

**APPLICATION NUMBER 3-  
Salt Lake City  
Project Title: Liberty Lake Restoration**

**UTAH DIVISION OF WATER QUALITY**  
195 North 1950 West  
PO Box 144870  
Salt Lake City, Utah 84114-4870

**Red Butte Creek Project Proposal Form**

**NOTE: Proposal must be no longer than 6 pages. Supplemental documents such as letters of support, information to demonstrate previous project implementation and other relative supportive documents may be submitted in addition to this form.**

Applicant Name: Salt Lake City Corporation

Co-Applicant Name (if applicable): Not applicable

Agency or Business Name (if applicable): Salt Lake City Department of Public Services

Mailing Address: P.O. Box 145470 City: Salt Lake City State: UT Zip: 84114-5470

Phone: ( 801 ) 535 - 7774 E-mail: rick.graham@slc.gov.com

Individual     Non Profit     Govt. Agency     Business     Commercial     Other

1. Estimated Project Costs:

Labor	\$	<u>295,858</u>
Materials	\$	<u>included in Labor</u>
Equipment	\$	<u>0</u>
Administration	\$	<u>2,000</u>
Miscellaneous	\$	<u>61,657</u>
TOTAL	\$	<u>359,516</u>
<b>Total funding request</b>	<b>\$</b>	<b><u>\$359,516</u></b>

Other sources of project funding

<u>          </u>	<u>\$0</u>	<u>          </u>	<u>\$0</u>
Source	Amount	Source	Amount
<u>          </u>	<u>\$0</u>	<u>          </u>	<u>\$0</u>
Source	Amount	Source	Amount
<u>          </u>	<u>\$0</u>	<u>          </u>	<u>\$0</u>
Source	Amount	Source	Amount
<u>          </u>	<u>\$0</u>	<u>          </u>	<u>\$0</u>
Source	Amount	Source	Amount

Total project cost including other sources of funding: \$ 359,516  
(please include bids for labor, equipment, rentals, etc.)

2. Describe the purpose and need of the project:

*Purpose.* The purpose of the Liberty Lake Restoration project is to improve the ecosystem functions and services of an urban water body with the goal to create and maintain a dynamic exchange between living and non-living components that enhance habitat and public experience at Liberty Lake. Natural ecosystem functions become services when the system is balanced to supply resources and processes to the public such as clean water, climate stability, support for nutrient cycles, and cultural benefits such as recreation and connection to nature. The proposed restoration project will: 1) enhance the overall habitat of Liberty Lake including and most importantly the transition between the open water and land, the emergent wetland and shoreline edge; 2) increase the diversity of habitat necessary to balance the natural filtration functions of the lake; and 3) enhance the unique cultural ecosystem service the site provides to the community.

*Significance of the Project Site.* Liberty Park is the oldest and most prominent park in Utah and is a central cultural and recreational amenity of the urban core of the city. Since its beginning in 1882, Liberty Park has been a favorite open space retreat for thousands of people who enjoy its beautiful trees, shrubs and clean mountain air. It is a place to connect with nature, a place to enjoy friendships and family relationships, and a place to escape the daily cares of life. Throughout the years, the public has enjoyed the grass and cool shade trees for lawn games and barbecuing. Sports such as jogging, bicycling, tennis, canoeing, horseshoes, and volleyball have always been an important part of Liberty Park. Liberty Lake was established as part of a former flood control project with Red Butte Creek, Emigration Creek, and the Salt Lake Jordan Canal running into it. Salt Lake City (the City) over the years has enhanced the lake to become one of the remarkable features of Liberty Park. As Liberty Lake is a main attraction at the park, the restoration project will enhance not only the habitat quality, but will also provide an enhanced aesthetic and educational experience for the thousands of visitors annually.

*Need.* Liberty Lake and its wildlife inhabitants were highly impacted by the Red Butte Creek Oil release due to their downstream location two miles south from the point of release. The lake served as a retention pond for a large portion of the 33,600 gallons of crude flowing toward the Jordan River and the Great Salt Lake. Liberty Lake through the deployment of booms contained a large portion of the oil release, thereby offsetting total impacts to the Jordan River. The role that Liberty Lake played in containing the release increased the negative impact on wildlife (macroinvertebrates, fish, and birds) and their habitat in Liberty Lake. Waterfowl at Liberty Lake were most affected by the oil released. Of the 364 birds that were captured with signs of exposure, 328 birds were released after being cleaned, 9 birds were euthanized, and 27 birds died as a result of exposure. In addition, approximately 500 fish collected from Liberty Lake were euthanized as a result of exposure. Impacts to macroinvertebrates and other indicator species as a result of the release are unknown. In addition to the direct environmental impacts, the public's experience of Liberty Lake has been altered due to the remediation activity and modifications.

*Proposed Restoration Scope of Work.* The restoration activities will support macroinvertebrate, migratory bird, fish and other wildlife species by creating and enhancing habitats, which provide a place for feeding, nesting, shelter, and social interaction. There are four habitats that will be established in and around Liberty Lake: 1) upland (0.08 acres); 2) shoreline edge (0.3 acres); 3) emergent wetland (0.4 acres); and 4) floating islands. The restored habitats will be further enhanced for the water birds by adding appropriately sized ramps that are needed to facilitate their ingress and egress of the land and open water, which is especially important for young goslings and ducklings. During the oil release cleanup, a curb infrastructure was installed to provide erosion control along the shoreline. To further reduce shoreline erosion and improve user experience, an

improved boat dock will be installed to protect the shoreline habitat from human impacts. During the site preparation and restoration work, a series of family-friendly interactive educational programs will be conducted by trained naturalist staff of Tracy Aviary. Tracy Aviary is a City and non-profit partnership providing for public education and access to local native and migratory bird species in Liberty Park just east of Liberty Lake. The proposed educational programs will focus on the status of the restoration activities and their importance to the bird population of Salt Lake City. Other education program topics will include beginning bird watching and the role of the new habitat at Liberty Lake in supporting wild bird populations. Not only will the programs provide a unique educational experience, they will also serve as an opportunity to track the progress and ecological benefits of the restoration project. In addition, educational signage will be installed at key points to describe the function and importance of Liberty Lake, its restored habitat, and its context in the watershed. The interpretive signs will also identify further opportunities for the public to interact and learn about native wildlife species at the Tracy Aviary. A detailed conceptual plan is attached that shows the specific locations for the improvements.

3. Estimate time frame of the project with significant milestones (Note: Project must be completed with final reports filed by November 10, 2014):

The estimated time frame for the Liberty Lake Restoration is 33 months (2.75 years) with a start date of February 2012 and a completion date of October 2014.

<u>Interim Milestones</u>	<u>Start Date</u>	<u>Completion Date</u>
Develop qualified consultant list	February 2012	February 2012
Issue RFP to qualified consultant list	February 2012	March 2012
Select riparian design consultant	March 2012	April 2012
Final design and specification documents	April 2012	June 2012
Issue RFP to qualified consultant list	July 2012	September 2012
Select riparian restoration specialist	September 2012	September 2012
Permits, due diligence, and public outreach (Phase 1)	October 2012	February 2013
Riparian restoration site work	March 2013	September 2013
Conduct public outreach (Phase 2)	May 2013	September 2013
Fall planting	October 2013	November 2013
Spring planting	April 2014	May 2014
Fall planting	October 2014	October 2014

4. Describe the location of the project with attached location map, including details on the total area that will be directly enhanced by the project:

Liberty Lake is located on the southeast quadrant of Liberty Park, which is located between 900 and 1300 South and 500 and 700 East in Salt Lake City, Utah. Liberty Lake is a confluence of Red Butte Creek, Emigration Creek, and Parley's Creek prior to these waters being delivered by culvert to the Jordan River at 1300 South. There are two existing islands in the lake. One of these islands is accessible by a bridge and has a gazebo. The other island is only accessible to birds and provides habitat. A location map is provided as an attachment. The total area that will be directly enhanced by the proposed project is 0.93 acres.

5. Describe how the project will specifically enhance and protect waterways affected by the Red Butte release and improve the conditions of one or more of the following: wildlife, habitat, natural vegetation, water quality or emergency response:

The proposed project will enhance and protect waterways and will improve the conditions for wildlife, habitat, natural vegetation and water quality in the following ways:

*Waterway Protection.* The Liberty Lake Restoration Project will enhance and restore habitat of the existing lake, which serves as a key waterbody in the hydrologic system connecting water flows from the Wasatch Mountains to the Jordan River and the Great Salt Lake. The restoration of this critical waterbody in a public park affected by the oil release supports the ecosystem services to the urban core and allows for continued public access and education. The proposed restoration incorporates public outreach and educational components to encourage public participation in the long-term stewardship of the waterbody and watershed. Public outreach and education will be enhanced by the installation of educational signs and programming. The signs will increase the public's awareness of water resources, understanding of restoration methods, and understanding of their role in waterway protection throughout the city. The signage will inform visitors of the value of riparian ecosystems and Liberty Lake's role in providing quality habitat and ecosystem services.

*Improved Conditions for Wildlife.* The proposed habitat improvements and restoration activities will improve wildlife ingress and egress from open water to floating islands, emergent wetlands, shoreline edges, and upland habitat. Additionally, the project will increase the acreage of habitat available for species reproduction (nesting and spawning), resting and feeding by the wildlife that relies on Liberty Lake within a dense urban environment. Increased acreage of habitat will also provide reproducing wildlife with protection from predators.

*Improved Conditions for Habitat and Natural Vegetation.* There are four main habitat types that will be established in an around Liberty Lake including upland, shoreline edge, emergent wetland, and floating island. These habitat types will support macro invertebrates, fish, and birds. Four critical habitats will be established: 1) upland (0.08 acres); 2) shoreline edge (0.3 acres); 3) emergent wetland (0.55 acres); and 4) at least eight floating islands. At least, 0.38 acres will receive treatment for invasive plant removal and soil amendment to support the establishment of a native plant palette. Native vegetation plays a critical role in sustaining wildlife. Through the re-introduction of native plants and the control of noxious weeds, the overall quality and complexity of the habitat will be enhanced.

*Improved Conditions for Water Quality.* Water quality of Liberty Lake will be improved as a result of increased sediment and pollution filtration by the emergent wetlands plantings and floating islands. These habitat types will cool water temperature by providing shade, thereby supporting downstream cold water fisheries. The water quality improvements will directly benefit the Jordan River by contributing to a decrease in the Total Maximum Daily Load (TMDL) of the river, which is listed as water quality impaired on the State of Utah 2008 303(d) list for low dissolved oxygen, high sediment, high levels of total suspended solids, high temperature, and high bacteria levels.

6. Describe project's connectivity to other natural areas or projects that further enhance wildlife, habitat, natural vegetation, water quality or emergency response:

*Physical Connectivity.* The location of Liberty Lake within the urban core of Salt Lake City makes it a key longitudinal connection and stepping-stone for wildlife between habitats of the Wasatch Mountains, the Jordan River and the Great Salt Lake. Collectively these habitats support an ecosystem of hemispheric significance in terms of providing resting, staging, and nesting habitat for migratory bird populations, whose numbers reach into the millions. Liberty Lake serves as a habitat oasis for fish, birds, mammals, and other aquatic and terrestrial species. Therefore, improved habitat quality in Liberty Lake has a direct impact on other natural areas between the Wasatch Mountains and the Great Salt Lake.

*Project Connectivity.* Salt Lake City is actively engaged in improving the riparian corridors associated with City Creek, Red Butte Creek, Emigration Creek, and Parley's Creek, and the City participates in planning processes focused on improving and protecting nearby water resources. In 2008, the City conducted multiple riparian corridor studies and passed an ordinance creating the Riparian Corridor Overlay District. The purpose of this special district is to minimize erosion and stabilize streambanks, improve water quality, preserve fish and wildlife habitat, moderate stream temperatures, reduce potential for flood damage, and preserve the natural aesthetic value of streams and wetland areas of the city. Additionally, the City is actively protecting and restoring nearby sections of the Red Butte Creek and Emigration Creek through acquisition, conservation, and restoration activities in Wasatch Hollow Open Space, Miller Park Bird Refuge, and the creeks' watersheds. The Liberty Lake Restoration project is directly connected and downstream from these other projects. All of these restoration projects will be coordinated, managed, and maintained comprehensively through the City's Parks and Public Lands Division.

7. Describe any additional social benefits of implementing this project:

Liberty Lake provides high quality recreational experiences for the estimated hundreds of thousands of members of the public who frequent Liberty Park each year. The site has been a fixture in the local community functioning as an important pocket of green space within an otherwise urbanized city environment. The lake is visually distinct from the remainder of the city's developed landscape and provides a unique experience. This conserved open space provides opportunities for residents to experience and learn about the natural processes as well as opportunities for active and passive recreation and to find a respite. The proposed restoration project will contribute to a high quality aesthetic and social experience for visitors to Liberty Lake. The addition of a diversity of habitat is expected to attract a richer diversity of bird and aquatic species contributing to a more interesting and fulfilling wildlife watching experience for the public. As a result of the restoration project, the functions of Liberty Lake will continue to serve as valued amenities for the general public.

8. Project plans and details, including rights to work on specified piece(s) of land:

A discussion of the proposed scope of restoration work is provided above in the response to Question 2. A detailed conceptual plan is attached. If the project grant is awarded, the City will secure the services of a qualified riparian restoration design consultant to draw up final detailed design plans and restoration specifications. In addition, the City will secure the services of a qualified riparian restoration specialist to conduct the site restoration work. The City owns and operates Liberty Park and has the right to conduct work on Liberty Lake. As with all projects that could affect a riparian system or flood plain, the City will coordinate internally and with appropriate jurisdictions to secure any necessary permits.

9. Describe your experience in implementing projects of similar scope and magnitude:

The City is in the process of implementing three restoration projects of similar scope and magnitude. The three restoration projects are: 1) City Creek Canyon (100-acre restoration); 2) Wasatch Hollow Open Space (10-acre restoration); and 3) Parley's Historic Nature Park (63-acre restoration). The City recently completed stream bank re-grading and establishment of native habitats at four restoration sites along the Jordan River with American Recovery and Reinvestment Act funding through the Utah Division of Water Quality. The Liberty Lake Restoration will be overseen by the City's Parks and Public Lands Division within the Department of Public Services in collaboration with the City's Department of Public Utilities. With the inter-department