

## **TABLE OF CONTENTS**

1.0	INTRODUCTION	1-1
	Riparian Corridor Study and Management Plan Goals	1-1
	Study Area	1-2
	Importance and Functions of Riparian Corridors	1-2
	Habitat for Mammals, Birds, and Fish	
	Shading and Water-Temperature Control	
	Aesthetics	
	Recreation and Open Space	
	Floodplain Storage and Flood Damage Reduction	
	Travel Corridors and Connectivity	
	Organic Matter Inputs	
	Filtration of Sediment and Pollutants	
	Streambank Stability	
	Storm Water Conveyance	
	Public Outreach and Involvement	
	Public Workshops	
	•	
	Riparian Corridor Study Subcommittee Meetings	
	Interactive Web Page	
	Management Plan Approach	1-9
2.0	BASELINE ASSESSMENT METHODS	9 1
2.0	Study Reaches	
	Stream Condition Assessment	
	Field Data Collection	
	Analyses Using Digital Data	
	Vegetation Assessment	
	Field Mapping	
	Vegetation Community Classifications	
	Data Analysis	
	Watershed and Historical Information	2-8
3.0	BASELINE ASSESSMENT RESULTS	2 1
3.0		
	Watershed Conditions	
	Size and Land Use	
	Hydrology	
	Water Quality	
	Geology and Soils	
	Fish, Birds, and Wildlife	
	Historical Conditions and Current Trends	
	Parleys Creek History	
	Alterations to the Riparian Corridor	
	Urban Channel Adjustments	3-9



	Recent and Anticipated Future Trends	. 3-12
	Stream and Vegetation Conditions	3-13
	Stream Channel Characteristics	
	Vegetation Characteristics	3-16
	Issues Affecting Riparian Functions	3-19
	Aesthetics	
	Wildlife Habitat and Connectivity	. 3-22
	Nutrient Filtration and Sediment Trapping	. 3-26
	Stream Stability	3-29
4.0	RECOMMENDED IMPROVEMENT PROJECTS	4-1
	Overview of Project Types	4-1
	General Projects	4-1
	Stream Cleanup	4-1
	Mechanized Trash Removal	4-2
	Stream Adoption	4-3
	Removal of Invasive Plant Species	4-3
	Revegetation with Native Plants	4-7
	Establishment of No-Mow Buffers	4-8
	Biotechnical Slope Stabilization	. 4-10
	Local-Scale Projects	4-12
	Storm Drain Outlet Protection	
	Stream Crossings and Culvert Replacement	
	Culvert Outlet Protection	
	Stream Daylighting	
	Bank Protection Retrofitting	
	Wet Utility Crossing Hazard Assessment	
	Reach-Scale Projects	
	Grade Control	
	Bank Stabilization	
	Access Control and Trail Stabilization	. 4-18
	Watershed-Scale Projects	
	Manage and Reduce Impervious Surfaces	
	Increase Public Awareness	
	Permitting Requirements	
	State Stream Alteration	
	County Flood Control	
	City Riparian Protection	
	Relative Costs of Improvement Projects	
	Maintenance and Monitoring Considerations	
	Grant Resources for Funding Improvement Projects	. 4-26
5.0	RIPARIAN CORRIDOR VISION	
	Summary of Stakeholder Input	
	Public Workshop 1	
	Public Workshop 2	5-3



Darlary	Other Stakeholder Inputs Creek Riparian Corridor Vision Statement	
	an Corridor Priorities	
	an Enhancement Potential	
	nentation Approaches	
	Management Guidelines and Efforts	
	Hidden Hollow Natural Area Master Plan	
	Salt Lake City Watershed Management Plan	5-12
	Sugar House Park Master Plan	
	Parleys Historic Nature Park Draft Comprehensive Use and Management Plan	5-13
Action	Items	5-13
	Goal: Continue Public Outreach and Establish Implementation Working Group	
	Goal: Increase Public Awareness	
	Goal: Manage and Reduce Impervious Surfaces	
	Goal: Improve Riparian Corridor Aesthetics	5-15
	Goal: Improve Riparian Habitat through Control of Invasive Plant Species and Restoration	
	of Native Plant Communities	5-15
	Goal: Improve Riparian Functions through Improvements to Storm Drain and Stream	
	Crossing Infrastructure	5-15
REFERENCES	S	. R-1
GLOSSARY C	OF TERMS	G-1
APPENDIX A:	DATA FORMS	
APPENDIX B:	DETAIL DRAWINGS OF SELECTED IMPROVEMENT TECHNIQUES	
APPENDIX C:	REACH MAPS, SUMMARIES, AND RECOMMENDATIONS	
APPENDIX D:	COST ESTIMATES FOR STUDY REACHES	
LIST OF F	FIGURES	
Figure 1.1.	Emigration, Red Butte, Parleys, and City Creeks study areas.	. 1-2
Figure 1.2.	Schematic illustration of major interactions among riparian corridor resources and processes	. 1-3
Figure 1.3.	One hundred-foot Riparian Corridor Overlay Zone ordinance riparian corridor	. 1-4
Figure 1.4.	Organizational Chart for the Salt Lake City Riparian Corridor Management Plans	1-10
Figure 1.5.	Timeline of Salt Lake City Riparian Corridor Studies and Management Plans	1-10



Figure 2.1.	Parleys Creek reach map
Figure 2.2.	Clay/root mat "shelf" feature
Figure 2.3.	Using digital elevation data to draw the channel centerline
Figure 3.1.	Parleys Creek watershed
Figure 3.2.	Monthly flows at Salt Lake County's gage at Suicide Rock
Figure 3.3.	Relationship between impervious cover and surface runoff. Impervious cover in a watershed results in increased surface runoff
Figure 3.4.	A comparison of hydrographs before and after urbanization. The discharge curve is higher and steeper for urban streams than for natural streams
Figure 3.5.	Scatter plot of Salt Lake City Department of Public Utilities (DPU) E. coli sampling results for Parleys Creek. The acute (single sample) E. coli standard set by the State of Utah for secondary contact recreation is 668 colony-forming units per 100 milliliters
Figure 3.6	Parleys Creek historical timeline
Figure 3.7.	1938 aerial photo of Parleys Creek east of 2300 East
Figure 3.8.	1938 aerial photo of Parleys Creek near 1700 East
Figure 3.9.	Illustration of streambed lowering (incision) process common on urbanized streams. Following initial incision (B), the channel may continue to incise and widen until a new equilibrium channel/floodplain geometry is reached, posing a potential risk to urban development on terrace surfaces adjacent to the channel
Figure 3.10.	Plot of temporal trends in annual stream flow at Parleys Creek gage
Figure 3.11.	Cross-section plots extrapolated from digital elevation data
Figure 3.12.	Longitudinal profile plot of Parleys Creek streambed based on 2006 digital elevation data 3-16
Figure 4.1.	Schematic illustration of a contributing watershed area draining to an urban riparian corridor
Figure 4.2.	Importance of slope steepness in selecting appropriate revegetation and stabilization measures
Figure 4.3.	Schematic illustration of toe, bank, and upper slope zones and recommended treatment approaches



Figure 4.4.	Photographs of revegetation and biotechnical slope-stabilization techniques 4-12
Figure 4.5.	Photographs of outlet protection and stream crossing techniques
Figure 4.6.	Photographs of grade-control, bank-stabilization, and access-control techniques 4-16
LIST OF T	TABLES
Table 2.1.	Reach names
Table 3.1.	Summary of water quality data collection efforts on Parleys Creek within the study area 3-6
Table 3.2.	Summary of streambed material, channel geometry, and slope data
Table 3.3.	Plant species noted during Parleys Creek mapping work
Table 3.4.	List of mapped canopy, shrub, and understory plant species found in each assessed stream reach
Table 3.5.	Percent cover and invasive species class for mapped vegetation polygons
Table 3.6.	Size and condition of stream crossing culverts in the study area
Table 4.1.	List of weeds and invasive species to avoid planting within the riparian corridor. Where these species are present, they should be controlled using appropriate techniques and replaced with native species
Table 4.2.	Recommended native canopy (tree) species for planting efforts within the riparian corridor 4-7
Table 4.3.	Recommended native shrub species for planting efforts within the riparian corridor 4-8
Table 4.4.	Recommended native understory (ground cover) species for planting efforts within the riparian corridor
Table 4.5.	Summary of permit requirements for recommended types of improvement projects 4-21
Table 4.6.	Approximate unit cost information for improvement projects
Table 4.7	Summary of relative project costs and potential riparian function benefits
Table 4.8.	Summary of maintenance and monitoring considerations for various improvement projects 4-27
Table 4.9.	Information on funding programs to support riparian corridor improvement projects 4-28



Table 5.1	Relative need for various improvement measures by study reach	5-7
Table 5.2.	Recommendations and relative need for improvements at stream crossings within the Parleys Creek riparian corridor	5-8
Table 5.3.	Factors affecting relative riparian enhancement potential by reach.	5-10