

**UTAH DIVISION OF WATER QUALITY**

195 North 1950 West  
PO Box 144870  
Salt Lake City, Utah 84114-4870

**Willard Bay 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 ) 972 - 7828 E-mail: lewis.kogan@slcgov.com

Individual     Non Profit     Govt. Agency     Business     Commercial     Other

**1. Estimated Project Costs:**

Labor	\$	<u>221,857</u>
Materials	\$	<u>92,300</u>
Equipment	\$	<u>0</u>
Administration	\$	<u>2,549</u>
Miscellaneous	\$	<u>21,635</u>
TOTAL	\$	<u>338,341</u>
<b>Total grant request</b>	<b>\$</b>	<b><u>321,941</u></b>

Other sources of project funding

<u>Salt Lake City Corp.</u>	<u>\$16,400</u>	<u>None</u>	<u>\$0</u>
Source	Amount	Source	Amount

Total project cost including other sources of funding: \$ 338,341  
(please include bids for labor, equipment, rentals, etc.)

**2. Describe the purpose and need of the project:**

Purpose. The goal of the Salt Lake City North - Jordan River Restoration is to improve riparian habitat on 23 acres of public open space, owned by Salt Lake City Corporation (the City), between the future Regional Athletic Complex and the Jordan River in Salt Lake City. The proposed restoration project will result in robust, complex riparian vegetative buffers that serve to improve water quality, provide higher-quality habitat for birds and wildlife, and are more aesthetically pleasing than degraded riparian buffers.

*Need.* The project site has been severely compromised over the years by replacement of diverse vegetative communities with invasive species. Assessments conducted in 2003 by the Utah Division of Wildlife Resources (UDWR) and in 2010 by the City’s Division of Parks and Public Lands concluded that invasive plant species counted for more than 50 percent of all vegetative species present at the project site and in places approached 90 percent. The assessments also noted reduction in riverbank stability, floodplain function, and suitable bird and wildlife habitat resulting in part from weed prevalence. The Jordan River along the project site has tested high for *E. coli* and nearby Utah Division of Water Quality (UDWQ) monitoring stations also indicate above-acceptable levels of total dissolved solids, dissolved oxygen, and water temperature. The contiguous length of the Salt Lake City-owned open space property, combined with its proximity to Great Salt Lake wetlands, make it an ideal target for habitat restoration. The nearness of local schools, residential areas, Jordan River Parkway, and Regional Athletic Complex leverage additional public benefits. Recent bank stabilization and native habitat restoration efforts along sections of the opposite (east) bank will be positively affected by restoration of the west bank.

*Objectives.* The project objectives are to: (1) restore one mile of highly-degraded riparian habitat along the Jordan River’s west bank to a predominance of native riparian trees, shrubs and grasses, (2) evaluate and improve efficient restoration techniques that can be replicated and sustained elsewhere along the Jordan River, and (3) engage area youth in documentation of restoration efforts to build awareness and enthusiasm for ongoing restoration of the Jordan River’s unique ecosystem.

**3. Estimate time frame of the project with significant milestones (Note: Project must be completed with final reports filed by January 1, 2018).**

The time frame for the project is 3½ years with work occurring between September of 2014 and December of 2017 and restoration maintenance activities continuing indefinitely beyond project completion. A detailed project schedule showing key activities by season is provided as an attachment. The project phasing integrates restoration actions into the natural seasonality of biological cycles to maximize the effectiveness of restoration work, allow evaluation of successes to repeatedly inform the restoration methods, and promote a seamless transition to seasonal restoration maintenance following project completion. Significant milestones are listed below.

<u>Interim Milestones</u>	<u>Completion Date</u>
Site work begins   Bird surveys and vegetation observations initiated	September 2014
Project Restoration Manual prepared	December 2014
First of three YouthCity service projects on site	May 2015
First of six planting seasons complete	June 2015
First revision to Project Manual based on data collection	December 2015
Restoration celebration and youth documentary exhibit	August 2017
Final Project Restoration Manual prepared	December 2017

**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:**

The proposed restoration area is located along the Jordan River between 1800 North and 2500 North and is comprised of 23 contiguous acres west of the Jordan River and east of the Regional Athletic Complex. The project area includes approximately 6.7 acres of upland shrubland, 6.7 acres of upland grassland, 3.0 acres of off-channel wetlands, 5.9 acres of riparian forest complex, and approximately 0.7 acres of emergent bench wetlands. The 23 acres will receive restoration treatments including invasive species treatments and replacement seeding and riparian plantings.

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

In March 2013, the Willard Bay release resulted in 27,500 gallons of diesel fuel reaching the Willard Bay State Park. The release had significant impacts on nearby wildlife habitat and water quality, degraded riparian habitat along the Great Salt Lake margins, and compromised inputs from the Lake's source rivers. Research indicates that pollution inputs from source waters can have a wide-ranging effect on water quality across a broad region of the Great Salt Lake.<sup>1,2,3</sup> The Jordan River, one of three major rivers that feed the Lake, 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. The project will reduce the impacts from the Willard Bay release on the water quality of the Jordan River and the health of the Great Salt Lake ecosystem and will improve conditions for natural vegetation, wildlife habitat and water quality.

*Natural Vegetation.* The project will significantly increase the relative prevalence of Fremont cottonwood, box elder, and peachleaf willow in riparian forest areas currently dominated by Russian olive and Siberian elm and will reduce significantly and contain occurrences of hoary cress and other weedy forbes and grasses from the forest understory. Native willows and diverse wetland vegetation will be re-established on emergent bench wetlands, which are almost completely dominated by reed canarygrass and common reed. Infestations of cheatgrass, intermediate wheatgrass, and Russian knapweed in upland grassland and shrubland will be controlled and replaced with native shrubs and grasses. Relative populations of noxious weeds will be reduced to background occurrence levels sustainable through regular seasonal weed control conducted by the City as identified in the City's Integrated Pest Management Plan.

*Wildlife Habitat.* Restoration of native vegetation will have associated benefits to wildlife habitat. Lowland river and stream banks are rare in Utah, covering just 0.2 percent of the state<sup>4</sup> and 1.2 percent of Salt Lake City's land area<sup>5</sup>. Riparian areas occupy less than three percent of the land area of Utah and comprise about 1.2 percent of the land area of Salt Lake City<sup>1</sup>. Yet approximately 75 percent of the state's bird species rely on riparian habitat<sup>3</sup>. The proposed project will increase overstory, mid-story and understory vegetation complexity in the riparian zone, and increase the prevalence of native plants that co-evolved to support native wildlife. Restoration of one mile of contiguous riparian habitat only a short distance from the Great Salt Lake's shoreline wetlands will increase breeding, nesting, feeding, and resting habitat for a diversity of avian species.

*Water Quality.* Re-establishing native vegetation and increasing vegetative cover along the riverbank will reduce sediment loads to the river bed and reduce total suspended solids in the water column. The restored healthy vegetative streambanks will filter nutrient loads, organic matter, and other potential pollutants from runoff before it enters the Jordan River.

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

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<sup>1</sup> Wurtsbaugh, Wayne A.; Marcarelli, Amy M.; and Boyer, Greg L., "Eutrophication and Metal Concentrations in Three Bays of the Great Salt Lake (USA)" (2012). *Watershed Sciences Faculty Publications. Paper 550.*

<sup>2</sup> Carling, Gregory T. et al., "Trace element diel variations and particulate pulses in perimeter freshwater wetlands of Great Salt Lake, Utah," (2011). *Chemical Geology, 283 (87-98).*

<sup>3</sup> Utah Division of Forestry, Fire & State Lands. 2008. "Spatial Analyses of Trophic Linkages between Basins in the Great Salt Lake."

<sup>4</sup> State of Utah Natural Resources Division of Wildlife Resources. 2005. *Utah Comprehensive Wildlife Conservation Strategy.* Pg K-2.

<sup>5</sup> Salt Lake City. 2010. Salt Lake City Riparian Corridor Study: Final Red Butte Creek Management Plan. Pg 1-4.

Physical Connectivity to Utah Lake and Great Salt Lake. The restoration site has physical connectivity to Utah Lake and the Great Salt Lake via the Jordan River. The Jordan River corridor's 50 mile waterway is a key connection between the Utah Lake and the Great Salt Lake habitats. Improved habitat and water quality of the Jordan River resulting from the proposed project has a direct impact on the critical natural areas and ecosystem health of Utah Lake and the Great Salt Lake, which is an ecosystem of hemispheric significance that provide resting, staging, and nesting habitat for migratory bird populations. Additionally, the restoration project will build on and enhance the cumulative ecological benefit of a 2014 restoration project on adjacent east bank of the Jordan River, funded through the Red Butte Creek Project. The 2014 project corrected severe bank stability issues and restored native riparian vegetation at several locations along the Jordan River and Jordan River Parkway between 1800 North and 2500 North (east bank). Improvements made as part of the 2014 restoration project support the objectives of the 2010 Regional Athletic Complex Riparian Restoration Plan, and complement the proposed project, which is directly across the river.

Physical Connectivity to Complimentary Restoration Projects. The proposed restoration project is also connected to three 2014 riparian restoration projects along upstream properties under City jurisdiction (900 South on the Jordan River, Miller Park on Red Butte Creek, Liberty Lake), two restorations projects on Emigration Creek, two recreation sites along Parley's Creek, and ongoing restoration and clean-up efforts on public land along the Jordan River. The proposed restoration area is 1.5 miles upstream of the Legacy Nature Preserve and is one of the last tree-dominated riparian zones before the river enters the marshy lowlands of the Great Salt Lake's Farmington Bay to the north. Legacy Nature Preserve and other entities are restoring native riparian vegetation on private lands along the Jordan River and conducting clean-up activities to remove garbage and other debris from the Jordan River along its entire length through Salt Lake City.

Planning Connectivity. The proposed scope of restoration work was developed from the Regional Athletic Complex Riparian Restoration Plan prepared for the City in June 2010 and achieves the primary objective of the Regional Athletic Complex Riparian Restoration Plan<sup>6</sup>, namely, to improve riparian and upland features and functions along the Jordan River, including wildlife habitat and downstream water quality, by reducing weed cover and establishing structurally complex habitat consisting of diverse, native plant species in the riparian buffer. The restoration project implements recommendations of the *Blueprint Jordan River*, which serves as a guide for conservation, restoration, and recreational projects along the Jordan River corridor. One stated goal of the *Blueprint Jordan River* is to enhance the connectivity of riparian habitat along the Jordan River through increased riparian vegetative cover and improved habitat quality, as proposed by the project. Another guiding principle identified in the *Blueprint Jordan River* and served by the proposed restoration project includes establishing buffers between the river and the built environment, in this case the Regional Athletic Complex currently under construction to the west.

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

Aesthetic/Recreational Benefits. The restoration site provides the scenic backdrop for the Jordan River Parkway between 1800 North and 2500 North, which sees heavy use by commuters, hikers, bicyclists, and birdwatchers. Restoration of the riparian forest and emergent bench wetlands visible from the trail will enhance the aesthetic resources of the Jordan River Parkway and increase the prevalence of "watchable wildlife" visible from the Parkway.

Educational Benefits. The restoration project will utilize a Utah Conservation Corps four-person crew to conduct 16 weeks of planting, weed control, and other on-site tasks. The Utah

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<sup>6</sup> Salt Lake City. 2010. Regional Athletic Complex Riparian Restoration Plan.

Conservation Corps has conducted maintenance of mitigation wetlands at the restoration site in partnership with the City since 2011. Their continued involvement will provide hands-on educational experiences in riparian restoration techniques for the Utah Conservation Corps members. In addition, YouthCity will utilize its after-school and summer environmental education programs to conduct a three-year monitoring and youth-created documentary art project focused on the restoration site. Also, the youth participants will engage in annual community service events where they conduct hands-on restoration activities on-site. YouthCity's interaction with the restoration project is expected to engage approximately 50 local middle school and high school-aged youth with the project, with a total of over 400 hours of on-site programs, plus an end-of-project celebration and art exhibit that brings an additional 225 students to learn about the restoration and their peers' involvement in visually documenting the changes to the river over the span of the project. Interpretive signage placed at the trailhead and along the Jordan River Parkway in fall of 2017 will incorporate visual elements from the YouthCity documentary.

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

Site Restoration Details. Existing habitat will be improved through control and removal of highly invasive and noxious weeds and tree species. Phragmites, Russian knapweed, invasive thistles, hoary cress, alfalfa/clover, and poison hemlock will be targeted by spring and/or fall. Chemical treatments and mechanical treatments will be used as appropriate following the guidelines of the *Salt Lake City Noxious and Invasive Weed Management Plan* (2012). Treated areas will be replanted with native seed mix developed for the site. Planting of approximately 3,000 native trees, shrubs, and wetland plants (pots and plugs) will be conducted in the riparian forest complex and emergent bench wetlands within ~ 40 feet of the river along the entire length of the restoration area (1 linear mile, approximately 5 acres). Plantings and seedlings will be distributed across spring and fall planting seasons from spring 2015 through fall 2017. The City owns the subject property, has the custodial jurisdiction, and will conduct the restoration work. The City will coordinate with appropriate jurisdictions to secure any necessary permits.

Adaptive Management-Based Restoration Plan Framework. Initially, the plantings and seedlings will be guided by a Project Restoration Manual developed specifically for the project area. The manual will be developed by the Salt Lake City Open Space Program (OSP) stewardship staff and will provide guidance on appropriate species by habitat type, soil chemistry and composition limits, recommended planting depths, spacing, timing, depth to groundwater, seeding rates, beaver protection, and establishment management (watering, replacement, etc). Each planting season from fall 2015 through spring 2017, OSP stewardship staff will collect data on plant survival, establishment, seed germination, animal damage and other metrics. Staff and volunteers from project partner Tracy Aviary will conduct weekly bird monitoring and vegetation observations for the duration of the project and will record and communicate observations to OSP stewardship staff. Photo monitoring points will be established by project partner YouthCity interns to capture seasonal monitoring photographs. Over the course of the project, OSP stewardship and Tracy Aviary staff will analyze collected data, evaluate restoration methods, and revise the Project Restoration Manual to incorporate the most empirically effective techniques. The periodic manual revisions will guide adaptations and improvements implemented in subsequent plantings and seedlings. The fifth and final manual revision will include a Final Report to summarize the project actions, collected data, most successful strategies and techniques, and observable impacts on bird use. The Final Report will guide long-term establishment management and restoration maintenance of the site and other Jordan River restoration areas by the OSP. The Final Report will be provided to UDWQ. The Jordan River Commission will help prepare and disseminate the final Project Restoration Manual to restoration practitioners along the Jordan River.

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

The City is implementing several major restoration projects funded through the Red Butte Creek Project which are of similar size and scope as the proposed project in terms of establishment of native riparian vegetation. Most of the Red Butte Creek Project restorations are more significant in scope than the proposed restoration and have required significant earthwork modification to stream bank, stream bed, or floodplain. The activities proposed by the Salt Lake City North - Jordan River Restoration (weed control, seeding, planting) are more comparable to the every-day maintenance activities carried out by the Salt Lake City Open Space Lands Program stewardship staff across 1,200 acres of Open Space property in Salt Lake City. The proposed project has a scope of work with a more focused approach and more significant investment in labor and materials necessary to substantially restore the property's degraded habitat.

**10. Describe how ongoing maintenance of the project will be funded and carried out:**

The City will fund the ongoing maintenance and monitoring of the project site beyond the grant period through the annual operating budget of its Division of Parks and Public Lands. The 23-acre project area is part of the City-owned open space lands along the Jordan River. The ongoing maintenance of the restoration area will follow best-management practices that the City uses to actively steward the 2,574 acres of open space within its municipal boundaries and will implement the maintenance and management strategies developed during the course of the restoration project. Restoration maintenance will include upkeep of beaver protection, weeding and weed treatment, supplementary watering, and monitoring. On-going monitoring and management of noxious and invasive weeds will follow the City's *Noxious and Invasive Weed Management Plan*.

**11. List consultants or agency partners that have participated in project development (below):**

Jordan River Commission	195 North 1950 West, 3 <sup>rd</sup> Floor, Salt Lake City, UT 84114	(801) 536-4158
Name/Company	Address	Phone
SWCA Environmental Consultants	257 East 200 South Salt Lake City, UT 84111	(801) 322-4307
Name/Company	Address	Phone
Tracy Aviary	589 East 1300 South, Salt Lake City, Utah 84105	(801) 596-8500
Name/Company	Address	Phone
Utah Conservation Corps	7205 Old Main Hill, Salt Lake City, Utah 84322-7205	(435) 797-0964 ext. 5
Name/Company	Address	Phone
YouthCity	210 East 600 South, Salt Lake City, Utah 84111	(801) 535-6129
Name/Company	Address	Phone

I am willing to: (1) comply with all applicable laws and work with designated technical personnel as assigned to the above-referenced project in preparation of project implementation; (2) submit detailed project information to the Utah Division of Water Quality as requested to evaluate water quality improvements; (3) not to apply any practices which would tend to defeat the purpose of the project; and (4) allow continued monitoring and evaluation of the project activities implemented on my property.

Signature Alden Breinholt Date 5/5/14  
 Alden Breinholt, Operations Director, Department of Public Services

Signature \_\_\_\_\_ Date \_\_\_\_\_  
 Not applicable Not applicable  
 Co-Applicant (if applicable)

**APPROVED AS TO FORM**  
**Salt Lake City Attorney's Office**  
 Date 5/5/14  
 By Jayme [Signature]

**Salt Lake City North - Jordan River Restoration Project Budget**

Category	Cost Detail / Scope of Work		Requested Amount	Salt Lake City Leverage (Other Project Funds)	Total Project Cost
<b>Personnel</b>					
Field Restoration Technician	\$10 per hour x 34 hrs per week x 13 weeks per spring or fall season x 6 seasons x 3 staff		\$79,560	\$0	\$79,560
Restoration Foreman	\$14.85 per hour x 34 hrs per week x 13 weeks per spring or fall season x 6 seasons x 1 staff		\$39,382	\$0	\$39,382
Documentary Art Instructor	\$18 per hour x 120 hours		\$2,160	\$0	\$2,160
YouthCity Interns	\$7.25 per hour x 128 hrs per summer x 3 summers x 3 interns		\$8,352	\$0	\$8,352
Grants Program Administrator	\$28.32 per hour x 90 hours		\$2,549	\$0	\$2,549
		<b>Subtotal Personnel</b>	<b>\$132,003</b>	<b>\$0</b>	<b>\$132,003</b>
<b>Fringe Benefits</b>					
Field Restoration Technician	FICA Medicare: 7.65% x wages (\$79,560)		\$6,086	\$0	\$6,086
Restoration Foreman	FICA Medicare: 7.65% x wages (\$39,382)		\$3,013	\$0	\$3,013
Documentary Art Instructor	FICA Medicare: 7.65% x wages (\$2,160)		\$165	\$0	\$165
YouthCity Interns	FICA Medicare: 7.65% x wages (\$8,352)		\$639	\$0	\$639
		<b>Subtotal Fringe Benefits</b>	<b>\$9,903</b>	<b>\$0</b>	<b>\$9,903</b>
<b>Travel</b>	None.		\$0	\$0	\$0
<b>Equipment</b>	None.		\$0	\$0	\$0
<b>Materials and Supplies</b>					
YouthCity Intern supplies and food	\$1330 per summer x 3 summers		\$3,990	\$0	\$3,990
Site Restoration	Water-approved 2,4-D	5 gallons + surfactant	\$0	\$296	\$296
	Water-approved glyphosate	25 gallons + surfactant	\$0	\$1,104	\$1,104
	Native seed mix	\$2,040 per acre x 23 acres	\$46,920	\$0	\$46,920
	5 gal. containerized shrubs	\$15 each x 700	\$10,500	\$0	\$10,500
	Deep rooted shrubs	\$12 each x 1000	\$12,000	\$0	\$12,000
	5 gal. containerized trees	\$18 each x 300	\$5,400	\$0	\$5,400
	Deep rooted trees	\$13 each x 300	\$3,900	\$0	\$3,900
	Wetland plugs	\$1.20 each x 600	\$720	\$0	\$720
	Beaver fence	\$8.30 per enclosure x 900 enclosures	\$7,470	\$0	\$7,470
		<b>Subtotal Materials and Supplies</b>	<b>\$90,900</b>	<b>\$1,400</b>	<b>\$92,300</b>
<b>Contractual</b>					
Jordan River Commission	\$35 per hour x 20 hours per year x 3 years		\$2,100	\$0	\$2,100
Tracy Aviary biologist	\$25 per hour x 728 hours		\$18,200	\$0	\$18,200
Weed Treatment Specialist	7 acres treated x 3 seasons herbicide and mechanical phragmites treatments		\$0	\$15,000	\$15,000
Utah Conservation Corps	\$2,950 per week per 4 person crew x 16 weeks x 1 crew		\$47,200	\$0	\$47,200
		<b>Subtotal Contractual</b>	<b>\$67,500</b>	<b>\$15,000</b>	<b>\$82,500</b>
<b>Other</b>					
Restoration Establishment Contingency	10% of SLC restoration personnel and restoration supplies		\$21,635	\$0	\$21,635
<b>Total Other</b>			<b>\$21,635</b>	<b>\$0</b>	<b>\$21,635</b>
<b>Total</b>			<b>\$321,941</b>	<b>\$16,400</b>	<b>\$338,341</b>



Google earth





# Salt Lake City North - Jordan River Restoration Schedule

PROJECT TASK	DATE													
	Fall 2014	Winter 2014	Spring 2015	Summer 2015	Fall 2015	Winter 2015	Spring 2016	Summer 2016	Fall 2016	Winter 2016	Spring 2017	Summer 2017	Fall 2017	Winter 2017
Permitting & agency coordination	■													
Prepare project restoration manual	■													
Soil sampling & site cleanup	■													
Phragmites & knapweed treatments	■				■				■				■	
Hoary cress & hemlock treatments			■				■				■			
Native seeding & planting			■		■		■		■		■		■	
Establishment management & data collection			■	■	■		■	■	■		■	■	■	
Bird surveys & veg. observations	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Methods evaluation. & Project Restoration Manual revision					■		■		■		■		■	
Contingency Measures														■
Project publicity materials						■				■				■
Site monitoring & documentation	■			■	■			■	■			■		
Youth City Government restoration service days			■				■				■			
Restoration Celebration & Documentary Exhibit												■		
Interpretive signage installation													■	■
Final Project Restoration Manual and dissemination (print/web)													■	■

■ SLC Parks and Public Lands  
 ■ Utah Conservation Corps

■ Tracy Aviary  
 ■ Youth City

■ Jordan River Commission