:

Utah Lake Workplan 2015-2016
Division of Water Quality

Objectives		2015			2016											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1	Phase 1															
	Stakeholder Outreach and Public Involvement															
	Technical Advisory Committee	█						█								
	Utah Lake Workshop		█													
	Stakeholder Consultation															
	Utah Lake Coordinator							█	█							
2	Data and Information Management		█													
	Data Acquisition	█	█	█												
	Database Development				█	█										
	Online Database				█	█										
	Supplemental Monitoring									█	█	█	█	█		
	Literature Review and Synthesis				█	█										
3	Beneficial Use Assessment															
	Aquatic Life							█	█							
	Recreation							█	█							
	Secondary Water Uses							█	█							
4	Source and Nutrient Loading Analysis															
	Updated water budget and flow data							█								
	Watershed-wide water budget							█	█							
	Loading analysis								█	█						
	Loading by season									█	█	█	█			
	Pollutant loads from each source calculated										█	█	█			
5	Model Development															
	Compile existing data	█	█	█												
	Model Selection and Scoping	█	█	█												
	Data Gap Analysis and Data Collection				█	█	█	█								
	Model Build				█	█	█	█	█	█	█					
	Model Calibration and Validation										█	█	█	█		
	Model Calibration Report Preparation											█	█	█	█	
	Supplemental Data Collection														█	█
	Nutrient Scenario Analysis														█	█
	Nutrient Report Preparation														█	█
Alternative	Phase 2															
	1 TMDL For Utah Lake															
2	Site Specific Standard															
3	Use Attainability Analysis															

Figure 2: Schedule for 2015 and 2016 of Utah Lake Workplan activities.

ROLES OF DWQ AND PARTNERS

Task	Lead	Partner(s)
Task 1: Stakeholder Outreach and Public Involvement	DWQ: Carl Adams (carladams@utah.gov)	Utah Lake Commission (Eric Ellis; eric@utahlakecommission.org)
Task 2: Data and Information Management	DWQ: Suzan Tahir (stahir@utah.gov)	DWQ: Lenora Sullivan (lenoras@utah.gov), Central Utah Water Conservancy District; Payson, Salem, Spanish Fork, Springville and Provo Waste Water Treatment Plants; Utah Valley University: Eddy Cadet (cadeted@uvu.edu), Weihong Wang (Weihong.Wang@uvu.edu); USGS; Utah Division of Water Rights: Ben Anderson (benanderson@utah.gov); Utah State University: Jereme Gaeta (jereme.gaeta@usu.edu); Rushforth Phycology: Sarah Rushforth (Sarah@rushforthphycology.com), Sam Rushforth (samrushforth@gmail.com); June Sucker Recovery Implementation Program: Mike Mills (mikem@cuwcd.com)
Task 3: Beneficial Use Assessment	DWQ: Jake Vander Laan (jvander@utah.gov)	Contractor (TDB)
Task 4: Source and Nutrient Loading Analysis	DWQ: Scott Daly (sdaly@utah.gov)	Jordan River/Farmington Bay Water Quality Council: Theron Miller (theron.miller12@gmail.com), Contractor
Task 5: Model Development	DWQ: Nick VonStackelberg (Nvonstackelberg@utah.gov)	Jordan River/Farmington Bay Water Quality Council: Theron Miller (theron.miller12@gmail.com); LaVere Merritt (merrittlb@gmail.com); Contractor (TBD)

Utah Lake Water Quality Work Plan 2015-2019

Attachment 1: Utah Lake Water Quality Sampling Stations

Utah Lake Sampling Stations

Monitor Org	Station ID	Monitoring Location Name	Sample Type	Flow	Gage Name
Tributaries and Wastewater Treatment Plants					
CUWULT	4994790	JORDAN R AT UTAH L OUTLET U121 XING	4	UDWR	05 JORDAN NARROWS (TOTAL)
CUWULT	4994950	SPRING CK BL LEHI MILL POND	4		
CUWULT	4994960	AMERICAN FK CK 2.5MI S OF AM FK CITY	4	USGS	10164500 (Location in canyon)
CUWULT	4995038	Timpanogos Effluent below constructed duck ponds	4		
CUWULT	4995040	TIMPANOGOS WWTP	4	WWTP	DMR or MOR
CUWULT	4995120	LINDON DRAIN AT CO RD XING AB UTLAKE	4		
CUWULT	4995200	US Steel Geneva 001 to Utah Lake	4		
CUWULT	4995250	OREM WWTP	4	WWTP	DMR or MOR
CUWULT	4995260	POWELL SLOUGH AB OREM WWTP	4		
WWTP	4995410	PAYSON WWTP	4	WWTP	DMR or MOR
CUWULT	4995420	BEER CK AB PAYSON WWTP AT U115 XING	4		
WWTP	4995440	SALEM WWTP	4	WWTP	DMR or MOR
CUWULT	4995580	SPANISH FORK R AB UTAH L (LAKESHORE)	4	USGS	10150500 (Location in canyon)
CUWULT	4996000	DRY CK @ CR 77 XING AB UTAH LAKE	4		
WWTP	4996020	SPANISH FORK WWTP	4	WWTP	DMR or MOR
CUWULT	4996030	DRY CK AB SPANISH FK WWTP	4		
CUWULT	4996100	HOBBLE CK AT I-15 BDG 3MI S OF PROVO	4	USGS	10153100 (Location near mouth)
CUWULT	4996190	SPRING CK UPRR XING 1.7MI SE OF PROVO GOLF CSE	4		
WWTP	4996280	SPRINGVILLE WWTP	4	WWTP	DMR or MOR
CUWULT	4996290	SPRING CK AB SPRINGVILLE WWTP - DROPPED	4		
CUWULT	4996310	SPRING CK BL FISH HATCHERIES AND AB SPRINGVILLE WWTP	4		
CUWULT	4996410	IRONTON CANAL AB KUHNIS BYPRODUCTS	4		
CUWULT	4996550	MILLRACE CK BL PROVO WWTP	4		
CUWULT	4996560	PROVO WWTP	4	WWTP	DMR or MOR
CUWULT	4996570	MILLRACE CK AB PROVO WWTP	4		
CUWULT	4996690	PROVO R AT U114 XING	4	USGS	10163000 (Location near mouth)
CUWULT	5919850	BENJAMIN SLOUGH AT 6400 SOUTH	4		
CUWULT	5919860	BEER CK AB UTAH LAKE	4		
Utah Lake					
DWQ	4917310	UTAH LAKE 0.5 MI W OF GENEVA DISCHARGE #15-A	2, 23, 27, 29		
DWQ	4917320	UTAH LAKE 0.5 MI W OF GENEVA DISCHARGE #15-B (4917310 Duplicate)	2		
DWQ	4917370	UTAH LAKE 1 MI EAST OF PELICAN POINT	2, 29		
DWQ	4917390	UTAH LAKE 1 MI WEST OF PROVO BOAT HARBOR	2, 29		
DWQ	4917450	UTAH LAKE AT MIDDLE OF PROVO BAY	2, 29		
DWQ	4917500	UTAH LAKE 3 MI WNW OF LINCOLN BEACH	2, 29		
DWQ	4917520	UTAH LAKE 2 MI E OF SARATOGA SPRINGS #12	2, 29		
DWQ	4917600	UTAH LAKE GOSHEN BAY SOUTHWEST END	2, 29		
DWQ	4917770	UTAH LAKE OUTSIDE ENTRANCE TO PROVO BAY	2, 29		
		Utah Lake Level		UDWR	UTAH LAKE STORAGE CONTENT (GAGE READING)
		Utah Lake Storage		UDWR	UTAH LAKE STORAGE CONTENT

Attachment 2: Stream gage information for Utah Lake tributaries.

USGS Stream Gages in Utah County

Agency	Site ID	Site Name	Location	Status	Begin Date	End Date
USGS	09282000	STRAWBERRY TUNNEL AT WEST PORTAL, NR THISTLE	Mountain			
USGS	09312600	WHITE R BL TABBYUNE CRK NR SOLDIER SUMMIT, UT	Mountain			
USGS	09312700	BEAVER CREEK NEAR SOLDIER SUMMIT, UTAH	Mountain			
USGS	10147000	SUMMIT CREEK NEAR SANTAQUIN, UTAH	Mountain			
USGS	10147500	PAYSON CREEK ABV DIVERSIONS, NEAR PAYSON, UTAH	Mountain			
USGS	10148200	TIE FORK NEAR SOLDIER SUMMIT, UT	Mountain			
USGS	10148400	NEBO CREEK NEAR THISTLE, UTAH	Mountain			
USGS	10148500	SPANISH FORK AT THISTLE, UTAH	Mountain			
USGS	10148510	SPANISH FORK BLW HALLS FALLS NR SPANISH FORK, UTAH	Mountain			
USGS	10149000	SIXTH WATER CRK AB SYAR TUN NR SPRINGVILLE, UT	Mountain			
USGS	10149400	DIAMOND FORK ABV RED HOLLOW NR THISTLE, UT	Mountain			
USGS	10149500	DIAMOND FORK BELOW RED HOLLOW, NEAR THISTLE, UT	Mountain			
USGS	10150000	DIAMOND FORK NEAR THISTLE, UTAH	Mountain			
USGS	10150500	SPANISH FORK AT CASTILLA, UT	Canyon	Active	5/1/1919	
USGS	10152000	SPANISH FORK NEAR LAKE SHORE, UTAH	Valley	Inactive	1/1/1904	5/10/1988
USGS	10152001	SPANISH FORK AT MOUTH NEAR LAKE SHORE, UTAH	Valley	Inactive	3/13/1978	4/8/1982
USGS	10152500	HOBBLE CR NR SPRINGVILLE UTAH	Valley	Inactive	10/1/1908	9/30/1974
USGS	10152700	MAPLE CREEK NEAR MAPLETON, UTAH	Canyon	Inactive	10/1/1964	10/31/1972
USGS	10153000	MAPLE CREEK NR SPRINGVILLE, UT	Canyon	Inactive	10/1/1911	12/31/1913
USGS	10153100	HOBBLE CREEK AT 1650 WEST AT SPRINGVILLE, UTAH	Valley	Active	11/15/2008	
USGS	10160800	NO FK PROVO RIV AT WILDWOOD UTAH	Mountain			
USGS	10161000	PROVO RIVER AT VIVIAN PARK, UTAH	Mountain			
USGS	10161500	SOUTH FORK PROVO R AT VIVIAN PARK, UTAH	Mountain			
USGS	10162850	ROCK CREEK OVERFLOW EAST OF HIWAY 189 NR PROVO, UT	Mountain			
USGS	10163000	PROVO RIVER AT PROVO, UT	Valley	Active	10/1/1903	
USGS	10164500	AMERICAN FK AB UPPER POWERPLANT NR AMERICAN FK, UT	Canyon	Active	1/1/1927	
USGS	10165500	DRY CREEK NEAR ALPINE, UTAH	Canyon	Inactive	7/1/1947	9/30/1955
USGS	10166000	FORT CREEK AT ALPINE, UTAH	Canyon	Inactive	7/1/1947	9/30/1955
USGS	10166430	WEST CANYON CREEK NEAR CEDAR FORT, UT	Canyon	Active	7/1/1965	
USGS	10166605	JORDAN RIVER AT LEHI BRIDGE NEAR LEHI, UTAH	Valley	Inactive	10/1/1985	2/28/1987



State of Utah

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Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF WATER QUALITY
Walter L. Baker, P.E.
Director

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Jennifer Grant
Dr. James VanDerslice
Michael D. Luers
Alan Matheson
Walter L. Baker
Executive Secretary

UM

Date Received: July 21, 2016

Date to be presented to the WQB: August 24, 2016

WATER QUALITY BOARD
FEASIBILITY REPORT FOR HINCKLEY TOWN SEWER LIFT STATION
IMPROVEMENT PROJECT

INTRODUCTION

APPLICANT:	Hinckley Town 161 E 300 N P.O. Box 138 Hinckley, UT: 84635 435-864-3522
PRESIDING OFFICIAL:	Donald Brown - Mayor
CONTACT PERSON:	Chris Palmer – Council Member
TREASURER/RECORDER:	Mike Palmer (Treasurer)/ Tresa Martin (Recorder)
CONSULTING ENGINEER:	Daniel Hawley Jones & DeMille Engineering 1535 S 100 W Richfield, UT 84701
BOND COUNSEL:	Richard K. Chamberlain Chamberlain Associates 235 N 100 E Richfield, UT 84701 435-896-4461

APPLICANT'S REQUEST:

Hinckley Town requests a **hardship grant in the amount of \$160,000** to upgrade their four sewer lift stations and valve boxes to accept new equipment purchased with a Community Development Block Grant Program (CDBG) grant and local contributions.

APPLICANT'S LOCATION

Hinckley Town is located in Millard County.



PROJECT NEED

The Hinckley Town Sewer collection system was installed in 1981. The town has a proactive maintenance program including cleaning, inspecting, and maintaining 1/3 of the collection system each year. The four sewer lift stations in town need to be upgraded to accept new equipment as existing equipment has become obsolete resulting in the pumps not being efficient due to gasket obsolescence. Proper gaskets are necessary to seal the pumps to the discharge piping. This has resulted in recirculation of water in the wet well causing premature pump failure due to longer pump run times. The town is concerned that pump failure will lead to sanitary sewer overflow. Also, the sewer system check and gate valves need to be upgraded due to reduced operability.

On February 6, 2014 Hinckley Town submitted an application to CDBG to purchase new equipment for the sewer lift station project. On July 7, 2014, Hinckley Town was awarded a grant from CDBG in the amount of \$98,000 to purchase equipment to improve the lift stations. The grant was reduced by \$2,000 when Hinckley was unable to complete installation by the grant expiration, due to unanticipated complications with the installation. Hinckley town purchased the pumps, controls, hatches, and valves necessary to upgrade their system with that funding, and some local contribution. At the time, the maintenance supervisor believed that the maintenance department would be able to replace the equipment. In the Spring of 2015, the new

PROJECT NEED (CONTINUED)

maintenance supervisor informed Hinckley Town Council of several obstacles the maintenance department would have in the installation process.

1. Hinckley Town does not own a pump truck or have by-pass pumps large enough to bypass the lift stations during the improvement project.
2. Hinckley Town does not have the equipment needed to lift and set the new concrete lids in place or to remove and replace the concrete vaults that house the gate and check valves.
3. The 1981 engineering plans for the sewer system indicate that PVC pipe was used going into and out of the valve boxes, however investigation determined that it is iron pipe that cannot easily be modified to fit the new valves.
4. Hinckley Town does not have sufficient staff to complete the sewer improvement project since the maintenance department consists of one full time maintenance supervisor and on part time employee.

Hinckley Town was issued a letter by CDBG on August 1, 2016 stating that they needed documentation indicating that the project has been completed by October 31, 2016, so that they can report the grant outcomes and beneficiaries to HUD. The letter also indicated that if documentation was not provided that the grant will need to be repaid.

DWQ staff contacted CDBG to inquire about the ramifications of the letter in regard to DWQ funding. The results of the conversation were that if Hinckley Town demonstrates that they have sufficient funding to complete the project prior to the October 31st deadline and demonstrate ongoing progress toward completing the project in a timely manner, CDBG will hold off on recalling the funds.

PROJECT DESCRIPTION:

Hinckley Town, with assistance from Jones and Demille Engineering, intends to contract the modification of four (4) sewer lift stations, installation of pumps, controls, and equipment in the four lift stations, and upgrade of discharge valve boxes and piping to allow installation of new valves. The lift stations are located in the public right of way or in city easements.

PROJECT PRIORITY LIST

This project is currently ranked 5th out of 8 projects.

COST ESTIMATE:

Loan Costs (Origination/Bonding)	\$	25,000
Engineering (Planning/Design)	\$	25,000
Engineering (CMS)	\$	5,000
Equipment Purchased	\$	134,779
Construction	\$	110,000
Contingency (~ 18% of Construction)	\$	20,000
Total	\$	319,779

COST SHARING:

<u>Funding Source</u>		<u>Cost Sharing</u>
Local Contribution (Equipment Purchased)	\$	38,779
CDBG Grant	\$	96,000
WQB Funding	\$	185,000
Total	\$	319,779

IMPLEMENTATION SCHEDULE:

WQB Funding Introduction:	August 24, 2016
WQB Funding Authorization:	Sept 28, 2016
Complete Design:	October 2016
Issue Construction Permit	November 2016
Bid Opening	December 2016
Complete Construction	May 2017

APPLICANT'S CURRENT USER CHARGE:

Hinckley Town has a current user rate of \$25.00 per month for active connections and 13.50 per month for dormant connections.

STAFF COMMENTS AND RECOMMENDATION:

Due to the need to expedite the project Staff is recommending an **advance of \$200,000 from the Hardship Grant Fund** to be paid back expeditiously. This recommendation is made as a loan is unlikely to provide funds within the time frame set forth by CDBG, and Hinckley Town's maintenance staff is concerned that some of the pumps are beyond their useful life and may fail resulting in the urgent nature of the project.

As can be seen in the attached cost model a loan is affordable and although the town can afford a higher interest rate it is recommended that if a loan is sought by Hinckley Town from the Board to repay the advance that it be offered for the project cost (estimated to be \$185,000) at 1.25% for 20 years using a generic bond to minimize closing costs. It is also recommended that if a low interest loan is obtained by the town that they provide a plan to fund depreciation of new assets, as they currently fully fund operation and maintenance costs, but do not fully fund depreciation.

The lower interest rate is justified due to the small number of rate payers and a higher than State of Utah average poverty rate, and the added cost to fund depreciation. Additionally, Hinckley Town has made good faith efforts in obtaining funding from other sources and received outside funding from CDBG of \$96,000, as well as providing \$38,779 of self-participation. However, as indicated in the project need section if they do not show progress toward completing the project soon the CDBG grant will have to be repaid.

SPECIAL CONDITIONS:

1. Hinckley Town will repay the advance expeditiously.
2. Hinckley Town will complete a water conservation plan

Hinckley Town - Funding Introduction
 August 24, 2016
 Attachment 1

**ATTACHMENT 1 - COST MODEL
 HINCKLEY TOWN LIFT STATION IMPROVEMENT PROJECT**

Project Costs					Current Customer Base & User Charges				
Additional Loan Costs	22,000				Total 2016 ERUs:				198
Equipment	134,779				MAGI for Hinckley Town (2014)				\$37,371
Construction	118,000				Current Impact Fee (per ERU):				\$0
Contingency	12,000				Current Monthly User Fee (per ERU)				\$25.00
Engineering - Planning/Design	25,000				Current Monthly User Fee (% MAGI)				0.80%
Engineering - CMS	5,000								
Administration of Loan	3,000								
Total Project Cost:	319,779								
Other Project Funding					Annual Sewer O&M Cost				
Applicant Contribution	36,779				Existing O&M expenses Treatment & Collection				55,531
CDBG	98,000				New O&M expenses Treatment & Collection				\$55,531
	134,779								
DWQ Project Funding					Existing Sewer Debt Service				
Funding If Grant	160,000				Existing Sewer Debt Service				\$0
Funding If Loan	185,000								
ESTIMATED COST OF SEWER SERVICE									
DWQ Grant Amount	DWQ Loan Amount	DWQ Loan Interest Rate	DWQ Loan Debt Service	DWQ Loan Reserve	Annual Sewer O&M Cost	Existing Sewer Debt Service	Total Annual Sewer Cost	Monthly Sewer Cost/ERU	Sewer Cost as a % of MAGI
160,000	-	0.00%	\$0.00	-	\$ 55,531	\$0	\$ 55,531	23.37	0.75%
	\$185,000	0.00%	\$9,250.00	2,313	\$ 55,531	\$0	\$ 67,094	28.24	0.91%
-	\$185,000	1.00%	\$10,251.83	2,563	\$ 55,531	\$0	\$ 68,346	28.77	0.92%
-	\$185,000	1.25%	\$10,511.77	2,628	\$ 55,531	\$0	\$ 68,671	28.90	0.93%
-	\$185,000	1.50%	\$10,775.46	2,694	\$ 55,531	\$0	\$ 69,000	29.04	0.93%
-	\$185,000	2.00%	\$11,313.99	2,828	\$ 55,531	\$0	\$ 69,673	29.32	0.94%
-	\$185,000	2.50%	\$11,867.22	2,967	\$ 55,531	\$0	\$ 70,365	29.61	0.95%
-	\$185,000	3.00%	\$12,434.91	3,109	\$ 55,531	\$0	\$ 71,075	29.91	0.96%
-	\$185,000	4.00%	\$13,612.62	3,403	\$ 55,531	\$0	\$ 72,547	30.53	0.98%



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Jennifer Grant
Dr. James VanDerslice
Michael D. Luers
Alan Matheson
Walter L. Baker
Executive Secretary

Date Received: July 20, 2016

Date to be presented to the WQB: August 24, 2016

**WATER QUALITY BOARD
FEASIBILITY REPORT FOR WASTEWATER TREATMENT PROJECT**

INTRODUCTION

APPLICANT: Summit County
60 N, Main
P.O. Box 128
Coalville, Utah 84017
435-336-3220

PRESIDING OFFICIAL: Richard Bullough, PhD
Director & Health Officer
Summit County Health Department
650 Round Valley Drive
Park City, Utah 84060
435-333-1582

CONTACT PERSON: Richard Bullough, PhD, Director

TREASURER: Corrie Forsling, Summit County

COUNTY ENGINEER: Derrick Radke, Summit County Public Works
P.O. Box 128
435-336-3978

CONSULTING ENGINEER: James Milligan, PE
Glison Engineering
12401 South 450 East, Building C, Unit 2.
Draper, Utah 84020
801-571-9414

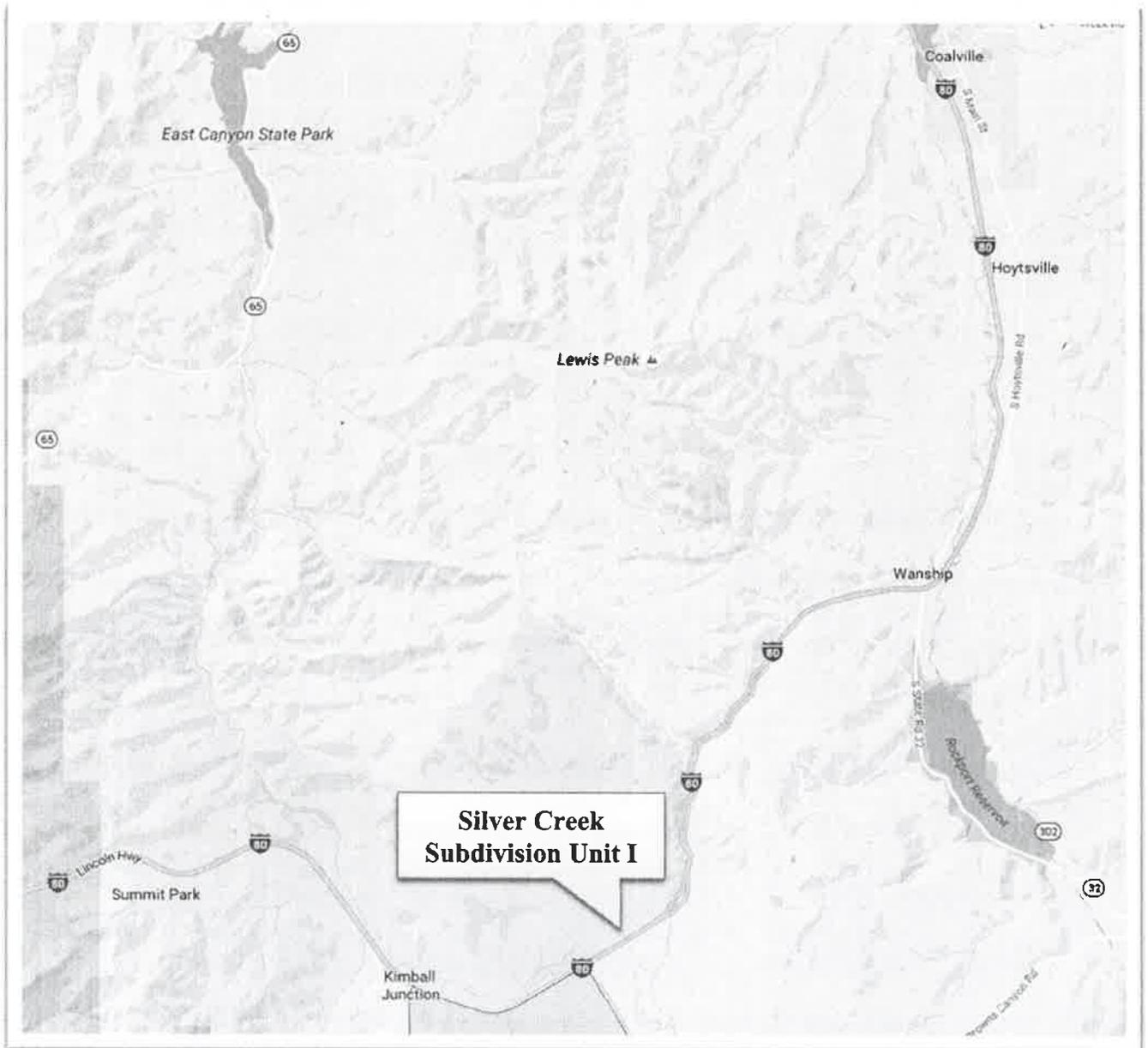
APPLICANT'S REQUEST:

Summit County is requesting financial assistance in the amount of a \$400,000 grant for construction of a new wastewater collection system that will connect to the Snyder Basin Water Reclamation District (SBWRD) for treatment and disposal.

APPLICANT’S LOCATION

Silver Creek Subdivision Unit I (Subdivision) is located in unincorporated Summit County and is found within two watersheds, the East Canyon Creek and the Silver Creek watersheds. The proposed project area is west of the Subdivision and it is found within the East Canyon Creek watershed.

MAP OF APPLICANT’S LOCATION



BACKGROUND

The Subdivision sits within the drainage at the headwaters of East Canyon Creek watershed. This watershed was identified as impaired by the Utah Division of Water Quality and was listed on Utah's 1998 303d list of impaired water bodies for nutrients. Currently, a Total Maximum Daily Load (TMDL) plans to restore the beneficial uses and meet water quality standards.

PROJECT NEED

The Subdivision is currently served by on-site wastewater treatment systems. The Subdivision is a high density mixed-use area and consists of businesses, homes, and undeveloped commercial and residential lots.

The Subdivision is believed to be contributing pollutants into the East Canyon Creek watershed and Silver Creek watershed. The following are some of the risks:

- The Subdivision straddles the East Canyon and Silver Creek Watersheds. Both the East Canyon Creek and Reservoir TMDL (2010) and the Rockport Reservoir and Echo Reservoir TMDL (2014) identify this subdivision as a priority area for nutrient load reductions based on septic system contributions. Both TMDLs recommend a long-term strategy to reduce nutrient loads from septic systems throughout their respective watersheds. The Echo Reservoir TMDL was for both nitrogen and phosphorus. Since even properly functioning septic systems do not treat nitrogen, the TMDL recommended sewer at the subdivision scale to address nutrient loading.
- Studies by the Summit County Health Department (SCHD) have identified the Subdivision as a source of pollutants and one of the critical primary areas is the failure of existing septic system. Site conditions do not support the high density land use of the subdivision. The Subdivision has older septic systems with a high rate failure.
- According to the 2014 TMDL, the majority of the Subdivision utilizes deep trench septic systems. However, future development with type of wastewater disposal system is not feasible due to high ground water in the area.
- On April 3, 2015, the draft document Developing an Understanding of Spatio-Temporal Bioaccumulation of Pharmaceuticals by Aquatic Life in East Canyon Creek stated that contaminants sucralose, caffeine and benzocogonine were detected in samples upstream of the East Canyon Creek. These indicators of human waste are an emerging concern.

By extending sewer to this area, protection of both surface and groundwater resources will be achieved by immediately decreasing the amount of pollutants into the groundwater and subsequently to the East Canyon Creek watershed. This will result in improved water quality in both the East Canyon Creek and Silver Creek watersheds.

Extending sewer to this area first will allow for the future expansion of sewer to the broader upper area of the Subdivision.

The Summit County Council (SCC) and SCHD have identified water quality as a strategic priority and plan to execute projects through local government financing with low interest rates. SCHD and SCC have proposed forming a voluntary special assessment district to the project area to secure funding for the project.

PROJECT DESCRIPTION:

The SCC is proposing to construct approximately 10-inch and 8-inch gravity sewer lines and manholes for sewage collection and transfer to the SBWRF for treatment system.

COST ESTIMATE:

Abandonment & New Connection Fee	\$120,000
Engineering (Design)	\$32,300
Engineering (CMS)	-
Construction	\$1,134,980
Contingency	\$12,720
Rights of Way, Easements, Misc.	-
Total	\$1,300,000

COST SHARING:

<u>Funding Source</u>	<u>Cost Sharing</u>
*Other Funding (3.25%, 0, 20 years)	\$600,000
WQB Grant	\$400,000
Local Contribution	\$300,000
Total	1,300,000

**Financing assistance will be paid by the property owner under a special assessment.*

PROJECT FINANCING:

The proposed project makes 30 connections: 7 residential and 23 commercial connections. The project was originally estimated to have a total cost of \$600,000. The SCC agreed to finance the project under a special assessment district with terms of 3.25% interest for 20 years. Bids were opened in June 2016 and the low bid was \$1,300,000.

Summit County Public Works identified two bid items that they can provide to reduce the contract price by about \$300,000. With this local contribution the amount to be financed is \$1,000,000; \$600,000 from SCC and the \$400,000 balance requested from WQB.

IMPLEMENTATION SCHEDULE:

WQB Funding Introduction:	August 24, 2016
WQB Funding Authorization:	September, 2016
Issue Construction Permit	April 2016
Bid Re-Opening	January 2017
Commence Construction	December 2017
Complete Construction	July 2017

STAFF COMMENTS AND RECOMMENDATION:

This is a project introduction. Staff comments and recommendations will be provided at the request for funding authorization. A cost model showing sever financing alternatives is attached.

U:\AENG_WQ\B\WONDIMU\PROJECTS\NYDERVILE\SILVER CREEK SEWER RECONSTRUCTION 2016\SUMMIT COUNTY HEALTH DEPT FEASIBILITY INTRODUCTION AUGUST 24 2016.DOCX
File: Summit County Health Department /Planning/Section 1

Sliver Creek Sewer Project

Project Costs	
Engineering - Planning	120,000
Engineering - Design	32,300
Engineering - CMS	0
*DWQ Administrative Fee:	0
Legal/Bonding	0
Construction	1,134,980
Contingency	12,720
Total Project Cost:	1,300,000

* The DWQ Administrative Fee is not include in this introduction report.

Current Customer Base & User Charges	
Residential Connections:	14
Comma/Indust Connections:	22
Total Customers (ERU):	36
MAGI for Park City (2014)	\$54,580
Current Impact& Connect Fee (\$8,000
Proposed Monthly User Fee:	\$63.68

Project Funding	
Other Funding Sources (3.2	600,000
Local contribution	300,000
WQB Grant	400,000
Total	1,300,000

Funding Conditions	
Loan Repayment Term:	30 years
Reserve Funding Period:	10 years

Existing Debt/Bond Debt for proposed project	
Summit County Debt	\$41,267
Existing Debt	\$0

ESTIMATED COST OF SEWER SERVICE

	Grant Amount	Loan Amount	WQB Loan Interest Rate	WQB Debt	Summit Co. Debt Service	Reserve	Annual SBWRD User & O&M Fee	Total Annual Sewer Cost	Monthly Sewer Cost/Connection	Sewer Cost as a % of MAGI
WQB Grant and County Loan (20 Year Loan)- Requested	400,000	600,000	3.25%	41,267		10,317	17,000	68,584	158.76	3.49%
WQB \$400K for 30 Year Loan/ County \$600k Loan		400,000	0.00%	13,333	41,267	2,000	17,000	73,600	170.37	3.75%
		400,000	1.00%	15,499	41,267	2,325	17,000	76,091	176.14	3.87%
		400,000	2.00%	17,860	41,267	2,679	17,000	78,806	182.42	4.01%
		400,000	3.25%	21,073	41,267	3,161	17,000	82,501	190.97	4.20%
Total - WQB Grant / Loan (30 Year Loan)	400,000	600,000	0.00%	20,000		3,000	17,000	40,000	92.59	2.04%
	400,000	600,000	1.00%	23,249		3,487	17,000	43,736	101.24	2.23%
	400,000	600,000	2.00%	26,790		4,018	17,000	47,808	110.67	2.43%
	400,000	600,000	3.25%	31,609		4,741	17,000	53,350	123.50	2.72%
	200,000	800,000	0.00%	26,667		4,000	17,000	47,667	110.34	2.43%
	200,000	800,000	1.00%	30,998		4,650	17,000	52,648	121.87	2.68%
	200,000	800,000	2.00%	35,720		5,358	17,000	58,078	134.44	2.96%
	200,000	800,000	3.25%	42,145		6,322	17,000	65,467	151.54	3.33%
	100,000	900,000	0.00%	30,000		4,500	17,000	51,500	119.21	2.62%
	100,000	900,000	1.00%	34,873		5,231	17,000	57,104	132.19	2.91%
	100,000	900,000	2.00%	40,185		6,028	17,000	63,213	146.33	3.22%
	100,000	900,000	3.25%	47,414		7,112	17,000	71,526	165.57	3.64%
		1,000,000	0.00%	33,333		5,000	17,000	55,333	128.09	2.82%
		1,000,000	1.00%	38,748		5,812	17,000	61,560	142.50	3.13%
		1,000,000	2.00%	44,650		6,697	17,000	68,347	158.21	3.48%
		1,000,000	3.25%	52,682		7,902	17,000	77,584	179.59	3.95%



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Jennifer Grant
Dr. James VanDerslice
Michael D. Luers
Alan Matheson
Walter L. Baker
Executive Secretary

Project Number:

Date Received: June 2016

Date to be presented to the WQB: August 24, 2016

WATER QUALITY BOARD
FEASIBILITY REPORT FOR WASTEWATER TREATMENT PROJECT
INTRODUCTION

APPLICANT: San Juan- Spanish Valley SSD
P.O. Box 9
Monticello, Utah 84535-009
Telephone: (435) 597-3225

PRESIDING OFFICIAL: Frank Darcy

CONTACT PERSON: Kelly Pehrson

TREASURER/RECORDER: Louis Jones, City Recorder

CONSULTING ENGINEER: Ryan Jolley, P. E.
Jones & DeMille Engineering, Inc.
1635 South, 100 West
Richfield, Utah 84701
(435) 896-8266

BOND COUNSEL: Richard Chamberlain
Chamberlain & Associates
81 East, 100 South
Monticello, Utah 84534
Telephone: (435) 587-2223

APPLICANT'S REQUEST:

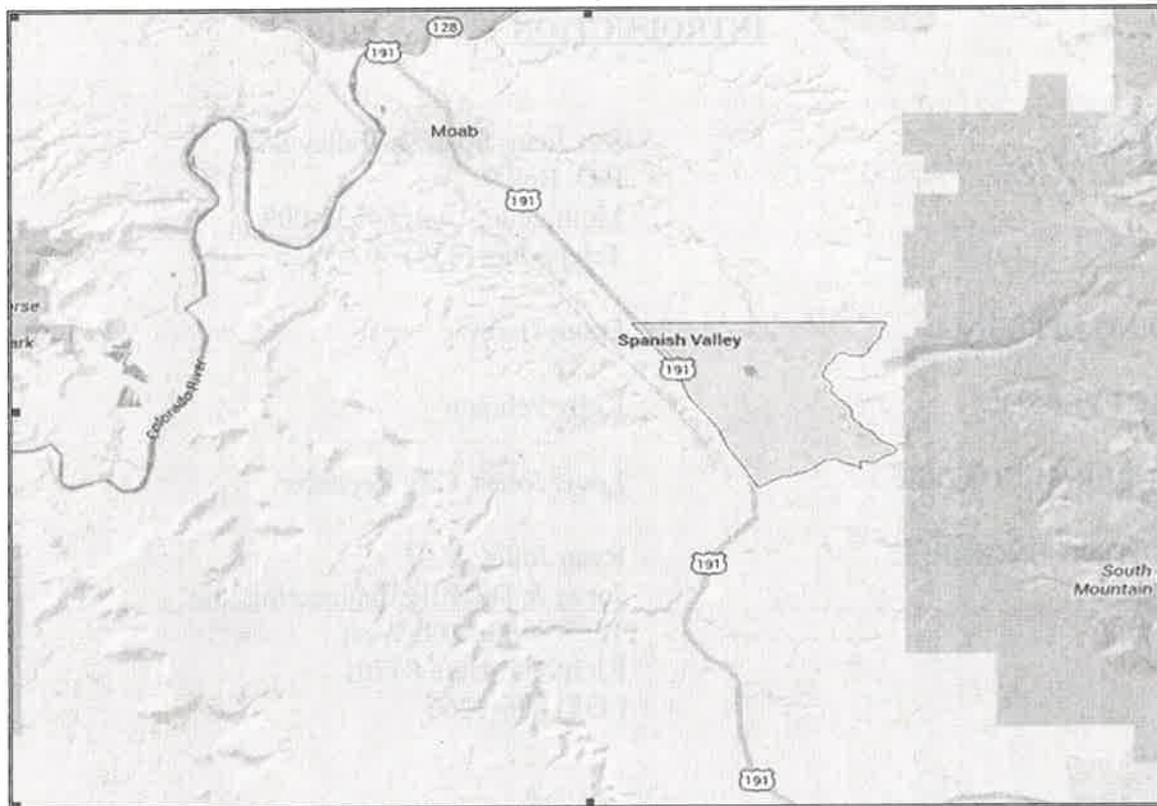
The San Juan Spanish Valley Special Service District (District) is requesting financial

assistance in the amount of a \$2,000,000 grant and a \$505,000 loan at an interest rate of 0.0% repayable over 30 years for construction of a new wastewater collection system that will connect to the Grand (county) Water and Sewer Agency System and Moab Regional treatment plant. Spanish Valley SSD is also requesting a Design Advance in the amount of \$220,000.

APPLICANT’S LOCATION:

The District is located in northern San Juan County. It is located along Highway 191, in the southern portion of the Spanish Valley, south of Moab and the Grand County line.

MAP OF APPLICANT’S LOCATION



BACKGROUND:

The District will serve the area of Spanish Valley located within its boundary. In July 2016, the District completed a preliminary Culinary Water/ Sanitary Sewer Master Plan, funded in part by the Water Quality Board, that considered the construction of a community wide sewer collection and treatment system. The community recognizes that a regional master planned sewer system is needed to foster orderly growth, protect its drinking water wells, and protect the environment by appropriately treating its wastewater.

PROJECT NEED:

Properties within the District are currently served by on-site wastewater treatment systems. The District consists of residential and commercial development.

The District overlies groundwater aquifers that are classification Class IA (pristine) and Class II (drinking water quality) groundwater and these aquifers supply drinking to most of the community, principally through private wells. Limited investigations have been for conducted to assess the impacts of on-site system on these groundwater resources. In 2007, the Utah Department of Natural Resources completed the study “Hydrogeology of Moab-Spanish Valley, Grand and San Juan Counties Utah with Emphasis on Maps for Water Resource Management and Land-Use Planning.” Results from this study were that groundwater in Spanish Valley is generally good, with nitrate concentrations in the 0.75 to 2.0 mg/L range. The study analyzed the potential impacts of adding additional septic tanks and, in general concluded that to keep nitrate concentrations below 3 mg/L, new septic tank system development should be confined to building lots of size 10 to 20 acres per residence.

In discussions with Staff, Both Southeast Utah Health Department and the San Juan County Health Department expressed concerns about the potential contamination of individual culinary water wells by older septic system in the area.

The construction of a sewer collection system will provide the community the ability to accommodate the growing population needs and allow for higher density development by decreasing the minimum lot sizes allowed septic systems.

PROJECT DESCRIPTION:

The District is proposing to construct approximately 44,000 linear feet of 8-inch gravity sewer lines and 145 manholes for sewage collection, as well as 4,800 linear feet of 8-inch interceptor sewer to transfer the wastewater to the Grand Water & Sewer Service Agency (GWSSA). The wastewater will then be conveyed to Moab City’s new wastewater treatment system for treatment and disposal (alternatives No. 4 as listed below).

ALTERNATIVES TO BE EVALUATED

The Facilities Plan evaluated the following alternatives:

1. No action.
2. Construction of a new “stand alone” wastewater collection and treatment system by the District.
 - a. Total Containment lagoons
 - b. Mechanical treatment plan (sequence batch reactor) with discharge of treated effluent into Pack Creek in Grand County.
3. Construction of a new wastewater collection system and then an interceptor to Moab collection system and disposal at Moab’s a new treatment system.
4. Construction of new wastewater collection system and transfer to the GWSSA for disposal at

Moab City’s new wastewater treatment system.

The selected alternative is No. 4 which is to construct a new wastewater collection system to convey wastewater to GWSSA for disposal at Moab City’s new wastewater treatment system.

POSITION ON PROJECT PRIORITY LIST:

The District is ranked No.4 out of 8 projects on the FY 2016 Wastewater Treatment Project Priority List.

POPULATION GROWTH:

	<u>Year</u>	<u>Population¹</u>	<u>ERC²</u>
Current	2016	575	230
Design	2035	854	340

¹The average population growth through the year 2035 is estimated to be 2% area based on 2.51 persons per household (2009–2013) from US Census Bureau State and County Quick Facts for Grand County, Utah.

²ERC = Equivalent Residential Connections

PUBLIC PARTICIPATION AND DEMONSTRATION OF PUBLIC SUPPORT:

The District held a public meeting on May 16, 2016, as required by the Utah Wastewater State Revolving Fund (SRF) program. The District will hold a final public hearing once funding is secured.

IMPLEMENTATION SCHEDULE:

Public Meeting	May 2016
Apply to WQB for Funding:	August 24, 2016
WQB Funding Authorization:	September 2016
Public Hearing:	October 2016
Advertise EA (FONSI):	November 2016
Engineering Report Approval:	August 2016
Commence Design:	October 2016
Issue Construction Permit:	March 2017
Advertise for Bids:	March 2017
Bid Opening:	March 2017
Loan Closing:	April 2017
Commence Construction:	May 2017
Complete Construction:	May 2018

APPLICANT’S CURRENT USER CHARGE:

The District does not currently have a public sewer system.

COST ESTIMATE:

Abandonment & New Connection Fee	\$700,000
Engineering - Design	\$220,000
Engineering – CMS	\$175,000
Geotechnical Evaluation & Permit	\$40,000
Land/Easement/Water Rights	\$155,000
Capacity Purchase from Moab and GWSSA	\$795,000
Construction	\$3,270,000
Contingency (~10 % of construction)	\$330,000
DWQ Loan Origination Fee	\$5,000
Legal/Bonding	\$15,000
Total:	\$5,705,000

COSTS SHARING:

The total cost of the project is \$5,705,000. The district has requested the Permanent Community Impact Board (CIB) fund half of the total cost in the amount of \$2,500,000 for this project. This request will be presented during the CIB’s meeting that will be held September 8, 2016. The following cost sharing is proposed for this project:

<u>Funding Source</u>	<u>Cost Sharing</u>	<u>Percent of Project</u>
Local Contribution ¹	\$700,000	12%
WQB Grant	\$2,000,000	35%
WQB Loan	\$505,000	9%
CIB Grant	\$2,000,000	35%
CIB Loan	\$500,000	9%
Total:	\$5,705,000	100%

¹The current residents would need to pay to abandon existing septic systems to run sewer laterals to the new community sewer system, and a connection fee was estimated to cost \$3,000 per residence. The total local contribution is estimated \$700,000 to be paid by the community.

ESTIMATED ANNUAL COST FOR SEWER SERVICE:

The applicant proposed funding is shown below: (*\$505,000 loan at an interest rate of 0.0% repayable over 30 years*)

Operation & Maintenance - Annual	\$35,000
WQB Debt Service (0.0%; 30 yrs)	\$16,833
WQB Required Reserves (1½ pmt/10 yr)	\$2,525
Existing Sewer Debt Service	\$0
New Annual CIB Debt Service	\$16,667
Total Annual Cost	\$94,225
Monthly Cost / ERU	\$34.14
Cost calculated as % of MAGI - Moab (\$33,922)	1.28%
WQB Affordable Rate 1.4% MAGI- Moab (\$33,922)	\$37.24

A cost model for the proposed project is attached. The cost model shows that the funding request

amounts approach the Board's affordability criteria of 1.4% MAGI. A loan of \$600,000 is affordable.

STAFF COMMENTS AND RECOMMENDATION:

This is a project introduction, and staff recommendations will be provided at the request for funding authorization. Staff believes that this is an important project to preserve high quality groundwater and support the community's orderly growth. However, to keep the project within the affordable range, large amounts of grant funds are needed from both the Board and the CIB. Due to shortness in these grant funds the Board may need to limit the amount authorized to an amount less than that needed to complete the project.

Spanish Valley SSD - Water Quality Board - STATIC COST MODEL

Project Costs

Land/Right-of-way	\$ 155,000
Capacity purchasing(Moab & GWSSA)	\$ 795,000
Legal/Bonding	\$ 15,000
DWQ Loan Origination Fee	\$ 5,000
Geotechnical Eval. & Permit	\$ 40,000
Engineering - Design	\$ 220,000
Engineering - CMS	\$ 175,000
Construction	\$ 3,270,000
Contingency (approx. 10% const. cost)	\$ 330,000
Abandonment & New Connection Fee	\$ 700,000
Total Project Cost:	\$ 5,705,000

Project Funding

Local Contributions (be paid by residents)	\$ 700,000
WQB Loan	\$ 505,000
WQB Grant	\$ 2,000,000
CIB Loan	\$ 500,000
CIB Grant	\$ 2,000,000
Total Project Cost:	\$ 5,705,000

Current Customer Base & User Charges

Initial Total Customer (ERU's)	230
MAGI for Moab (2014): Moab	\$31,922
Affordable Monthly Rate at 1.4%	\$37.24
Current Impact Fee (per ERU):	\$3,859.00
Current Monthly Fee (per ERU)	\$0.00
New proposed monthly fee	\$37
Existing Sewer Debt Service	\$0

Funding Conditions

Loan Repayment Term:	30
Reserve Funding Period:	10
New Annual O&M expensive	\$35,000

ESTIMATED COST OF SEWER SERVICE

WQB Grant Amount	WQB Loan Amount	WQB Loan Interest Rate	WQB Loan Debt Service	WQB Loan Reserve	Annual Sewer Moab & GWSSA/ O&M Cost	Existing Sewer Fee	Existing Debt Service	New CIB Debt Service	New CIB Reserve	Total Annual Sewer Cost	Monthly Sewer Cost/ERU	Sewer Cost as a % of MAGI
2,510,000	0	0.00%	0	0	35,000	20,700	\$0	-	-	55,700	20.18	0.76%
2,000,000	505,000	0.00%	16,833	2,525	35,000	20,700	\$0	16,667	2,500	94,225	34.14	1.28%
2,000,000	505,000	1.00%	19,568	2,935	35,000	20,700	\$0	16,667	2,500	97,370	35.28	1.33%
2,000,000	505,000	0.00%	16,833	2,525	35,000	20,700	\$0	16,667	2,500	94,225	34.14	1.28%
2,000,000	505,000	1.00%	19,568	2,935	35,000	20,700	\$0	16,667	2,500	97,370	35.28	1.33%
2,000,000	505,000	2.00%	22,548	3,382	35,000	20,700	\$0	16,667	2,500	100,797	36.52	1.37%
1,645,000	860,000	0.00%	28,667	4,300	35,000	20,700	\$0	16,667	2,500	107,834	39.07	1.47%
1,252,500	1,252,500	0.00%	41,750	6,263	35,000	20,700	\$0	16,667	2,500	122,880	44.52	1.67%

1 New CIB Debt Service of \$16,667 based on \$500,000 Loan; 30 year term at 0 % interest



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Jennifer Grant
Michael D. Luers
Alan Matheson
Dr. James VanDerslice
Walter L. Baker
Executive Secretary

Date Received: August 3, 2016

Date to be presented to the WQB: August 24, 2016

WATER QUALITY BOARD
REQUEST FOR HARDSHIP PLANNING GRANT
AUTHORIZATION

APPLICANT:	Kane County Water Conservancy District 190 West Center Street, Suite 200 Kanab, Utah 84741 Telephone: 435-644-3997
PRESIDING OFFICIAL:	Mike Noel, Executive Director
CONTACT PERSON:	Mike Noel, Executive Director
TREASURER:	Randy Brown, Office Manager
CONSULTING ENGINEER:	Joe Phillips, Project Engineer Sunrise Engineering 11 North 300 West Washington, Utah 84780 Telephone: 435-652-8450
CITY ATTORNEY:	Ed Robbins Telephone: 435-644-3299
BOND COUNSEL:	Susan Baxter Chamberlain Associates 225 North 100 East Richfield, Utah 84701 Telephone: 435-896-4461

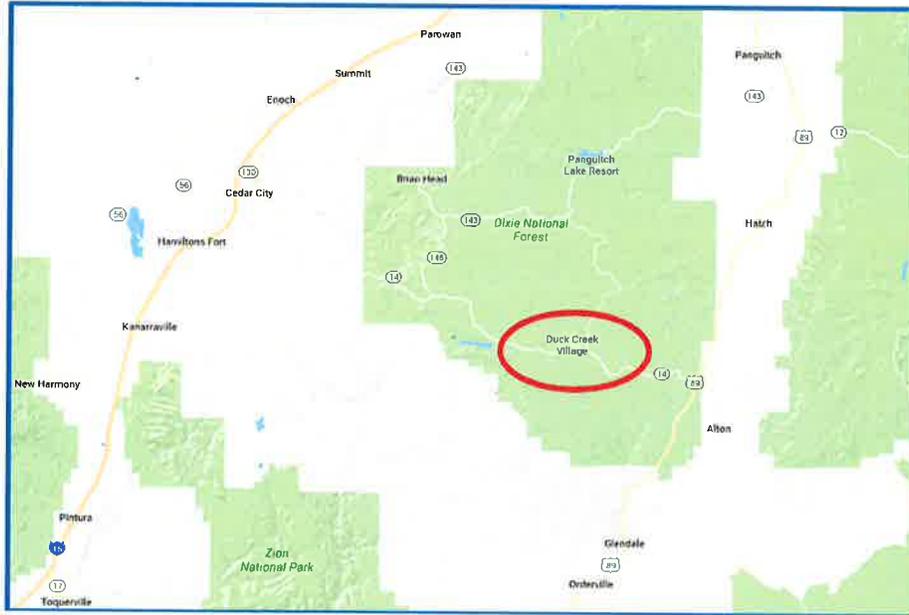
APPLICANT'S REQUEST

Kane County Water Conservancy District (the District) requests a **hardship planning grant in the amount of \$53,000** to fund costs from the United States Forest Service associated with the District's Townsite Act application.

Duck Creek
Supplemental Planning Grant Request
August 24, 2016

APPLICANT’S LOCATION

Duck Creek is an unincorporated community in Kane County located on the edge of Cedar Mountain, approximately 30 miles east of Cedar City.



[Figure 1]

UPDATE

On May 1, 2013 the Water Quality Board authorized a planning grant of \$173,000 to assist the District in funding a Townsite Act application. The Townsite Act process is one of only two mechanisms to purchase property from the United States Forest Service (USFS) [the other mechanism is Congressional Action].

In 2007 the District commissioned a Wastewater Planning Study which documented significant risk to ground and surface waters from failing onsite systems in the Duck Creek area. Of particular concern is the “valley” area near Duck Creek Village [Figure 2] where high ground water levels frequently cause the onsite systems in the area to become inundated with water. This high groundwater limits the ability of the soils to provide adequate absorption and treatment. Surfacing septage has occurred on numerous occasions, creating a risk to public health and water quality. The recommended alternative in the 2007 study was to purchase the nearby wastewater lagoon facility that services the Duck Creek campground and extend service to the Duck Creek area. The lagoon system is located within the Dixie National Forest and is owned and operated by the USFS.

The District and the USFS have been working since 2013 to complete the Townsite Act application process. Considerable progress has been made and the application process is now at the stage of requiring a survey, an appraisal of the land and an environmental review (NEPA).

Duck Creek
Supplemental Planning Grant Request
August 24, 2016

This work is done by the USFS and the associated expenses are outlined in the Collection Agreement Financial Plan [Attachment #2]. The USFS has indicated that it can neither proceed with the NEPA process nor scope the work to be completed by the District's consultants until the Collection Agreement fee has been received.

The District requires financial assistance to fund these expenses from the USFS, some of which have already been incurred. In 2013, the District requested funds from the Board solely for work to be done by the District's consultant and not the USFS, as they were unaware of these costs. The District is unable to self-fund these additional expenses, which are necessary to move the project forward.

Depending upon USFS participation and availability, it is expected that the environmental reviews by USFS and the District's consultants will be completed by September 1, 2017. The survey and appraisal will be done concurrently. Approval and clearance by the USFS to transfer the property is expected in that time frame and once that approval is issued, the District will begin the process of obtaining the funding to purchase the property, and to design and construct the necessary upgrades and additional collection lines.

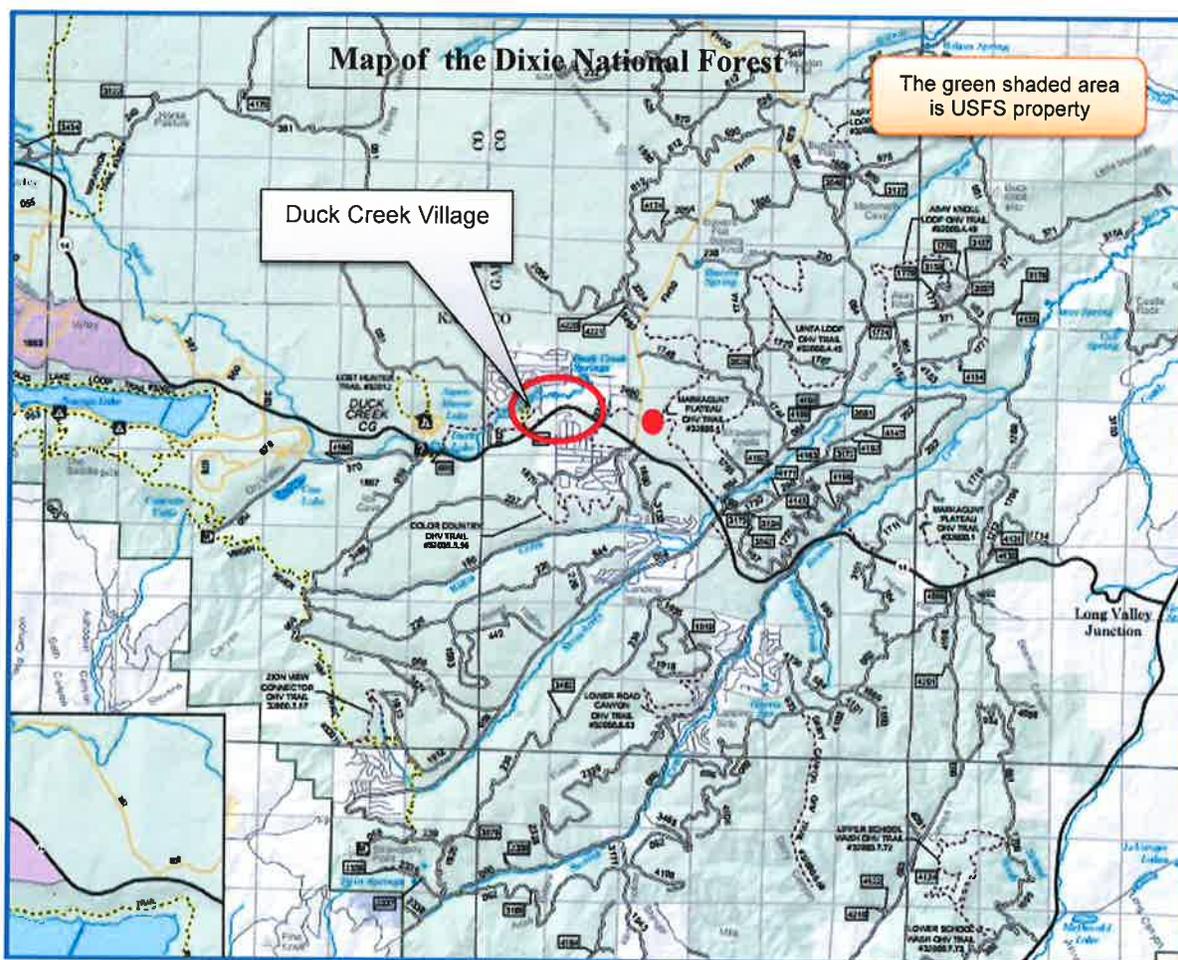


[Figure 2]

ALTERNATIVES

The District thoroughly explored alternatives to address the water quality problem in the Duck Creek area. They investigated constructing various mechanical treatment plants but the issue of effluent disposal in this area is unusually complicated.

Duck Creek is completely encompassed by the Dixie National Forest (USFS land) and is unable to discharge as the effluent would inevitably run across federal land. The District met with Division of Water Quality (DWQ) staff to look into disposal via injection wells or rapid infiltration basins on privately owned land in the area. However, the geology is fractured to such an extent that it is impossible to predict where the flow would ultimately end up. There is evidence that it would likely daylight in Asay Creek which flows into the Sevier River where there is an existing TMDL for phosphorus. For these reasons, the recommended alternative was to purchase the existing lagoon facility from the USFS.



[Figure 3]

PROJECT DESCRIPTION

This project is to fund the expenses from the USFS in support of the District's Townsite Act application to purchase the existing wastewater lagoons [Attachment #2].

IMPLEMENTATION SCHEDULE

Depending on the USFS participation and availability, it is expected that the environmental review by USFS and the work by the District's consultants will be completed by September 1, 2017. The survey and appraisal work will be completed concurrently. Approval and clearance by the USFS for disposal of the property is expected in that time frame. Following approval, the District will begin the process of obtaining the funding to complete the purchase and construct the necessary upgrades.

COST ESTIMATE:

The costs from the USFS are \$53,000 [Attachment #2]

<u>USFS Collection Agreement</u>	<u>\$ 53,000</u>
----------------------------------	------------------

STAFF COMMENTS AND RECOMMENDATION

Staff recommends the Board authorize a hardship planning grant in the amount of \$53,000 to the Kane County Water Conservancy District. An advance is not recommended for this request since the expected project will require a significant grant component and the District has no sewer revenue to repay an advance.

Duck Creek
Supplemental Planning Grant Request
August 24, 2016

Division of Water Quality - Planning Advance Application Supplement

Plan of Study

In 2007, Kane County Water Conservancy District (the District), in collaboration with the Utah Department of Environmental Quality (UDEQ), the Southwest Utah Public Health Department (SWUPHD), and the U. S. Forest Service (USFS), completed a Wastewater Planning Study and Septic Density Analysis investigating potential pollution and contamination concerns in the Duck Creek area of Cedar Mountain in Utah.

This study and numerous others have documented the concern that discharge from onsite wastewater treatment systems may be contaminating ground and surface waters in the area. Of particular concern is the "valley" area near Duck Creek Village where the high ground water level can cause septic systems to be inundated with water and reduce the ability of the soils to provide good absorption media and treat the wastewater adequately.

The most viable alternatives identified in the 2007 study to address these concerns involved the creation of a regional wastewater collection and treatment system which would include the repair, utilization, or expansion of the existing Forest Service wastewater treatment lagoons. Utilization of the existing Forest Service treatment site offers numerous advantages including locational, environmental and financial advantages.

Providing wastewater collection and treatment services to private residents is excluded from the mission of USFS; USFS has indicated their inability (by virtue of mandate and policy) to receive wastewater from adjacent private development. Coordination meetings with the Dixie National Forest included discussion of a viable alternative for the District to take ownership of the existing wastewater treatment lagoons and infrastructure, thereby providing for treatment of all wastewater, both from private developments and USFS facilities, at the existing lagoon site. It was determined that the only method for transfer of ownership from USFS to the District was through the Townsite Act process.

The District applied for and received a DEQ Hardship Planning Advance in the amount of \$173,000 in 2013 which funded various expenses related to completing the Townsite Act process including administrative and funding efforts, an update to the previously completed wastewater facilities plan, completion of the Townsite Act application, and NEPA processes to be completed by the District and its consultants. The Townsite Act process is progressing, and has now advanced to the point of commencement of environmental (NEPA) processes, surveying of the parcels to be disposed, and appraisal of the parcels to be disposed.

The District is now requesting additional financial assistance to fund expenses related to the Townsite Act process, which will be completed by USFS and which were not included in the 2013 funding application. These expenses include USFS environmental and oversight work, property surveys to be completed by USFS, and the appraisal to be completed by USFS (see attached USFS Collection Agreement Financial Plan). The District does not currently have the financial resources to self-fund these additional project related expenses which are necessary to move the project forward.

Upon completion of the Townsite Act process, it is anticipated that the District will be in a position to seek funding to purchase the property and fund design and construction of the wastewater system improvements recommended by the updated facility plan.

Schedule

Depending upon USFS participation and availability, it is expected that the environmental reviews by USFS and the District's consultants will be completed by September 1, 2017, with the survey and appraisal work being completed concurrently. Approval and clearance by USFS for disposal of the property is expected in that time frame. Following approval, the District anticipates beginning the process of funding the property purchase, design, and construction of the proposed wastewater improvements.

Construction of the proposed project would be completed in the summer construction season following completion of the Townsite Act process and successful funding of the proposed improvements.

Financial Hardship

The proposed project would return to a dormant status if funding is not secured; USFS has indicated that it can neither proceed with its portion of the NEPA process nor scope the work to be completed by THE DISTRICT's consultants until such time as the Collection Agreement fee has been received. The fee cannot be funded by previously approved UDEQ funds because the work was not contemplated in the 2013 funding application. The septic systems of a high percentage of the local businesses continue to be problematic.

Other Funding Sources

Since completion of the 2007 study, the District has expended a certain amount of funds to finance progress of this project including additional study, public input and coordination with USFS. During this time, no other feasible funding options have been found.

Forest Service Agreement #

Cooperator Agreement #

**Collection Agreement Financial Plan
 Cooperator and FS Contributions**

COST ELEMENTS and related data				Cooperator Contribution	FS Non-Cash Contribution	
Line Item Cost Subtotals				Subtotal	Subtotal	Combined Subtotals
PERSONNEL						
Resource Specialists (List all personnel):						
	# of Days	\$/Day				
Steve O'Neil - Engineering/HAZMAT	8	\$390.82		\$3,126.56		\$3,126.56
Chris Butler - Floodplains/Wetlands	3	\$413.57		\$1,240.71		\$1,240.71
Devin Johnson - TESP Wildlife	3	\$337.67		\$1,013.01		\$1,013.01
Mark Madsen - TESP Botanical	1	\$393.73		\$393.73		\$393.73
Patrick Moore - Timber	3	\$356.94		\$1,070.82		\$1,070.82
Susan Baughman - Minerals	3	\$419.00		\$1,257.00		\$1,257.00
Marian Jacklin- Archeology	5	\$389.97		\$1,949.85		\$1,949.85
Brian Monroe-Range	2	\$364.88		\$729.76		\$729.76
Josie Muse - NEPA	12	\$300.00		\$3,600.00		\$3,600.00
Kathy Slack - Special Uses	5	\$363.66		\$1,818.30		\$1,818.30
Mindy Savage - Project Indexing	5	\$203.35		\$1,016.75		\$1,016.75
Sherryl Liermann-Recreation	3	\$326.31		\$978.93		\$978.93
Kevin Wright	5	\$456.00		\$2,280.00		\$2,280.00
Kathy Zamba-RO Hazmat	1	\$549.44		\$549.44		\$549.44
				\$0.00		\$0.00
David Hanrion- Land Surveyor	2	\$412.00		\$824.00		\$824.00
Terry Kessel-Survey Party Chief	15	\$304.00		\$4,560.00		\$4,560.00
Mike Riley-Survey Technician	15	\$262.00		\$3,930.00		\$3,930.00
						\$0.00
						\$0.00
Subtotal, Personnel:	91			\$30,338.86	\$0.00	\$30,338.86
TRAVEL						
Explanation of trips: From Where/To Where/For Whom	Vehicle Mileage Cost or Airfare Cost	# of Days	PerDiem and Lodging			
				\$0.00	\$0.00	\$0.00
				\$0.00	\$0.00	\$0.00
				\$0.00	\$0.00	\$0.00
				\$0.00	\$0.00	\$0.00
Subtotal, Travel:	\$0.00		\$0	\$0.00	\$0.00	\$0.00

Duck Creek
 Supplemental Planning Grant Request
 August 24, 2016

U.S. Forest Service

OMB 0596-0217
 FS-1500-18

EQUIPMENT					
Name and Type of Equipment:	Unit Cost	Quantity			
		1	\$0.00	\$0.00	\$0.00
		1	\$0.00	\$0.00	\$0.00
			\$0.00	\$0.00	\$0.00
Subtotal, Equipment:	\$0.00	2	\$0.00	\$0.00	\$0.00
SUPPLIES					
Name and Type of Supplies:	Unit Cost	Quantity			
Boundary Markers	\$13.50	72	\$972.00	\$0.00	\$972.00
Monuments	\$20.00	18	\$360.00	\$0.00	\$360.00
Stakes, Paint, flagging and misc			\$0.00	\$0.00	\$0.00
Subtotal, Supplies:	\$33.50	90	\$1,332.00	\$0.00	\$1,332.00
CONTRACTUAL					
Describe Contracts that will most likely result from this project:					
Phase One Hazardous Materials Report			\$250.00	\$0.00	\$250.00
			\$0.00	\$0.00	\$0.00
			\$0.00	\$0.00	\$0.00
Subtotal, Contractual:			\$250.00	\$0.00	\$250.00
OTHER					
Describe Other Costs of the Project:					
Plat preparation and filing			\$912.00	\$0.00	\$912.00
			\$0.00	\$0.00	\$0.00
Appraisal			\$15,500.00	\$0.00	\$15,500.00
			\$0.00	\$0.00	\$0.00
Subtotal, Other:			\$16,412.00	\$0.00	\$16,412.00
TOTAL DIRECT CHARGES			\$48,332.86	\$0.00	\$48,332.86
OVERHEAD ASSESSMENT (If applicable, see FSH 1909.13)	Insert Rate Here:	8.0%	\$3,866.63		
Total Party Costs			\$52,199.49	\$0.00	
TOTAL PROJECT COSTS					\$52,199.49

Burden Statement

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0217. The time required to complete this information collection is estimated to average 45 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.



FS Agreement No. 16-CO-11046000-032

Cooperator Agreement No. _____

COLLECTION AGREEMENT
Between
KANE COUNTY
And The
USDA, FOREST SERVICE
R4-INTERMOUNTAIN REGION

This COLLECTION AGREEMENT is hereby entered into by and between Kane County, Utah, hereinafter referred to as "the County", and the USDA, Forest Service, Intermountain Region, Lands, hereinafter referred to as the "U.S. Forest Service," under the provisions of the Cooperative Funds Act of June 30, 1914 (16 U.S.C. 498 as amended by Pub. L. 104-127.

Background: Kane County, Utah submitted an application for Townsite Act conveyance, dated June 2, 2015 for approximately 74 acres. The main purpose is to acquire and expand the existing Forest Service sewer lagoons for the Kane County Water Conservancy District. Other purposes served are Cedar Mountain Fire Protection, Western Kane County Special Service District #1 (Solid Waste), Kane County (Road Dept., Sheriff's Office, etc.) and Duck Creek Village Association (Future Community needs). On the site there currently exist Forest Service sewer lagoons and a Fire Department building under special use permit to Cedar Mountain Fire Protection district.

Title: Duck Creek Sewer Lagoons Townsite Act

I. PURPOSE: The purpose of this agreement, and incorporated Financial Plan, is to document the voluntary contribution of funds from the County to the U.S. Forest Service to conduct the necessary specialist reports, to perform a cadastral survey to determine parcel configuration and acreage and to facilitate an appraisal according to Uniform Appraisal Standards for Federal Land Acquisition to determine market value for the sale of federal land. Also included is the necessary deed preparation and advertising in the Federal Register and newspapers.

II. THE County SHALL:

A. LEGAL AUTHORITY. The County shall have the legal authority to enter into this agreement, and the institutional, managerial, and financial capability to ensure proper planning, management, and completion of the project, which includes funds sufficient to pay the nonfederal share of project costs, when applicable.

- B. Perform in accordance with the Financial Plan.
- C. Upon presentation of a Bill for Collection, deposit with the U.S. Forest Service the amount agreed to in the Financial Plan.

III. THE U.S. FOREST SERVICE SHALL:

- A. **ADVANCE BILLING.** The maximum total cost liability to the The County for this agreement is \$52,199.49. The U.S. Forest Service shall bill the County prior to commencement of work for deposits sufficient to cover the estimated costs (including overhead) for the specific payment period. Overhead is assessed at the rate of 8.0 percent.

Billing Method: a single lump sum

Billing must be sent to:

Kane County Commissioners
c/o Dirk Clayson
76 N. Main Street
Kanab, Utah 84741

- B. Perform in accordance with the attached Financial Plan.

IV. IT IS MUTUALLY AGREED AND UNDERSTOOD BY AND BETWEEN THE PARTIES THAT:

- A. **PRINCIPAL CONTACTS.** Individuals listed below are authorized to act in their respective areas for matters related to this agreement.

Principal Cooperator Contacts:

Cooperator Program Contact	Cooperator Administrative Contact
Name: Dirk Clayson Address: 76 N Main Street City, State, Zip: Kanab, Utah 84741 Telephone: 435-616-1234 FAX: 435-644-4939 Email: dirkclayson@gmail.com	Name: Karla Johnson Address: 76 N. Main Street City, State, Zip: Kanab, UT 84741 Telephone: 435-644-2458 FAX: 435-644-4939 Email: cleckkj@kane.utah.gov



Principal U.S. Forest Service Contacts:

U.S. Forest Service Program Manager Contact	U.S. Forest Service Administrative Contact
Name: Kevin Wright Address: 1789 Wedgewood Lane City, State, Zip: Cedar City, UT 84721 Telephone: 435-865-3741 FAX: 435-865-3791 Email: kevinjwright@fs.fed.us	Name: Carla Pickering Address: 324 25 th Street City, State, Zip: Ogden, UT 84401-2310 Telephone: 801-625-5812 FAX: 801-625-5365 Email: carlapickering@fs.fed.us

- B. **FOREST SERVICE LIABILITY TO THE COOPERATOR.** The United States shall not be liable to The County for any costs, damages, claims, liabilities, and judgments that arise in connection with the performance of work by the U.S. Forest Service or its contractors under this agreement, including but not limited to damage to any property owned by The County or any third party.
- C. **REFUNDS.** Funds collected in advance by the U.S. Forest Service, which are not spent or obligated for the project(s) approved under this agreement, may be refunded to the County, authorized for use for a new agreement by the County, or waived by the County. A DUNS number and registration in the System for Award Management (SAM) by the County may be necessary to process a refund. Due to processing costs, any balance less than \$25 shall not be refunded to the County.
- D. **FREEDOM OF INFORMATION ACT (FOIA).** Public access to agreement records must not be limited, except when such records must be kept confidential and would have been exempted from disclosure pursuant to Freedom of Information regulations (5 U.S.C. 552). Requests for research data are subject to 2 CFR 215.36.
- Public access to culturally sensitive data and information of Federally-recognized Tribes may also be explicitly limited by P.L. 110-234, Title VIII Subtitle B §8106 (2009 Farm Bill).
- E. **PARTICIPATION IN SIMILAR ACTIVITIES.** This agreement in no way restricts the U.S. Forest Service or the County from participating in similar activities with other public or private agencies, organizations, and individuals.
- F. **ENDORSEMENT.** Any of the County's contributions made under this agreement do not by direct reference or implication convey U.S. Forest Service endorsement of the County's products or activities.
- G. **NOTICES.** Any communication affecting the operations covered by this agreement by the U.S. Forest Service or the County will be sufficient only if in writing and delivered in person, mailed, or transmitted electronically by e-mail or fax, as follows:



To the U.S. Forest Service Program Manager, at the address specified in the agreement.

To the County, at the County's address shown in the agreement or such other address designated within the agreement.

Notices are effective when delivered in accordance with this provision, or on the effective date of the notice, whichever is later.

- H. TERMINATION FOR COLLECTION AGREEMENTS. Either party, in writing, may terminate this agreement in whole, or in part, at any time before the date of expiration. The U.S. Forest Service shall not incur any new obligations for the terminated portion of this agreement after the effective date of termination and shall cancel as many obligations as possible. Full credit must be allowed for U.S. Forest Service expenses and all non-cancelable obligations properly incurred up to the effective date of termination. Excess funds must be refunded in accordance with the REFUND provision of the agreement.
- I. DEBARMENT AND SUSPENSION. The County shall immediately inform the U.S. Forest Service if they or any of their principals are presently excluded, debarred, or suspended from entering into covered transactions with the Federal Government according to the terms of 2 CFR Part 180. Additionally, should the County or any of their principals receive a transmittal letter or other official Federal notice of debarment or suspension, then they shall notify the U.S. Forest Service without undue delay. This applies whether the exclusion, debarment, or suspension is voluntary or involuntary.
- J. MODIFICATIONS. Modifications within the scope of this agreement must be made by mutual consent of the parties, by the issuance of a written modification signed and dated by all properly authorized, signatory officials, prior to any changes being performed. Requests for modification should be made, in writing, at least 30 days prior to implementation of the requested change. The U.S. Forest Service is not obligated to fund any changes not properly approved in advance.
- K. COMMENCEMENT/EXPIRATION DATE. This agreement is executed as of the date of the last signature, and has an expiration date of December 31, 2018. The expiration date is the final date for completion of all work activities under this agreement.
- L. AUTHORIZED REPRESENTATIVES. By signature below, each party certifies that the individuals listed in this document as representatives of the individual parties are authorized to act in their respective areas for matters related to this agreement. In witness whereof, the parties hereto have executed this agreement as of the last date written below.



DIRK CLAYSON, Commissioner
Kane County, Utah

7/12/16

Date



State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF WATER QUALITY
Walter L. Baker, P.E.
Director

UH

Water Quality Board
Myron E. Bateman, Chair
Shane E. Pace, Vice-Chair
Clyde L. Bunker
Steven K. Earley
Gregg A. Galecki
Dr. James VanDerslice
Jennifer Grant
Michael D. Luers
Alan Matheson
Walter L. Baker
Executive Secretary

MEMORANDUM

TO: Water Quality Board
FROM: Jim Bowcutt, Nonpoint Source Program Coordinator
THROUGH: Walter L. Baker P.E.
DATE: July 29, 2016
SUBJECT: State Nonpoint Source Program Annual Report FY2016

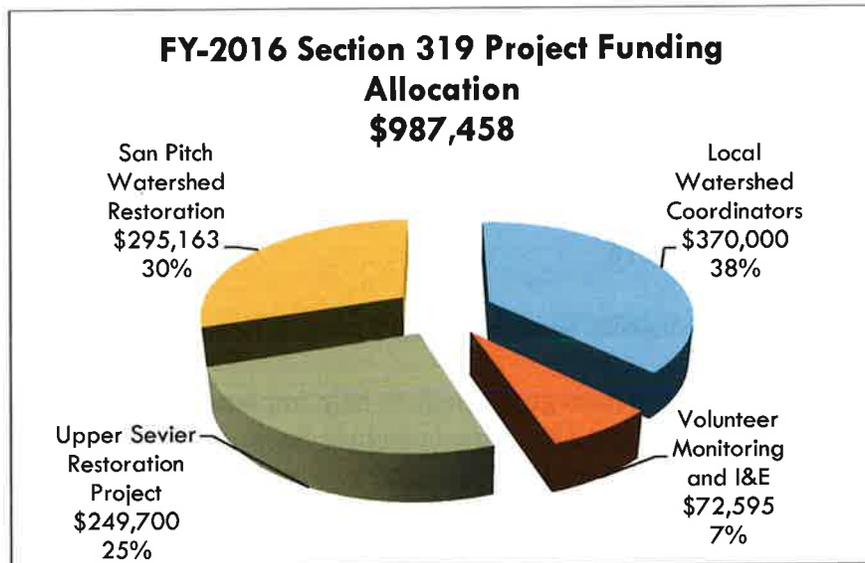
The Division of Water Quality receives grant funds to help implement nonpoint source pollution control projects throughout the state. These grants include Section 319(h) funds from the Environmental Protection Agency and State Nonpoint Source funds authorized by the Water Quality Board. Every year an annual report is submitted to EPA on the accomplishments of the State's Nonpoint Source Program. Staff will present a summary of this report to the Water Quality Board during the meeting scheduled for August 24, 2016.

Attached is an executive summary of the Annual Nonpoint Source Program Report and grant applications funded for the 2017 fiscal year.

State of Utah Nonpoint Source (NPS) Annual Report Utah Water Quality Board Meeting August 24th, 2016

Section 319 Nonpoint source funds

- In FY-16 the State of Utah received \$1,428,000 in Federal Section 319(h) funds. Of these funds, \$440,542 was used for staffing and support, while the remaining \$987,458 was dedicated to 4 projects.



- In addition to the FY-16 funds Utah continues to manage five other federal grant awards, which have been expended to a varied degree. Table 1 summarizes grant awards by year and the approximate percentage that has already been expended in each grant.

Table 1

Section 319(h) Nonpoint Source Funding Project Allocations			
Federal Fiscal Year	Grant Award	Total Expenditures	Percent Expended
FY-11	\$832,921	\$776,468	93%
FY-12	\$830,800	\$751,529	90%
FY-13	\$861,621	\$711,371	83%
FY-14	\$893,621	\$591,299	66%
FY-15	\$888,621	\$452,198	51%
FY-16	\$987,458	\$0	0%
Total	\$5,603,363	\$4,168,672	74%

- The targeted basin funding cycle is now being fully implemented (See Table 2). Since the State began using the targeted basin funding cycle projects are being implemented faster, the quality of projects has improved, the effectiveness of projects is more easily identified, and more partners have begun to align their technical and financial assistance programs with the targeted basin schedule.

Table 2

Basin Priority Funding Schedule						
Watershed	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
(1) Jordan/ Utah lake						
(2) Colorado River						
(3) Sevier, Cedar-Beaver						
(4) Bear River						
(5) Weber River						
(6) Uinta Basin						

- The Bear River is the targeted basin for FY 2017.

Projects Funded in FY-2017

- 57 Grant Applications were received totaling \$4,636,508.
- 44 Projects were funded totaling \$2,087,458 (See FY-2017 Grant Funding Table)

FY-2017 Grants Funded with State NPS Funding

Project Title	Watershed	Sponsor	Contact	Project Type	Amount Requested	Amount Awarded
Local Watershed Coordinators	Statewide	Utah Division of Water Quality	Jim Bowcutt	Technical Assistance	\$400,000.00	\$30,000.00
Utah Watershed Coordinating Council	Statewide	Utah Watershed Coordinating Council	Jim Bowcutt	Watershed Group Support	\$10,000.00	\$10,000.00
Little Mountain Cattle Co. Feedlot Relocation	Lower Bear River	Private Landowner	Buzz Nelson	AFO/CAFO	\$40,000.00	\$40,000.00
2016-2017 Water Week Library Program	Statewide	Intermountain Section AWWA	Alane Boyd	I & E	\$5,200.00	\$4,000.00
Watershed Education in the Provo River Watershed	Utah Lake	Provo River Watershed Council	D Smith	I & E	\$15,000.00	\$10,000.00
Producer Website	Statewide	USU	Rhonda Miller	I&E	\$10,000.00	\$10,000.00
South East Colorado Technical Assistance	South East Colorado	Grand Conservation District	Mike Allred	Technical Assistance	\$35,000.00	\$35,000.00
Homgren Brother's Fencing	Middle Bear River	Private Landowner	Buzz Nelson	Stream Bank	\$34,250.00	\$34,250.00
Engaging Youth Livestock Producers in Manure Management	Statewide	Utah State University	Joshua Dallin	I&E	\$8,276.00	\$8,276.00
Thurston Ranch Riparian Fence	Weber	Trout Unlimited	Paul Burnett	Stream Bank	\$8,855.00	\$8,855.00
Stuart Nature Park	Middle Bear River	Blacksmith Fork Conservation District	Margie	Stream Bank	\$127,500.00	\$80,000.00
Jordan River Ecosystem Restoration at 1700 South	Jordan River	Salt Lake County	Robert Thompson	Streambank	\$554,565.00	\$71,530.00
Terry Welch Stream Restoration	Upper Sevier	Private Landowner	Wally Dodds	Stream Bank	\$28,700.00	\$28,700.00
Cameron Parry Stream Bank	San Pitch	San Pete Conservation District	John Saunders	Stream Bank	\$19,800.00	\$19,800.00
Thanksgiving Point ECO Challenge	Utah lake/Jordan River	Thanksgiving Point Institute	K Shoemaker	I&E	\$7,000.00	\$5,000.00
Pamela Bingham Stream Bank	Middle Sevier	Private Landowner	Pam Bingham	Stream Bank	\$19,740.00	\$19,740.00
Chris Allen Cover Crop	Middle Bear River	Private Landowner	Margie	Cover Crop	\$13,590.00	\$13,590.00
Otter Creek Restoration Project	Middle Sevier	Bureau of land Management	Justin Jimenez	Stream Bank	\$60,000.00	\$60,000.00
Norm Weston Stream Bank	Upper Bear River	Bear Lake Regional Commission	Mitch Poulsen	Stream Bank	\$23,606.00	\$23,606.00
E.coli Source I.D and Pet Waste I&E	Jordan River	Salt Lake County	Marinar Rice	Research/I&E	\$159,297.00	\$60,000.00
Fremont project	Middle Sevier	Private Landowner	Leon Chapel	Streambank	\$22,000.00	\$22,000.00
Pearl Land and Livestock Spring Restoration	Upper Bear River	Bear Lake Regional Commission	Mitch Poulsen	Stream Bank	\$12,140.00	\$12,140.00
Duchesne River Areal Survey	Uinta Basin	Utah Division of Wildlife Resources	Trina Hedrick	Project Planning	\$28,200.00	\$28,200.00
Otter Creek Watershed Plan Development	Middle Sevier	Piute Conservation District	Tracy Balch	Watershed Planning	\$60,000.00	\$40,000.00
New MST Protocols in the Bear and Jordan River	Bear/ Jordan River	University of Utah	Ramesh Goel	Research	\$52,096.00	\$26,307.00
Onsite Set-aside	Statewide	UDWQ	Carl Adams	Septic	\$10,000.00	\$10,000.00
Ron Boyer Stream Bank Project	Weber	Private Landowner	Andy Pappas	Stream Bank	\$36,250.00	\$36,250.00
Stephens and Pace Ranch Conservation Easement	Weber	Summit Land Conservancy	Jennifer Buchi	Conservation Easement	\$10,000.00	\$10,000.00
Charles Rex Streambank Stabilization	Upper Bear River	Bear Lake Regional Commission	Mitch Poulsen	Stream Bank	\$33,000.00	\$33,000.00
Jason Morgan Irrigation Project	Weber	Private Landowner	Andy Pappas	Irrigation	\$20,000.00	\$5,000.00
Envirothon	Statewide	UACD	Loralie Cox	I&E	\$5,000.00	\$5,000.00
Pelican Lake Drainage Watershed Plan	Uinta Basin	Utah Division of Wildlife Resources	Trina Hedrick	Watershed Planning	\$40,000.00	\$40,000.00
Helper City Project	Colorado River	Helper City	Jona Skerl	Stream Bank	\$37,448.00	\$25,000.00
Steve Redd	South East Colorado	Private Landowner	Arne Hultquist	AFO/CAFO	\$127,537.00	\$127,537.00
Water Quality Monitoring of Juniper Treatment Programs	Raft River/GSL	UGS	Hugh Hurlow	Research	\$7,219.00	\$7,219.00
Total					\$2,081,269.00	\$1,000,000.00

Projects Funded with Section 319 Funding

Local Watershed Coordinators	Statewide	Utah Division of Water Quality	Jim Bowcutt	Technical Assistance	\$370,000.00	\$370,000.00
Mantua's Maple and Dam Creek Projects	Lower Bear River	Northern Utah Conservation District	Margie	Stream Bank	\$45,740.00	\$45,740.00
Logan River Restoration	Middle Bear River	Blacksmith Fork Conservation District	Margie	Stream Bank	\$818,488.00	\$497,366.00
Utah Water Watch	Statewide	Utah State University	Nancy Mesner	I&E	\$75,630.00	\$75,630.00
Main Creek Stream Restoration Below Roundy Lane	Provo River	Wasatch Conservation District	Daniel Gunnell	Stream Bank	\$21,682.00	\$21,682.00
Little Hobbie Creek Restoration above Round Valley	Provo River	Wasatch Conservation District	Daniel Gunnell	Stream Bank	\$6,420.00	\$6,420.00
Main Creek Restoration Below Round Valley Lane	Provo River	Wasatch Conservation District	Daniel Gunnell	Stream Bank	\$16,050.00	\$16,050.00
Spring Creek Restoration Above Roundy Lane	Provo River	Wasatch Conservation District	Daniel Gunnell	Stream Bank	\$22,470.00	\$22,470.00
Lower Spring Creek Restoration	Provo River	Wasatch Conservation District	Daniel Gunnell	Stream Bank	\$32,100.00	\$32,100.00
Total					\$1,408,580.00	\$1,087,458.00

Funding Available

2017 Section 319 funding	\$	987,458.00
2015 Section 319 Funding	\$	100,000.00
NPS	\$	1,000,000.00
Total	\$	2,087,458.00