

SALT LAKE CITY

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)



STORM WATER MANAGEMENT PLAN

August, 2016, Version 2016.1

TABLE OF CONTENTS

1.0 STORM WATER MANAGEMENT PLAN INTRODUCTION	8
1.1 SWMP PROGRAM ADMINISTRATION.....	9
1.2 PURPOSE	9
1.3 SWMP REVIEW AND MODIFICATION.....	9
1.4 STAFFING AND RESOURCE ALLOCATIONS.....	10
1.5 SWMP SUMMARY	12

2.0 SPECIAL CONDITIONS.....	19
2.1 DISCHARGES TO WATER QUALITY IMPAIRED WATERS.....	19

3.0 PUBLIC EDUCATION AND OUTREACH ON STORM WATER IMPACT.....	21
3.1 DESCRIPTION	21
3.1.1 RESIDENTIAL EDUCATION AND OUTREACH PROGRAM.....	22
3.1.2 BUSINESSES, INSTITUTIONS, AND COMMERCIAL FACILITIES.....	24
3.1.3 DEVELOPERS AND CONTRACTORS EDUCATION PROGRAM	25
3.1.4 MUNICIPAL FACILITIES EDUCATION PROGRAM.....	25
3.1.5 TRAINING EVALUATION	26
3.2 IMPLEMENTATION STATUS.....	26

4.0 PUBLIC INVOLVEMENT/PARTICIPATION	28
4.1 DESCRIPTION.....	28
4.1.1 PUBLIC INVOLVEMENT/PARTICIPATION	28
4.2 IMPLEMENTATION STATUS.....	29

5.0 ILLICIT DISCHARGE DETECTION AND ELIMINATION	31
5.1 DESCRIPTION.....	31
5.1.1 MAPPING.....	31
5.1.2 ILLICIT DISCHARGE DETECTION AND ELIMINATION ORDINANCE AND ENFORCEMENT	32
5.1.3 IDDE PLAN	32
5.1.4 PROGRAM EVALUATION AND ASSESSMENT.....	35
5.1.5 ILLICIT DISCHARGE DETECTION AND ELIMINATION TRAINING.....	35
5.2 IMPLEMENTATION STATUS.....	36

6.0 CONSTRUCTION SITE STORM WATER RUNOFF CONTROL	41
6.1 DESCRIPTION.....	41
6.1.1 CONSTRUCTION SITE STORM WATER RUNOFF CONTROL ORDINANCE	41
6.1.2 PRE-CONSTRUCTION SWPPP AND PLAN REVIEW	41
6.1.3 CONSTRUCTION SITE INSPECTIONS AND ENFORCEMENT	42
6.1.4 CONSTRUCTION SITE STORM WATER TRAINING	43
6.1.5 RECORDS KEEPING	43
6.2 IMPLEMENTATION STATUS.....	44

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

7.0 LONG-TERM STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT (POST-CONSTRUCTION STORM WATER MANAGEMENT)	46
7.1 DESCRIPTION.....	46
7.1.1 LONG-TERM STORM WATER MANAGEMENT ORDINANCE	46
7.1.2 SITE PLAN REVIEW.....	47
7.1.4 LONG-TERM STORM WATER MANAGEMENT INSPECTION AND ENFORCEMENT	49
7.1.5 POST-CONSTRUCTION STORM WATER MANAGEMENT EMPLOYEE TRAINING.....	49
7.1.6 LONG-TERM STORM WATER BMP INVENTORY	50
7.2 IMPLEMENTATION STATUS.....	50

8.0 POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS.....	53
8.1 DESCRIPTION	53
8.1.1 FACILITY INVENTORY.....	53
8.1.2 PRIORITY FACILITY IDENTIFICATION AND SOPS	53
8.1.3 HIGH PRIORITY FACILITY OPERATIONS AND MAINTENANCE INSPECTION PROGRAM.....	55
8.1.4 WATER QUALITY ASSESSMENT OF FLOOD CONTROL PROJECTS	55
8.1.5 CITY CONSTRUCTION PROJECTS.....	56
8.1.6 EMPLOYEE TRAINING	56
8.2 IMPLEMENTATION STATUS.....	57

9.0 INDUSTRIAL AND HIGH RISK RUNOFF	60
9.1 DESCRIPTION	60
9.1.1 INDUSTRIAL AND PRIORITY COMMERCIAL FACILITY INVENTORY AND PRIORITIZATION	60
9.1.2 INDUSTRIAL AND PRIORITY COMMERCIAL FACILITY INSPECTIONS	62
9.1.3 EMPLOYEE TRAINING	63
9.2 IMPLEMENTATION STATUS.....	64

10.0 MONITORING, RECORDKEEPING, REPORTING AND RESPONSIBILITY AGREEMENTS.....	66
10.1 SUMMARY OF TASKS.....	66
10.1.1 MONITORING	66
10.1.2 RECORDKEEPING.....	67
10.1.3 REPORTING.....	67
10.2 IMPLEMENTATION STATUS.....	68

LIST OF TABLES (included in each section)

Table 2.1	Impaired Waterbodies in Salt Lake City
Table 3.1	Implementation Status for Public Education and Outreach Program
Table 4.1	Implementation Status for Public Involvement/Participation Program
Table 5.1	Implementation Status for Illicit Discharge Detection and Elimination Program
Table 6.1	Implementation Status for Construction Site Storm Water Runoff Control
Table 7.1	Implementation Status for Long-Term Storm water Management Program
Table 8.1	Implementation Status for Pollution Prevention/Good Housekeeping Program
Table 9.1	Implementation Status for Industrial/High Risk Runoff Program
Table 10.1	Implementation Status for Storm water Monitoring and Reporting Program

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

LIST OF FIGURES (figures are presented at the end of the report)

- Figure 1 Vicinity Map
- Figure 2 Salt Lake City Storm Water Program Organizational Chart
- Figure 3 Gale Street Drainage Basin Map
- Figure 4 Lee Drain Drainage Map
- Figure 5 Forest Dale Drainage Map

APPENDICES

- A MOU- Between Salt Lake City and Salt Lake County Health Department
- B Salt Lake City Storm Water Ordinance
- C Salt Lake City Storm Water Best Management Practices (BMPs)
- D SOPs'- Standard Operating Procedures
- E Salt Lake City Owned Facilities

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

LIST OF ACRONYMS

2015 Permit	2015 Utah Pollutant Discharge Elimination System Permit for Discharge from Salt Lake City's Separate Storm Sewer System Permit Number UT000002
BMP	Best Management Practice
CED	Community and Economic Development
CFR	Code of Federal Regulations
Cfs/acre	Cubic feet per second per acre
City	Salt Lake City
CIUQ	Commercial/ Industrial User Questionnaire
CPD	Common Plan of Development
DEQ	Utah Department of Environmental Quality
DWQ	Utah Division of Water Quality
EPA	Environmental Protection Agency
ERC	Salt Lake City Event Review Committee
FTE	full time equivalent
GI	green infrastructure
GIS	global information system
HHW	household hazardous waste
IDDE	Illicit Discharge Detection and Elimination
JRWC	Jordan River Watershed Council
LID	Low Impact Design
MEP	Maximum Extent Practicable
MOU	Memorandum of Understanding
MS4	Municipal Separate Storm Sewer System
MSGP	UPDES Multi-Sector General Permit
NAICS	North American Industrial Code System
NOI	Notice of Intent
NOT	Notice of Termination
O&M	operation and maintenance
POTW	publically owned treatment works
PUAC	Public Utilities Advisory Committee
RSI	Registered Storm Water Inspectors
SHPO	State Historic Preservation Office
SIC	Standard Industrial Classification
SLCoHD	Salt Lake County Health Department
SLCDPU	Salt Lake City Department of Public Utilities
SSID	Storm Sewer Industrial Discharge

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

LIST OF ACRONYMS (continued)

State	State of Utah
Storm Water Coalition	Salt Lake County Storm Water Coalition
SOP	Standard Operating Procedure
SWMP	Storm water Management Plan
SWPPP	Storm water Pollution Prevention Plan
TMDL	Total Maximum Daily Load
UAC	Utah Administrative Code
UDOT	Utah Department of Transportation
UPDES	Utah Pollutant Discharge Elimination System
USWAC	Utah Storm water Advisory Committee

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

CERTIFICATION

In accordance with Section 6.8 of the 2015 Utah Pollutant Discharge Elimination System (UPDES) Permit for Discharge from Salt Lake City's Separate Storm Sewer System (MS4) Permit Number UT000002 (hereafter referred to as the 2015 Permit), the following statement has been incorporated and signed in this document:

Certification Statement:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____



Printed Name: Laura Briefer,

Director Salt Lake City Department of Public Utilities

Date: November 8, 2016

1.0 STORM WATER MANAGEMENT PLAN INTRODUCTION

Salt Lake City (City) is the largest metropolitan area within the Salt Lake Valley. The City has a population in excess of 186,440 and encompasses approximately 110 square miles within the lower Jordan River Basin (**Figure 1**). The valley is a terminal valley that drains to the Great Salt Lake. The Jordan River is the main conveyance system in the valley and flows from Utah Lake to the Great Salt Lake. The Salt Lake City storm water system consists of a system of local municipal drainage pipes and open channel drainage facilities that discharge to a larger citywide system of pipes, open channels, canals or natural channels. Storm water quality and flood control are managed by the Storm Water Maintenance and Storm Water Quality Programs of Salt Lake City Department of Public Utilities (SLCDPU).

The City's Storm Water Management Plan (SWMP) was developed to comply with the 2015 Municipal Separate Storm Sewer System (MS4) Utah Pollutant Discharge Elimination System (UPDES) Permit UTS000002 (hereafter referred to as the 2015 Permit), in accordance with the Federal Clean Water Act 402 (p)(3)(B) and State Storm Water Regulations (UAC R317-8-3.8), and is designed to reduce the discharge of pollutants to the maximum extent practicable (MEP) from the municipal storm drain system servicing Salt Lake City. The development, implementation and enforcement of the SWMP will include best management practices (BMPs), control techniques, system design and engineering methods, an education component, recordkeeping and documentation, and other provisions appropriate for the control of pollutants.

Salt Lake City received an original MS4 UPDES Permit (UTS000002) to discharge municipal storm water, effective September 1, 1995. The MS4 UPDES Permit was issued by the Utah Department of Environmental Quality (DEQ), Division of Water Quality (DWQ), after the City submitted a Part 1 and Part 2 UPDES Permit Application for discharges from municipal storm sewer systems, in accordance with 40 *Code of Federal Regulations* (CFR), Section 122. In response to the original permit, the City submitted its first SWMP on June 1, 1998. A review and update of the SWMP and BMPs are completed annually as part of the Annual Report.

The City received its second UPDES permit on June 1, 2001; it was renewed on June 1, 2006. The original SWMP has gone through review and revision as necessary to meet new permit requirements. On

February 1, 2015, the 2015 Permit was issued to Salt Lake City. The 2015 Permit requires that the City submit a Draft revision of Salt Lake City's SWMP within 180 days of the effective date of the permit.

A part of Salt Lake City's Storm Water Quality Program is the elimination of storm water pollution at the sources of the pollution. The SWMP will incorporate pollution prevention strategies such that the reduction in pollution is real and is not just transferred to another media such as the sanitary sewer or solid waste. The City's Publicly Owned Treatment Works (POTW) has an active pretreatment program

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

that is administered under separate permit with the DWQ. The Storm Water Quality and Pretreatment Programs work in partnership with local industry, business, residents, and governmental agencies to reduce storm water pollution. Salt Lake City's program is intended to be flexible and employ methods that will be relatively easy to incorporate new methods and procedures for controlling storm water pollution.

1.1 SWMP PROGRAM ADMINISTRATION

The SLCDPU is responsible for the overall implementation of the SWMP. Other City Departments assist in this implementation as appropriate. Program Administration is further detailed in Section 1.4 (Staffing and Resource Allocation) and illustrated in the Storm Water Program Administration Chart in **Figure 2**. The responsible parties are as follows:

Agency: Salt Lake City Department of Public Utilities

Contact: Mr. Jesse Stewart Deputy Director, Water Quality and Treatment (801) 483-6864
Mr. Greg Archuleta, Storm Water Quality Program Manager, (801) 483-6821

1.2 PURPOSE

The City's SWMP addresses the six minimum control measures as specified in the 2015 Permit (listed below) and outlines tasks for completion over the next five years.

- Public Education and Outreach.
- Public Involvement/Participation.
- Illicit Discharge Detection and Elimination.
- Construction Site Storm Water Runoff.
- Long-term Storm Water Management in New Development and Redevelopment (Post-Construction Storm Water Management).
- Pollution Prevention and Good Housekeeping for Municipal Operations.

In addition, the SWMP also addresses the administration of:

- Industrial and High Risk Runoff.
- Wet Weather Monitoring.
- Recordkeeping and Reporting.

1.3 SWMP REVIEW AND MODIFICATION

An annual review of this SWMP will be conducted in conjunction with the required Annual Storm Water Report; any changes or modifications will be submitted to the DWQ in accordance with Part 4.5 of the 2015 Permit. This review will include the following:

- A review of the status of program implementation and permit compliance.

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

- A review of any revision or change of BMPs during the year and an assessment of the effectiveness of such revision. The DWQ will be notified in writing of any changes to the implementation of BMPs. This notification will include the rationale supporting the modification in accordance with Part 4.5 of the 2015 permit.
- An overall assessment of the goals and direction of the SWMP and effectiveness of BMPs.
- A review of monitoring data, any changes in monitoring methods and parameters, and an assessment of the overall monitoring program.

1.4 STAFFING AND RESOURCE ALLOCATIONS

The SLCDPU Storm Water Utility has been established as a separate enterprise fund of Salt Lake City. The Storm Water Utility is directly responsible for operation and maintenance (O&M) of the Salt Lake City storm drainage system and related activities. The Storm Water Quality Program oversees the SWMP and implementation of the 2015 Permit. The Storm Water Quality Program includes five and half full-time equivalent (FTE) employees and utilizes other personnel from the SLCDPU Water Quality Division. In addition, other Divisions of SLCDPU and other City Departments have staff [e.g., Registered Storm Water Inspectors (RSI)] that assist the Storm Water Quality Program as necessary. For example, the Storm Water Maintenance Program has 12 FTEs dedicated to storm water system maintenance. Other departments such as but not limited to; Parks, Fleet, and Water will be responsible for their portions of the O & M program and will be responsible for tasks regarding their respective facilities and operations. Tasks may include routine inspections of “high priority” municipal facilities, routine storm sewer system maintenance and an employee training program. The City may also utilize the services of private contractors to implement portions of the Storm Water Program, including technical assistance, emergency response and/or hazardous clean up, and mitigation.

Public Education and Outreach. Public Education and Outreach is conducted in large part by the Salt Lake County Storm Water Coalition and its media campaign the SLCDPU Storm Water Quality Program is an active member of the Storm Water Coalition. The Storm Water Coalition (detailed in Section 3.0) is funded by its members, as well as the Utah Department of Transportation (UDOT). In addition, Davis and Weber Counties contribute funding to the media portion of the Storm Water Coalition. The Storm Water Coalition is responsible for public outreach including surveys and developing and distributing education materials regarding storm water and is an integral part of the City’s Public Education and Outreach program. In addition the SLCDPU Storm Water Quality Program is responsible for public education and outreach in the City and has incorporated other opportunities in the program. For example, the City has implemented a City-wide environmental education program through the Tracy Aviary that is aimed at increasing the public’s knowledge of environmental concerns, including storm water. The SLCDPU storm water utility funds much of the program.

Public Involvement and Participation. Public Involvement and Participation is conducted by the Storm Water Quality Program and other City Departments in accordance with the SLC Green Program; an initiative comprised of environmental programs that continue to help the City conserve resources,

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

reduce pollution, and ensure a healthy, sustainable future for Salt Lake City. The City will implement measures to involve the public in the development and updating of this SWMP and in implementation of relevant programs. City programs include: neighborhood cleanup events, curbside recycling, and the “tan can” program, which are all implemented by the Salt Lake city Sanitation Department. Household hazardous waste events are also held throughout the City and funded by the Salt Lake County Health Department (SLCoHD). The Storm Water Utility funds a portion of these programs.

Illicit Discharge Detection and Elimination. The Illicit Discharge Detection and Elimination (IDDE) program for Salt Lake City is implemented by the Storm Water Quality Department, along with the SLCo Health Department. The Storm Water Quality personnel are trained to respond and assist with spills and illegal discharges. In some instances the Storm Water Quality personnel work with Salt Lake City Fire and Hazmat crews when responding to IDDEs. In addition, the SLCoHD also responds to reported illicit discharges and works with SLCDPU Storm Water Quality personal on a case by case basis concerning types of enforcement actions to be taken against violators (e.g., Warning Letter, Notice of Violations, and Cease and Desist Orders); other decisions include who will take the lead and perform follow up if necessary for cases that involve remediation.

The SLCoHD and the SLCDPU finalized a Memorandum of Understanding (MOU, refer to Appendix A) in 2015 formally defining the working relationship and cooperative efforts regarding storm water discharges within the City’s boundary.

Construction Site Storm Water Runoff Control Program. This program is implemented by the SLCDPU Storm Water Quality Program. The Storm Water Quality program has 3.5 FTEs that oversee the Construction Site Storm Water Runoff Control Program. In addition several other Public Utilities employees are Registered Storm Water Inspectors (RSI) certified and assist as needed. Storm Water Quality staff oversee the program and conduct site inspections, enforces construction permit violations, and closes out projects with a Notice of Termination (NOT) when construction is finished.

Storm Water Pollution Prevention Plans (SWPPPs) are reviewed and approved by SLCDPU engineers as part of the development review process for projects that disturb greater than or equal to one acre, and projects that are less than one acre but part of a larger common plan or development or sale are required to submit a State and City Notice of Intent (NOI) for Construction activities before ground disturbance.

Long-Term Storm Water Management in New Development and Redevelopment Program (Post Construction). The Post Construction Program is implemented by various work groups within SLCDPU. Site Plan Review is done by SLCDPU Engineering Division, who review the initial submitted plans for new development or redevelopment. The Engineering Division identifies opportunities to encourage Green Infrastructure (GI) and Low Impact Development (LID) when appropriate. Salt Lake City requires all commercial, industrial, and residential developments with impervious areas greater than 15,000 square feet to provide onsite detention facilities to limit the discharge to a pre development rate of 0.2 cubic

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

feet per second per acre (cfs/acre) during the 100 year storm. Sites that incorporate BMPs and retain more than the minimum may be eligible for discounted rates for the storm water impact fee. These sites will continue to be overseen by SLCDPU, who has one dedicated FTE, to inspect these sites and maintain an updated database.

Pollution Prevention and Good Housekeeping for Municipal Operations. SLC has various departments and facilities that are covered under the *Pollution Prevention and Good Housekeeping for Municipal Operations*. Departments with facilities that are designated “high priority” will be responsible for their respective facilities and portion of the O & M Program. This program will be implemented by designated City employees within their respective departments. City Departments may include, but are not limited to; Public Utilities (water), Fleet, and Parks. Each department or program will be responsible for their particular facilities or operations as they relate to storm water quality. They shall be accountable for addressing pollution prevention and good housekeeping including implementation of SOPs, routine inspections, training and documentation. The Storm Water Quality Program will oversee and assist the program as needed, in addition ensuring responsible parties are adequately trained.

Industrial and High Risk Runoff Program. This program is implemented by the Storm Water Quality Program. Storm Water Quality Program Coordinators will manage, document and inspect UPDES-permitted facilities. The City will evaluate non-permitted industrial facilities and require industrial facilities deemed to have potential to discharge pollutants in runoff to apply for one of the following UPDES permits; (1) General UPDES permit for Industrial Discharges, (2) a No Exposure Certification (NEC), (3) an Industrial No Discharge Permit; or (4) an Individual Industrial Discharge Permit. Facilities subject to the UPDES Multi-Sector General Permit for storm water discharges associated with Industrial Activities will also be issued a Salt Lake City Storm Sewer Industrial Discharges (SSID). In addition to the Industrial and High Risk Runoff program, SLC will develop a program to monitor “High Risk Commercial” business. In addition to Storm Water Quality personnel, the SLCDPU GIS department has a dedicated FTE who inspects sites that receive discounts on storm water impact fees. Most of these sites are industrial and commercial sites, and a database of these sites is maintain and updated by the GIS department. The SLCDPU Pretreatment Program monitors similar facilities and is a valuable resource in assisting in identifying potential high risk commercial or industrial facilities that may apply to this program. With the assistance from the GIS and Pretreatment programs the City maintains several databases of Industrial and Commercial business within Salt Lake City.

Monitoring, Recordkeeping and Reporting. Monitoring, Recordkeeping and Reporting is mainly conducted by the Storm Water Quality Program and is overseen by the Storm Water Quality Program Manager. Other City departments, divisions and entities play an important role in Salt Lake City’s Storm Water program and provide documentation that is reported in the Annual Report.

1.5 SWMP SUMMARY

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

This SWMP has been developed to reduce the discharge of pollutants from the MS4 to the MEP, meet the requirements of the 2015 permit, and protect water quality. It consists of the six minimum control measures developed by the EPA for Phase I municipal storm water discharges. In addition to the Minimum Control Measures, this SWMP addresses the requirement for Phase I municipalities to conduct storm water quality monitoring and administer an Industrial and high risk runoff program. Implementation of each control measure is designed to reduce the discharge of storm water pollutants to Waters of the State of Utah. SLC ordinances, including *The Riparian Corridor Overlay Ordinance* and the *Storm Water System Ordinance* (refer to **Appendix B**), have been developed to define and protect the City's MS4 and Waters of the State. Each control measure contains BMPs that facilitate in achieving the goals of each control measure. BMPs are essential for effectively implementing a proper SWMP. Many of these BMPs were included in previous iterations of the SWMP and have been updated as necessary to meet the current 2015 Permit requirements and city needs (refer to **Appendix C**). In addition, the City has and is in process of developing standard operating procedures (SOPs) or similar documents to address specific storm water quality needs (refer to **Appendix D**). The SWMP is intended to be a dynamic document with BMPs and SOPs being added, deleted, or modified as new or better management practices are recognized and other management practices are found to be ineffective.

Below is a brief description of each of the six minimum control measures and applicable BMPs to be implemented in meeting the 2015 permit requirements. The implementation of the BMPs will be detailed at the end of each section in the Goals and Measurements Tables. The complete list of BMPs is included as **Appendix C**.

Public Education and Outreach on Storm Water Impacts. The Storm Water Quality Program is an active participant with the Salt Lake County Storm Water Coalition. In conjunction with the Storm Water Coalition and with other City Departments, Public Education and Outreach is addressed through numerous avenues. For example, the Storm Water Coalition has implemented the “*We All Live Downstream*” storm water campaign to educate the general public regarding storm water impacts that can result from residential activities. In addition, the City has implemented a City-wide environmental education program through the Tracy Aviary that is aimed at increasing the public's knowledge of environmental concerns, including storm water. The SLCDPU storm water utility funds much of the program. The Public Education and Outreach program also will target residents, businesses, institutions, and commercial facilities, developers and contractors (construction) and MS4 industrial facilities. The following BMPs have been developed and implemented as a public education program with materials that describe the impacts of storm water and actions to reduce pollutants.

BMP	Description
BMP 3:	Support “Tan Can” yard waste pickup for Salt Lake City residents.
BMP 4:	Support the Neighborhood annual cleanup program for Salt Lake City residents.
BMP 6:	Support the Curbside recycling effort for Salt Lake City residents.
BMP 7:	Support Citizen clean-up days of selected waterways

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

BMP 21:	Continue education program on the proper use of pesticides and fertilizers.
BMP 27:	Promote City-County Health Department Household Hazardous Waste Facility and Collection Days.
BMP 37:	Continue program to promote public reporting of illicit discharges
BMP 38:	Continue to implement an education program for industrial users on oil and toxic materials
BMP 39:	Continue education for residential users on oil and toxic materials disposal.
BMP 43:	Identify and Prioritize industrial and priority commercial groups.
BMP 45:	Distribute water quality education materials to Industrial and priority commercial facilities.

Public Involvement / Participation. SLCDPU will continue to look for opportunities to involve the public in developing policy and procedures such as the Public Utilities Advisory Committee (PUAC), which is comprised of citizens appointed by the Salt Lake City Mayor and is an integral part in reviewing major policy decisions. The PUAC meetings are open to the public and held the fourth Thursday of the month at 7:30 AM at 1530 South West Temple. Public Surveys are conducted by Dan Jones and Associates (Implemented by the Salt Lake County Coalition, most recent survey completed in 2010). The following BMPs have been developed and implemented as a public involvement/ participation program to include public involvement.

BMP	Description
BMP 3:	Support “Tan Can” yard waste pickup for Salt Lake City residents.
BMP 4:	Support the Neighborhood annual cleanup program for Salt Lake City residents.
BMP 6:	Support the Salt Lake City Curbside recycling effort.
BMP 7:	Support scheduled citizen clean-up days of selected waterways.
BMP 27:	Promote City-County Health Department Household Hazardous Waste Facility and Collection Days.
BMP 37:	Continue to promote program of public reporting of illicit discharges.
BMP 39:	Continue education for residential users on oil and toxic materials disposal.

Illicit Discharge Detection and Elimination (IDDE). SLCDPU has an active IDDE program that includes a 24-hour hotline for reporting of illicit connections and illegal discharges, a detailed map of the storm sewer system, and ordinances that pertain to storm water quality and enforcement. SLCDPU coordinates and works with the SLCoHD when responding to illicit discharges and follows up with enforcement actions as necessary. SLCDPU also works with Salt Lake City Fire and Hazmat crews concerning large spills into the storm sewer system. The following BMPs have been implemented to detect and eliminate illicit discharges and improper disposal into the storm drain system.

BMP	Description
BMP 2:	Inspect all major storm drains and detention basins within the permit cycle.
BMP 9:	Conduct annual training for drainage system maintenance personnel.
BMP 10:	Continue a program for the disposal of sediments from storm drain cleaning.
BMP 21:	Continue education program on the proper use of pesticides and fertilizers.
BMP 22:	Continue SWMP program similar to the pretreatment program.
BMP 23:	Maintain industrial user NAICS/SIC code database.

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

BMP 24:	Coordinate with POTW pretreatment program.
BMP 25:	Maintain records and database of all illicit connection investigations.
BMP 26:	Review all new developments plans for compliance and illicit connections.
BMP 27:	Promote City-County Health Department Household Hazardous Waste Facility and Collection Days.
BMP 28:	Continue program for investigating illicit flows and connections.
BMP 29:	Implement Memorandum of Understanding (MOU) with City-County Health Department.
BMP 30:	Maintain staff to respond to reports of illicit discharges.
BMP 31:	Promote interagency cooperation concerning illicit flows investigation.
BMP 32:	Pursue prosecutions and court ordered solutions to contamination problems.
BMP 33:	Investigate dry weather flows.
BMP35:	Maintain a list of certified suppliers and contractors to respond to containment and cleanup of spilled material.
BMP 37:	Continue to promote program of public reporting of illicit discharges.
BMP 38:	Continue education for industrial users on oil and toxic materials disposal.
BMP 39:	Continue education for residential users on oil and toxic materials disposal.
BMP 36:	Continue to provide HAZWOPER training to applicable personnel

Construction Site Storm Water Runoff. The SLCDPU Construction Site Storm Water Runoff Control Program addresses pollutants from development and construction runoff. This program includes a Salt Lake City construction activities permit, a database, GIS maps, storm water ordinances, and RSI-Certified personnel that oversee and assist in the program.

The following BMPs have been developed and implemented to enforce a program to reduce pollutants to the MS4 from construction activities that result in a land disturbance of greater than or equal to one acre.

<i>BMP</i>	Description
<i>BMP 12:</i>	Enforce the requirements of Salt Lake City Ordinances
<i>BMP 13:</i>	Provide Standard BMPs for site development to developers and engineers.
<i>BMP 17:</i>	Continue procedures for monitoring storm water management on Public construction projects.
<i>BMP 30:</i>	Maintain staff to respond to reports of illicit discharges.
<i>BMP 31:</i>	Promote interagency cooperation concerning illicit discharge investigation.
<i>BMP 32:</i>	Pursue prosecutions and court ordered solutions to significant contamination problems.
<i>BMP 37:</i>	Continue to promote program of public reporting of illicit discharges.
<i>BMP 44:</i>	Staff a position for coordinating storm water pollution prevention.
<i>BMP 46:</i>	Continue a storm water quality-training program for development review personnel.
<i>BMP 47:</i>	Coordinate with Salt Lake County regarding BMP guidance information for construction sites.
<i>BMP 48:</i>	Continue to obtain and review SWPPP prepared by contractors.
<i>BMP 49:</i>	Develop a program to enforce SWPPP.
<i>BMP 50:</i>	For City projects identify erosion control measures as a specific bid item.
<i>BMP 51:</i>	Participate in education training and seminars conducted by the State of Utah and other agencies.

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Long-Term Storm Water Management in New Development and Redevelopment (Post-Construction Storm Water Management). Salt Lake City requires all commercial, industrial, and residential developments with impervious areas greater than 15,000 square feet to provide onsite detention facilities to limit the discharge to a pre development rate of 0.2 cubic feet per second per acre (cfs/acre) during the 100 year storm. Salt Lake City has an incentive program to encourage property owners to exceed this standard in exchange for reduced stormwater fees. In addition, the City continues to develop and maintain an inventory for structural storm water control measures.

The following BMPs have been developed and implemented to address post construction development to prevent or minimize storm water runoff from new development and redevelopment construction sites that disturb greater than or equal to one acre, including projects less than one acre that are part of a common plan of development or sale.

BMP	Description
BMP 11:	Continue requirements for on-site detention for developments.
BMP 12:	Enforce the requirements of Salt Lake City Ordinances
BMP 14:	Continue annual review program for private drainage detention facilities.
BMP 18:	Review proposed street projects for applicability of structural BMPs.
BMP 19:	Review all proposed storm water projects for applicability of structural BMPs.
BMP 20:	Review detention basins for feasibility of retrofitting for water quality enhancements.
BMP 26:	Review all new developments plans for compliance and illicit connections.
BMP 46:	Continue a storm water quality-training program for development review personnel.
BMP 47:	Coordinate with Salt Lake County regarding BMP guidance information for construction sites.

Pollution Prevention and Good Housekeeping for Municipal Operations. Salt Lake City has an inventory of City-owned and operated facilities. The City will identify as “high priority” those facilities that have a high potential to generate storm water pollutants. Facilities identified as “high priority” will include required site inspections to assess structural and non-structural BMPs with the intent to reduce, to the MEP pollutants to the MS4 from municipal facilities. Inspections will be conducted and documented to meet permit requirements. In addition, The City will develop specific SOPs or similar documents for the Pollution Prevention and Good Housekeeping for Municipal Operations Program.

The following BMPs have been developed and implemented with the ultimate goal of preventing or reducing polluted runoff from municipal operations to the MEP.

BMP	Description
BMP 1:	Continue with the present Cleaning schedule of drainage system maintenance on five year
BMP 2:	cycle Inspect all major storm drains and detention basins within the permit cycle.
BMP 5:	Remove leaves from gutters and inlets during the fall leaf season.
BMP 6:	Support the Salt Lake City curbside recycling effort.
BMP 8:	Track drainage system maintenance using Cityworks® system.

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

BMP 9:	Conduct annual training for drainage system maintenance personnel.
BMP 10:	Continue proper disposal methods for sediments from storm drain cleaning.
BMP 15:	Support the existing Salt Lake City Street Sweeping program.
BMP 16:	Review salt pile storm water management.
BMP 17:	Continue procedures for monitoring storm water management on public construction projects.
BMP 18:	Review proposed street projects for applicability of structural BMPs.
BMP 19:	Review all proposed storm water projects for applicability of structural BMPs.
BMP 20:	Review detention basins for feasibility of retrofitting for water quality enhancements.
BMP 34:	Continue to implement storm drain spill response plan.
BMP 36:	Continue to provide HAZWOPER training to applicable personnel

Industrial and High Risk Runoff. Salt Lake City has developed a comprehensive program to monitor storm water discharges from industrial facilities. Part of this program is to continue to develop and maintain an inventory of Industrial sites. In addition, the City issues Salt Lake City SSID permits to run concurrent with the state issued UPDES Multi-Sector General Permit (MSGP) designated for industrial sites as defined by the 2015 permit. All identified industrial sites shall be inspected at least once within the permit cycle; inspections will be conducted and documented in accordance with the 2015 permit requirements.

In addition to the Industrial program, Salt Lake City will develop and implement a program to identify, inspect and enforce “high priority” commercial facilities. High Priority sites will be identified based on commercial facilities that are deemed to pose the greatest threat to water quality. Inspections and documentation shall meet at least the minimum requirements detailed in the 2015 permit.

City ordinance give legal authority to conduct inspections, require compliance, and enforce permit requirements. The following BMPs have been implemented to monitor pollutants in the runoff from industrial and high risk runoff facilities.

BMP	Description
BMP 22:	Continue SWMP program similar to the pretreatment program.
BMP 23:	Maintain industrial user NAICS and SIC code database.
BMP 38:	Continue to implement an education program for industrial & commercial users on oil and toxic materials disposal.
BMP 41:	Maintain an industrial user’s database.
BMP 42:	Obtain and review SWPPP prepared by industrial users within the Salt Lake City area.
BMP 43:	Identify and Prioritize industrial and priority commercial groups.
BMP 44:	Staff a position for coordinating storm water pollution prevention.
BMP 45:	Distribute water quality education materials to Industrial and priority commercial facilities.

Monitoring, Recordkeeping and Reporting. Salt Lake City will continue to implement wet weather monitoring and dry weather screening as outlined in the 2015 permit. Wet Weather monitoring includes sampling and analyzing storm water to look for trends or patterns that may identify pollutants

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

to target in storm water management. Weather permitting, wet weather monitoring is conducted twice a year, once in the spring and once in the fall. Dry weather screening includes conducting a visual inspection of all outfalls during dry weather seasons when there are no storm water flows, this helps in identifying potential illicit discharges and illegal connections to the MS4. All outfalls shall be inspected within the permit cycle. Monitoring data is detailed in the Annual Report and all sample results and analytical data will be stored electronically.

Recordkeeping and Documentation is an integral part of the SWMP and the Storm Water Quality Program. All records pertaining to the six minimum control measures and the 2015 permit are to be documented and stored electronically.

The City will continue to prepare an Annual Report and submit it to the DWQ in accordance with the requirements outlined in the 2015 Permit. The preparation of the annual report is a critical process in which the SWMP is to be reviewed; along with an assessment of BMPs and their effectiveness, and any other data pertinent to Storm Water Quality Management.

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

2.0 SPECIAL CONDITIONS

The 2015 Permit requires the SWMP address potential impacts to impaired waterbodies. This section identifies and addresses those waterbodies.

2.1 DISCHARGES TO WATER QUALITY IMPAIRED WATERS

The DRAFT 2016 Integrated Report (DWQ, 2015), there are currently five impaired waterbodies within Salt Lake City. The waterbodies and information on impairment and Total Maximum Daily Load (TMDL) are presented in **Table 2.1**.

Table 2.1 Impaired Waterbodies in Salt Lake City (DRAFT 2016 Integrated Report)

Watershed Management Unit	Watershed Management Name	Location of Impairment	Beneficial Use ¹	Pollutant	TMDL Status
	City Creek	AB Filtration Plant	3A HH3A	Cadmium	not supporting
Jordan River / Utah Lake	Emigration Creek	Emigration Creek and tributaries from 1100 East (below Westminster College) to stream gage at Rotary Glen Park (40 44 58.49N, 111 48 36.29W) above Hogle Zoo	2B	E. Coli	not supporting
	Jordan River	BL Gadsby plant 001 Outfall at N. Temple	3B	Dissolved Oxygen	TMDL
	Jordan River	at 500 N Crossing	3B, 3D	Dissolved Oxygen	TMDL
	Jordan River	1800 N Xing Redwood RD BGD	3B, 3D	Dissolved Oxygen	TMDL
	Jordan River	700 S	3B	Dissolved Oxygen	TMDL
	Jordan River	California Ave (1300 S Xing)	3B	Dissolved Oxygen	TMDL
	Jordan River	at 500 N Crossing	2B,	E. Coli	not supporting
	Jordan River	1800 N Xing Redwood RD BGD	2B,	E. Coli	not supporting
	Parleys Canyon Creek	AB pond at Sugarhouse Park, BL historic nature preserve at bottom culvert, at hidden hollow	1C, 2B 3A	E. Coli OE Bioassessment	not supporting not supporting
	Red Butte Creek Lower	1100 East to Red Butte Reservoir	3A	OE Bio-assessment	not supporting

¹ 1C – Domestic Water Supply

2B – Secondary Contact Recreation

3A – Cold Water Species of Game Fish

3B – Warm Water Species of Game Fish

4 – Agriculture

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Salt Lake City currently discharges storm water to City Creek, Red Butte Creek, Emigration Creek, Parleys Canyon Creek, and the Jordan River (2100 South the Davis County Line).

Salt Lake City has been involved with development of the TMDLs for these creeks and will continue to implement BMPs and evaluate potential impacts to impaired waterbodies.

3.0 PUBLIC EDUCATION AND OUTREACH ON STORM WATER IMPACT

The Public Education and Outreach on Storm Water Impacts Program is intended to increase public awareness of problems and solutions regarding storm water quality aimed to stimulate the public to alter its lifestyle and to make the financial commitment necessary to reduce storm water pollutants into the MS4 and preserve water quality. Education is recognized as an effective management tool that fosters recognition on the part of the public and their habits that contribute to the degradation of water runoff quality. An educated public can help protect the MS4 in a proactive manor in preventing contaminations before they happen and to help identify and report them when they do occur.

The Salt Lake City Public Education and Outreach Program will target four audiences in accordance with Part 4.2.1 of the 2015 Permit. These audiences are: 1) Residents, 2) Businesses, Institutions, and Commercial Facilities, 3) Developers and Contractors, and 4) MS4 industrial facilities. The information provided to these audiences includes information regarding potential impacts of storm water on receiving waters and methods for minimizing these impacts.

3.1 DESCRIPTION

Public Education and Outreach is an effective management tool applicable to many other sections of the SWMP and therefore integrated to provide up-to-date information with other sections, including the IDDE, Construction Site Storm water Runoff Control, Long-Term Storm water Management, and Good Housekeeping Programs.

Salt Lake City is an active participant in various organizations that work collectively in an effort to reduce pollutants to storm water runoff by meeting and discussing common challenges and solutions. The intent of these groups and committees is to promote consistent public and professional awareness. These groups include:

- *Storm Water Coalition*: Provides general public with information regarding storm water quality.
- *Utah Storm Water Advisory Committee (USWAC)*: Provides UPDES guidance and updates for governmental entities and other professional groups involved in storm water quality.
- *Salt Lake County Environmental Crimes Task Force*: Presents information, case review, and training for Salt Lake County municipalities in regards to environmental crimes and enforcement.
- *Salt Lake City Event Review Committee (ERC)*: Reviews upcoming events in Salt Lake City and their potential impacts to the environment, including storm water quality. SLCDPU's role is to ensure BMPs are developed and implemented.

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

3.1.1 RESIDENTIAL EDUCATION AND OUTREACH PROGRAM

Objective: To educate the general public of pollution associated with storm water runoff and how their behavior can help reduce pollutants to the MS4.

Permit Requirement: Part 4.2.1.1, 4.2.1.2 and 4.2.1.7 Public Education and Outreach
Part 4.2.3- Illicit Discharges Detection & Elimination

Description: Promote behavioral change in residents by providing specific information relevant to residential activities; topics may include but are not limited to: maintenance of septic systems, proper use of pesticides, herbicides and fertilizers, effects of outdoor and household activities, effects of automotive work and car washing on water quality, benefits of on-site infiltration, proper disposal of swimming pool water and proper management of pet waste.

Collection and Clean-up Programs: Salt Lake City has created and continues to support programs that aim to inform and educate, as well as create avenues and opportunities, for its residents to properly dispose of waste and potential pollutants to the MS4. Salt Lake City will continue to promote and support these integral programs (BMP 27 done in conjunction with SLCoHD):

- BMP 3:** The “Tan Can” yard waste pickup for Salt Lake City residents.
- BMP 4:** Support the Neighborhood annual cleanup program
- BMP 6:** Support the Salt Lake City Curbside recycling effort
- BMP 7:** Support citizens clean up days of selected waterways.
- BMP 27:** **Promote** City-County Health Department Household Hazardous Waste Facility and Collection days.
- BMP 37:** Continue to implement a program to promote public reporting of illicit discharges

Water Quality Fair: In cooperation with the Storm Water Coalition the water quality fair is held annually. The venue is currently at the Hogle Zoo, located in Salt Lake City. The fair consists of a series of booths and informational demonstrations presented by individual agencies; topics include storm water pollution and other water related issues. This fair is held for fourth grade students and coincides with the Water Cycle in the current school curriculum. Students from Salt Lake City spend a morning visiting the booths. Printed storm water materials and giveaways are distributed. The intent is not only to provide storm water information to the students, but for this information to be received by the students’ families as well; potentially reaching a larger audience. The Salt Lake City Storm Water Quality Program delivers invitations to SLC schools to attend the Water Quality fair, at the same time offering class room presentations on storm water quality.

School Presentations: In 2011, Salt Lake City purchased an EnviroScape® watershed model to use in presentations at the City public and private schools upon request. This model represents a

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

watershed where students reenact various scenarios to demonstrate non-point source pollution and its effects on our lakes and rivers. In 2015, SLCDPU purchased a 3-D interactive watershed model.

Tracy Aviary, Nature in the City Program: Salt Lake City in conjunction with Tracy Aviary has created an educational outreach program designed to reach 4th, 8th, and 12th grade students on environmental literacy and stewardship. The program has multiple types of presentations that cover a wide array of environmental messages including storm water quality. The topics have been developed to convey specific messages that have been divided into the three age groups (4th, 8th, 12th grade), to illustrate and provide suggestion for potential topical dialogues that are developmentally appropriate for the age group.

Media Campaign: The Storm Water Coalition conducts a mass media campaign designed to reach a broad audience with the message of preventing storm water pollution. The Coalition partners with top-rated local TV stations and has created commercials that are broadcasted throughout the state. Campaigns are typically conducted in the spring and fall and run for a two- to three- week period. News stations are invited annually to the Water Quality Fair and have aired stories on the fair. The campaign also includes internet advertising generally partnered with local TV websites.

Educational Materials: These materials are designed to promote, educate, and remind the community at large about storm water quality issues. Materials distributed by the coalition and Salt Lake City include information designed to promote the Storm Water Quality Program. The City looks for opportunities to develop new educational materials as new storm water issues arise and will continue to distribute current educational materials. Current education materials include:

- Various handouts & Informational flyers
- Brochures e.g.,
 - Storm Water Quality
 - Fats, oils and greases
 - Prescription drug disposal
 - Watershed “Keep it Pure” campaign
 - Dogs in the Wasatch front
 - Waterwise watering
 - Pet waste disposal
 - Landscaping
 - Erosion control
 - Fresh concrete and mortar application
 - Paint and household hazardous waste
 - Household and vehicle maintenance
- Consumer Confidence Report: Salt Lake City’s Consumer Confidence Report addresses storm water quality issues and is delivered annually to customers (over 90,000 connections) within the City and County.
- Water Conservation Annual Calendar: SLCDPU annually publishes approximately 25,000 calendars that cover a broad range of topics for the Department including stormwater

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

quality. The calendars are distributed free of charge to the public throughout the City to locations including public buildings, libraries, schools, etc.

- Other educational reminders and handouts distributed will include: water bottles, lip balm, reusable grocery bags, pencils, and tabloids activity book.

BMP 21: Continue education program on the proper use of pesticides and fertilizers

BMP 39: Continue education for residential users on oil and toxic material disposal

Internet and Social Media: The Storm Water Coalition has maintained a website for several years <http://www.stormwatercoalition.org>. This website not only provides storm water information, but provides links to other sites for information, as well as member sites for more local information. This website will be updated as necessary. In addition to the Coalition site, Salt Lake City also has an abundance of storm water information available on its website: <http://www.slcgov.com/utilities>. This site includes tips for residents and homeowners in protecting the MS4 and a copy of the SWMP to allow for public interaction and participation in the program development, this is further detailed in Section 4.1.1- Public participation/involvement of this SWMP. The City will continue to look for opportunities to update and add more information to the website.

3.1.2 BUSINESSES, INSTITUTIONS, AND COMMERCIAL FACILITIES

Objective: To reduce the discharge of storm water pollutants to impaired waters from businesses, institutions, and commercial facilities by taking a proactive approach in educating these users on illicit discharges and the potential impacts; particularly in relation to their specific business or business process.

Permit Requirement: Part 4.2.1.3 and 4.2.1.7 - Public Education and Outreach on Storm Water Impacts
Part 4.2.3- Illicit Discharges Detection and Elimination

Description: The City will provide information to commercial users about water quality impacts associated with illicit discharges and improper disposal of waste. The information distributed is aimed at addressing specific users that have facilities or business that are more likely to have discharges that may have an adverse effect on storm water quality. The intent is to educate businesses, institutions and commercial users about their activities that could potentially impact water quality, regulations and consequences against prohibited discharges.

Brochures, handouts and other relevant information will continue to be developed to target these users and will be distributed as applicable. Specific topics to be included in this education program include proper lawn maintenance; benefits of on-site infiltration of storm water, building and equipment maintenance, use of salt or other deicing materials, proper storage of materials, proper management of waste materials and dumpsters, and proper management of parking lot surfaces. Applicable business and commercial facilities will be identified by the City by the type of business through new business licensing and known facilities that have a high potential to discharge pollutants.

BMP 21: Continue education program on the proper use of pesticides and fertilizers

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

- BMP 38:** Continue to implement an education program for industrial users on oil and toxic materials disposal.
- BMP 43:** Identify and prioritize industrial and priority commercial groups.
- BMP 45:** Distribute water quality education materials to Industrial and priority commercial facilities.

3.1.3 DEVELOPERS AND CONTRACTORS EDUCATION PROGRAM

Objective: Promote behavioral change in the construction industry to reduce water quality impacts associated with construction storm water runoff and illicit discharges by educating and providing information to developers and contractors.

Permit Requirement: Part 4.2.1.4 – Public Education & Outreach on Storm water Impacts
Part 4.2.4. – Construction Site Storm Water Runoff Control
Part 4.2.5. – Long-term Storm Water Management in New Development & Redevelopment

Description: Inform and Educate engineers, contractors, developers, development review staff, and land use planners on storm water regulations, SWPPP requirements, and BMPs in regards to construction activities by providing educational materials on relevant subjects. Information regarding construction activities may be provided during site inspections or through Salt Lake City's website, guidance documents, training videos, and/or pre-construction conferences for applicable projects.

3.1.4 MUNICIPAL FACILITIES EDUCATION PROGRAM

Objective: Reduce the discharge of pollutants to storm water by providing training to applicable employees with regards to water quality impacts associated with illicit discharges, improper disposal of waste and LID practices.

Permit Requirement: Part 4.2.1.5 & 4.2.1.6 – Public Education and Outreach on Storm Water Impacts
Part 4.2.4 – Construction Site Storm water Runoff Control
Part 4.2.5 – Long-term Storm Water Management in New Development and Redevelopment

Description: Provide MS4 engineers, development and plan review staff, land use planners and other employees as applicable, with educational materials regarding storm water regulations, GI and LID practices, and the IDDE Program. Applicable City personnel will be provided annual training with regards to City storm water regulations, inspections and maintenance, BMPs for businesses and commercial facilities, and construction sites and MS4 industrial facilities. Training may include various methods and mediums. Training topics may include the following:

- Equipment inspection and maintenance

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

- Proper storage of industrial materials
- Proper management and disposal of wastes
- Proper management of dumpsters
- Minimization of use of salt and other de-icing material
- Benefits of on-site infiltration
- Proper maintenance of parking lots
- LID practices and green infrastructure practices

3.1.5 TRAINING EVALUATION

Objective: To obtain feedback from training participants for the education and outreach program to gauge the effectiveness of the training provided.

Permit Requirement: Part 4.2.1.8. - Public Education and Outreach on Storm Water Impacts

Description: Provide evaluation methods to obtain and record data that represents knowledge gained through the Public Education and Outreach Program. These evaluation methods may include but are not limited to: surveys, exit polls, interviews, round table discussions and comment cards.

The most recent surveys (2010) conducted by Dan Jones and Associates are funded through the storm water coalition, results of the survey can be found in appendix F.

3.2 IMPLEMENTATION STATUS

Measurable goals for this program to be implemented and assessed during the permit term are presented in **Table 3.1**. The purpose of measureable goals is to gauge permit compliance and program effectiveness following the schedule identified.

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Table3.1 Implementation Status for Public Education and Outreach Program

Schedule						BMP	Goal	Measurement	Responsibility
Permit Year									
1	2	3	4	5					
x	x	x	x	X	BMP 3: Support SLC Tan Can Program	<ul style="list-style-type: none">Minimize fall leaves from getting in the gutters and storm drain system.	Tons of leaves composted and used to measure the effectiveness of this BMP	Office of Sustainability	
x	x	x	x	X	BMP 4: continue the Neighborhood annual cleanup program	<ul style="list-style-type: none">To keep household refuse and debris from entering the MS4.	The amount of residential debris removed each year is the measurement used for this BMP	Office of Sustainability	
x	x	x	x	X	BMP 6: Support City Curbside Recycling effort	<ul style="list-style-type: none">To reduce or eliminate material that can be recycled from getting into curbs, storm drainage conveyances, and Waters of the State.	The amount of material recycled and kept out of the storm drain system and the landfill.	Office of Sustainability	
		x			BMP 21: Continue an education program on the proper use of pesticides and fertilizers	<ul style="list-style-type: none">To have an education program available to educate residents, commercial applicators, and municipal agencies regarding the proper use of pesticides, fertilizers, and herbicides.	The measurement for this BMP is the education provided to the various groups applying pesticides, fertilizers, and herbicides. As these groups become educated, products are properly used and the pollutants from over application are mitigated.	Water Quality	
x	x	x	x	x	BMP 27: Promote City County Health Department Hazardous Waste Collection Days	<ul style="list-style-type: none">To provide the residents of Salt Lake City with a collection day where, they can properly dispose of household hazardous waste.	The measurement for this BMP is the fliers, inserts, and additional information provided by Salt Lake City to promote the Electronic and Household Hazardous Waste Collection at Salt Lake City-County Health Departments permanent facility.	Water Quality	
x	x	x	x	X	BMP 37: Continue to implement a program to promote public reporting of illicit discharges	<ul style="list-style-type: none">To have a program that promotes the interest of pollution prevention to the public, and provides information regarding illicit flows and reporting procedures.	The number of illicit flows reported and resolved.	Water Quality	
x	x	x	x	x	BMP 39: Continue education program for residential users on oil and toxic materials disposal	<ul style="list-style-type: none">To have an education program aimed at residential audiences to promote the proper disposal of oil and household toxic materials.	The measurement for this BMP is the number of residents that are educated and properly disposing of material at the Household Hazardous Waste Facility.	Water Quality	
	x				BMP 43: Identify and Prioritize industrial and priority commercial groups.	<ul style="list-style-type: none">To provide information to target industrial groups with BMPs regarding water quality, including notifying the industrial facilities of the compliance requirements of the State General Industrial Storm Water Permit.	The measurement of this BMP is the number of target industrial groups that are provided with water quality materials and State/City Industrial Storm Water Permit.	Water Quality	

An asterisk (*) indicates BMPs that are done as needed or as applicable within the permit cycle

(x) Indicates year to be implemented or describes an on-going BMP

4.0 PUBLIC INVOLVEMENT/PARTICIPATION

Public involvement/participation program is designed to involve the general public, stakeholders and potential affected parties in the SWMP process. Interaction with Salt Lake City and its residents/customers is an integral part of protecting storm water quality.

4.1 DESCRIPTION

SLCDPU will continue to look for opportunities to involve the public in the development and implementation of this SWMP and will remain active with stakeholders groups, advisory panels, and committees throughout the watershed. The City Storm Water Quality website will be designed with the intent to allow public feedback and input to the program.

In addition, this program compliments the Public Education and Outreach Program, and supports the IDDE Program by encouraging public reporting of illicit discharges while providing opportunities for public involvement/participation.

4.1.1 PUBLIC INVOLVEMENT/PARTICIPATION

Objective: Provide public participation opportunities and promote public involvement in regards to Storm Water Quality Programs and policies.

Permit Requirement: Part 4.2.19 4.2.2.1, 4.2.2.2, 4.2.2.3 and 4.2.2.4 – Public Involvement /Participation

Description: The City will provide an opportunity for the public to review and comment on the SWMP and other regulatory Mechanisms for SWMP implementation. The SWMP document will be posted on the website for public review for the duration of the permit. Comments will be reviewed annually and incorporated as appropriate. Information on how the public can comment on the SWMP will be provided on the storm water quality website. Programs and BMPs for this program include: the following BMPs were chosen to give the general public an opportunity to get involved in reducing the pollutants in storm water runoff.

Collection and clean up programs: Salt Lake City along with the SLCoHD have created and continue to support programs that aim to inform and educate as well as create avenues and opportunities for its residents to participate in properly disposing of waste and potentially pollutants to the MS4. Salt Lake City will continue to promote and support these integral programs:

- BMP 3:** Support SLC Tan Can Program
- BMP 4:** Support the Neighborhood annual cleanup program
- BMP 5:** Remove leaves from gutters during the fall leaf season
- BMP 6:** Support Salt Lake City Curbside recycling effort

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

BMP 7: Support scheduled citizen clean-up days of selected waterways

BMP 27: Promote City-County Health Department Household Hazardous Waste Facility and Collection days.

Education and Outreach: In conjunction with the Public Education and Outreach Program Salt Lake City will implement the following BMPs:

BMP 37: Continue to implement a program to promote public reporting of illicit discharges

BMP 39: Continue education for residential users on oil and toxic materials disposal

4.2 IMPLEMENTATION STATUS

Measurable goals for this BMP to be implemented and assessed during the permit term are presented in **Table 4.1**. The purpose of measurable goals is to gauge permit compliance and program effectiveness following the schedule identified.

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Table 4.1 Implementation Status for Public Involvement/Participation Program

Schedule						BMP	Goal	Measurement	Responsibility
Permit Year									
1	2	3	4	5					
x	x	x	x	x		BMP 3: Support SLC Tan Can Program	<ul style="list-style-type: none">Minimize fall leaves from getting in the gutters and storm drain system.	Tons of leaves composted and used to measure the effectiveness of this BMP	SCL Office of Sustainability
x	x	x	x	X		BMP 4: Continue the Neighborhood cleanup program	<ul style="list-style-type: none">To keep household refuse and debris from entering the storm drainage conveyances that lead to the rivers and canals.	The amount of residential debris removed each year is the measurement used for this BMP.	SLC Office of Sustainability
x	x	x	x	x		BMP 6: Support City Curbside Recycling effort	<ul style="list-style-type: none">To reduce or eliminate material that can be recycled from getting into curbs, storm drainage conveyances, and Waters of the State.	The amount of material recycled and kept out of the storm drain system and the landfill.	SLC Office of Sustainability
x	x	x	x	x		BMP 7: Support citizens clean up days of selected waterways.	<ul style="list-style-type: none">To improve the aesthetics of selected waterways by removing debris and to promote citizen awareness and responsibility regarding the waterway.	The change in the amount of debris removed from the waterway and hauled to the landfill is one measurement of the success of this BMP.	Parks Dept.
x	x	x	x	X		BMP 27: Promote City County Health Department Hazardous Waste Collection Days.	<ul style="list-style-type: none">To provide the residents of Salt Lake City with a collection day where, they can properly dispose of household hazardous waste.	The measurement for this BMP is the fliers, inserts, and additional information provided by Salt Lake City to promote the Electronic and Household Hazardous Waste Collection at Salt Lake City-County Health Departments permanent facility.	SLCDPU Storm Water Quality
x	x	x	x	X		BMP 37: Continue to implement a program to promote public reporting of illicit discharges	<ul style="list-style-type: none">To have a program that promotes the interest of pollution prevention to the public, and provides information regarding illicit flows and reporting procedures.	The number of illicit flows reported and resolved.	SLCDPU Storm Water Quality
x	x	x	x	x		BMP 39: Continue education program for residential users on oil and toxic materials disposal	<ul style="list-style-type: none">To have an education program aimed at residential audiences to promote the proper disposal of oil and household toxic materials.	The measurement for this BMP is the number of residents that are educated and properly disposing of material at the Household Hazardous Waste Facility.	SLCDPU Storm Water Quality
x						BMP 44: Staff a position for coordinating storm water pollution prevention	<ul style="list-style-type: none">To have a full time position available to work with industries to minimize the pollutants released to the Salt Lake City storm drain.	The measurement for this BMP is staffing the positions	SLCDPU Storm Water Quality

An asterisk (*) indicates BMPs that are done as needed or as applicable within the permit cycle

(x) Indicates year to be implemented or describes an on-going BMP

5.0 ILLICIT DISCHARGE DETECTION AND ELIMINATION

The IDDE Program addresses non-storm water discharges to the MS4. This program includes implementation of BMPs, SOPs and/or similar types of documents to assist in the identification and removal of illicit discharges. This program also will focus on prevention and elimination of new illicit discharges to the MS4.

5.1 DESCRIPTION

The IDDE program will continue to systematically find and eliminate sources of non-storm water discharges to the MS4. This program integrates other programs such as Public Education and Outreach and Public Involvement/Participation; in addition, the City has a MOU with the SLCoHD and regularly coordinates efforts in response, identification, elimination and enforcement of illicit discharges. Salt Lake City will continue to implement the BMPs outlined in this section aimed at reducing the impact of illicit discharges by addressing the following parameters: education and outreach, prevention, identification and prioritization, spill containment and response, employee training, documentation, legal authority, and enforcement. SOPs are included in **Appendix D** and progress towards the measurable goals will be documented in the Annual Report.

5.1.1. MAPPING

Objective: Continue to maintain and update maps showing the storm sewer system and location of all outfalls, storm boxes, storm drain pipe and other storm water conveyance structures within the MS4.

Permit Requirement: Part 4.2.3. – Illicit Discharge Detection and Elimination

Description: Maintain and update maps to assist in emergency response and the IDDE and monitoring programs.

Storm Drain System Map (Permit Requirement 4.2.3.1): The SLCDPU GIS department keeps an up-to-date map of the City's storm drain system that identifies drain pipe, inlets, man holes, ditches, canals, and other conveyance structures with information relevant to the storm drain system. Storm Water Quality personnel have access to maps digitally on mobile devices to allow quick identification of the storm water system and layout while in the field. Accuracy of these maps and the ability to quickly access them play an integral part in identifying and mitigating IDDEs.

Storm Water Quality GIS Map: The Storm Water Quality Program has created a GIS overlay that is maintained and updated to show pertinent information regarding the program. This map shows where industrial and construction inspections and permit holders are located; and provides information and locations of IDDEs.

Fire Department Storm Water Emergency Response Maps: The SLCDPU and SLC Fire Department HAZMAT have created emergency response maps depicting specific sections of the City showing detail of the storm water system including flow indicators. The maps have been compiled into booklets of maps to assist the SLC Fire Department HAZMAT crews efficiently and effectively

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

respond to and mitigate IDDEs in emergency situations. Each book details an area of the City that relates to each fire station responsible for said area.

Outfall Mapping and Dry Weather Screening (Permit Requirement 4.2.3.1): Salt Lake City will review known outfalls and update mapping of its outfall coordinates by GPS within the permit cycle; the mapping will be done in coordination with the dry weather screening program. The outfalls will be inspected and documented during dry weather periods to help identify any illicit connections or discharges.

BMP 33: Investigate Dry Weather flows.

5.1.2 ILLICIT DISCHARGE DETECTION AND ELIMINATION ORDINANCE AND ENFORCEMENT

Objective: To have legal authority to prohibit illicit and illegal discharges; as well as to enforce penalties and remediation as necessary through ordinance.

Permit Requirement: 4.2.3.2. & 4.2.3.2.1 – Illicit Discharge Detection and Elimination

Description: Ordinance No. 53 Title 2 and Title 17 (Appendix B) of the Salt Lake City Code, relating to the Storm Water Sewer System, authorizes escalating enforcement procedures, fines and penalties for prohibited discharges and other prohibited conduct. Title 17, Chapters 17.84 of the ordinance addresses discharges into city storm water sewer system, and defines our legal authority for the City's IDDE program and right of entry for investigations. The enforcement section is described in Title 17, Chapter 17.87 outlining an appropriate course of action for IDDE violations.

5.1.3 IDDE PLAN

Objective: Reduce pollutants in storm water runoff to the MEP by developing and implementing a plan to detect and address non-storm water discharges to the MS4.

Permit Requirement: Part 4.2.3.3., 4.2.3.3.1, 4.2.3.3.2, 4.2.3.4, 4.2.3.5., 4.2.3.5.1, 4.2.3.6, 4.2.3.6.1, 4.2.3.7., 4.2.3.8, 4.2.3.9., 4.2.3.9.1 & 4.2.3.10 – Illicit Discharge Detection and Elimination
Part 4.2.1 – Public Education and Outreach
Part 4.2.2 – Public Involvement/Participation

Description: Develop and implement an IDDE plan with appropriate ordinances and MOUs that provide for City access and enforcement activities. The plan will include inspections, prioritization, mapping, interagency coordination, public education and involvement, documentation/recordkeeping, and SOPs or similar documents as outlined in the permit, including but not limited to: inspection reports, tracing an illicit discharge source, characterizing an illicit discharge, and eliminating an illicit discharge, as well as the notification process of proper parties. The following BMPs and procedures detail the IDDE Plan.

Interagency Coordination (Permit Requirement 4.2.3.8.): The Salt Lake City Storm Water Quality Program coordinates with multiple agencies on a regular basis in regards to the IDDE program including: Fire, Hazmat, DWQ, stakeholders, and most commonly the SLCoHD. The relationship agreement between Salt Lake City and SLCoHD initially was explained in a letter of

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

understanding created in 1993 and has now been further detailed in a MOU finalized in July 2015.

BMP 27: Support the SLCo HD Household Hazardous Waste Program (HHW). Advertise collection days and locations.

BMP 29: Implement MOU with the SLCo HD.

BMP 31: Promote inter-agency cooperation concerning to illicit flows investigations.

Prevention: Salt Lake City incorporates its IDDE program with multiple other programs, including the Industrial and High Risk Runoff Program. The integration of these programs is designed to develop and maintain a partnership with the industrial and business community to identify and remove illicit connections to the MS4. The intent of the program is to provide consistent guidance and direction to the regulated community. Pollution prevention at the source is key element of the program. The following BMPs and procedures shall continue to be implemented to help achieve the goals of the program:

BMP 22: Continue SWMP program similar to the pretreatment program.

BMP 23: Maintain a database of industrial users based on North American Industrial Classification System (NAICS) or Standard Industrial Classification (SIC) codes.

BMP 24: Coordinate with POTW pretreatment program.

BMP 25: Maintain records and a database of all illicit connection investigations.

BMP 26: Review all new development plans for compliance and Illicit connections.

BMP 27: Promote City-County Health Department Household Hazardous Waste Facility and Collection Days.

Priority Areas (Permit Requirement 4.2.3.3.1): Salt Lake City identified priority areas in part 1 of the original permit that indicated that the highest concentration of potential illicit connections is along the I-15 corridor that contains a mix of older industrial and commercial land uses. Land use has not changed since the initial identification of priority areas. The City will continue to implement and update a plan to inspect all known priority areas within the permit cycle.

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Field Assessment Activities - Dry Weather Screening (Permit Requirement 4.2.3.3.2): In accordance with the mapping section of the IDDE program outlined in section 5.1.1. of the SWMP the City will inspect all known outfalls and record its findings within the permit cycle.

BMP 33: Investigate dry weather flows.

Investigating and Tracing Illicit Discharge Source (Permit Requirement 4.2.3.4): Salt Lake City will continue to investigate and trace illicit discharges as well as develop and implement an SOP or similar type of document. Detailed documentation of these efforts will be maintained in the "IDDE Incidents" file.

BMP 28: Continue program for investigation illicit flows and connections

BMP 30: Maintain Staff to respond to reports of illicit discharges.

Characterizing the Illicit Discharge (Permit Requirement 4.2.3.5): The City will develop and implement an SOP or similar type of document for characterizing the nature of, and the potential public or environmental threat posed by an illicit discharge found or reported to the City. Details and documentation requirements are outlined in the **Appendix D**.

Documentation for IDDE inspections (Permit Requirement 4.2.3.5.1): See Section 5.1.4 of SWMP for documentation and inspection reporting.

Eliminating Illicit Discharge and Notification (Permit Requirement 4.2.3.6.): Salt Lake City will develop and implement an SOP or similar document detailing the current process used for ceasing of an illicit discharge and notifying the appropriate parties (**Appendix D**).

BMP 32: Pursue prosecutions and court-ordered solutions to significant contamination problems.

IDDE Education (Permit Requirement 4.2.3.7. & 4.2.3.8): Salt Lake City will include information regarding illicit discharges and improper disposal of waste in the education program identified in Section 3.0 - Public Education and Outreach of this SWMP, including oil and toxic materials. The following BMPs will continue to be implemented as part of both programs.

BMP 38: Continue to implement an education program for industrial users on oil and toxic materials disposal.

BMP 39: Continue to implement education for residential on oil and toxic materials disposal.

Public Reporting (Permit Requirement 4.2.3.9.): Salt Lake City will continue to provide the public with a 24-hour hotline for reporting spills and illicit discharges. Reports may be called into SLCDPU 24-hour dispatch, 801-483-6700. Calls can also be made to the Utah DEQ, 801-536-4100; Salt Lake County, 801-313-6600; to the National Response Center (Major Chemical

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Release, 1-800-536-4123); or to 911. In addition, the City has an app for mobile phones available at (www.slcgov.com/slcmobile) that can be used to identify and report incidents.

BMP 34: Continue to implement storm drain spill response plan.

BMP 37: Continue to implement a program to promote public reporting of illicit discharges.

Spill/Illicit Discharge Response Procedure (Permit Requirement 4.2.3.9.1): The Salt Lake City Storm Water Quality Program will continue to update and provide the *Spill Incident Response Contact List* for internal use in the Department.

BMP 35: Maintain a list of certified contractors, suppliers and contracting procedures to respond to containment and cleanup of spilled materials.

BMP 40: Continue procedure for reporting and investigating possible ex-filtration of sanitary sewage to the storm drain system.

5.1.4 PROGRAM EVALUATION AND ASSESSMENT

Objective: Evaluate and assess the IDDE program for effectiveness and determine any necessary modifications.

Permit Requirement: 4.2.3.5.1, 4.2.3.6.1, & 4.2.3.10. – Illicit Discharge Detection and Elimination

Description: Salt Lake City currently maintains documents on the City server. The City shall continue to maintain a database for mapping and tracking the number and type of spills or illicit discharges identified and inspections conducted and detail those in the Annual Report.

IDDE Documentation (permit requirement 4.2.3.10): The City will continue to generate IDDE reports. These reports will be filed and all IDDEs are to be plotted on the Storm Water Quality GIS map. In addition to the reports and mapping, all IDDEs will continue to be tracked and documented in the Annual Report.

BMP 25: Maintain records and a database of all illicit connection.

5.1.5 ILLICIT DISCHARGE DETECTION AND ELIMINATION TRAINING

Objective: Provide IDDE training for appropriate personnel.

Permit Requirement: Part 4.2.3.11 – Illicit Discharge Detection and Elimination

Description: Salt Lake City will provide annual training to applicable employees with regards to the IDDE program, including field personnel who may come into contact with an illicit discharge or connection; and office personnel who may receive reports or questions about illicit discharges. The training will include identification, investigation, termination, clean up, and reporting of illicit discharges.

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

BMP 36: Continue to provide HAZWOPER training to applicable personnel.

BMP 40: Continue procedure for reporting and investigating possible ex-filtration of sanitary sewage to the storm drain system.

5.2 IMPLEMENTATION STATUS

Measurable goals for BMPs to be implemented during the permit term are presented in **Table 5.1**. The purpose of measurable goals is to gauge permit compliance and program effectiveness following the schedule.

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Table 5.1 Implementation Status for Illicit Discharge Detection and Elimination Program

Schedule						BMP	Goal	Measurement	Responsibility
Permit Year									
1	2	3	4	5					
X	X	X	X	X		BMP 2: Inspect all major storm drains and detention basins within the permit cycle.	<ul style="list-style-type: none">To keep all of the major storm drains and detention basins in repair and clean of any debris or sediment that may keep them from efficient operation.	The Cityworks®Work Order System will be used for keeping track of all of the major storm drains and detention basins inspected, and document any repairs or cleanup.	SLCDPU Storm Water Maintenance and Storm Water Quality Program
X	X	X	X	X		BMP 9: Conduct annually training for drainage system maintenance personnel	<ul style="list-style-type: none">To ensure that storm drainage maintenance personnel are aware of their responsibility in maintaining storm water quality as work is performed.	The measurement for this BMP is the training provided for maintenance personnel. The quality of the training and topics discussed should focus on BMPs that can be implemented to maintain storm water quality while performing maintenance activities. Another aspect of the training will focus on illicit discharge identification.	SLCDPU Storm Water Maintenance and Storm Water Quality Program
X	X	X	X	X		BMP 10: Continue a program for the disposal of sediments from storm drain cleaning.	<ul style="list-style-type: none">To ensure proper disposal of sediments from storm drain cleaning in an efficient and environmentally sound manner.	The measurement for this BMP is the number of loads and volume that are properly de-watered and hauled to the landfill for disposal. This disposal method is used to dispose of the sediment in an environmentally sound manner.	SLCDPU Storm Water Maintenance Program
X	X	X	X	X		BMP 21: Continue education program on the proper use of pesticides and fertilizers.	<ul style="list-style-type: none">To have an education program available to educate residents, commercial applicators, and municipal agencies regarding the proper use of pesticides, fertilizers, and herbicides.	The measurement for this BMP is the education provided to the various groups applying pesticides, fertilizers, and herbicides. As these groups become educated, products are properly used and the pollutants from over application are mitigated.	SLCDPU Storm Water Quality Program
X	X	X	X	X		BMP 22: Continue SWMP program similar to the pretreatment program.	<ul style="list-style-type: none">To develop a program similar to the wastewater pretreatment program that is proactive in working with the businesses in Salt Lake City. The goal is to provide the businesses with information and assistance to help them stay in compliance with storm water objectives.	The measurement for this BMP is the percent of industries with permits, and the percent of SWPPPs that are implemented. The ability to get businesses to comply and meet storm water standards is very important for the long-term success of the program. The number of inspections, enforcement of illegal discharges, and disconnection of illegal connections is another measurement beneficial to the storm water and pretreatment programs.	SLCDPU Storm Water Quality Program
X	X	X	X	X		BMP 23: Maintain industrial	<ul style="list-style-type: none">To have an updated	The measurement of this BMP	SLCDPU

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Schedule						BMP	Goal	Measurement	Responsibility
Permit Year									
1	2	3	4	5					
						user NAICS/SIC code database.	listing of local industries having a Standard Industrial Classification Code, (SIC) requiring them to acquire State Industrial UPDES and Salt Lake City storm water permits and a SWPPP implemented.	is the percent of total required industries on the database that obtain permits and meet storm water regulations as a result of contacts made from the use of this data base.	Engineering Division and Storm Water Quality Program
X	X	X	X	X		BMP 24: Coordinate with POTW pretreatment program.	<ul style="list-style-type: none">To work in conjunction with the POTW's pretreatment program working in partnership with the industrial and business community to provide consistent guidance and direction.	The measurement for this BMP is the dissemination of information and consistent guidance given to the regulated business community. The number of illicit connections or illegal discharges found and resolved is another important measurement.	SLCDPU Pretreatment Program and Storm Water Quality Program
X	X	X	X	X		BMP 25: Maintain records and database of all illicit connection investigations.	<ul style="list-style-type: none">The goal of this BMP is to have records and a database of all illicit connections, their enforcement, and resolution for future reference.	The measurement of this BMP is the number of illicit connection investigations and their resolutions.	SLCDPU Storm Water Quality Program
X	X	X	X	X		BMP 26: Review all new developments plans for compliance and illicit connections.	<ul style="list-style-type: none">The goal of this BMP is to insure that all new commercial and industrial development plans are in compliance and that illicit connections to the storm drain are not constructed.	The measurement for this BMP is the number of plans reviewed.	SLCDPU Engineering Division and Storm Water Quality Program
X	X	X	X	X		BMP 27: Promote SLCoHD Household Hazardous Waste Facility and Collection Days.	<ul style="list-style-type: none">To provide the residents of Salt Lake City with a collection day where, they can properly dispose of household hazardous waste.	The measurement for this BMP is the fliers, inserts, and additional information provided by Salt Lake City to promote the Electronic and Household Hazardous Waste Collection at Salt Lake City-County Health Departments permanent facility.	SLCDPU Storm Water Quality Program
X	X	X	X	X		BMP 28: Continue program for investigating illicit flows and connections.	<ul style="list-style-type: none">To conduct on-going field screening in the MS4 to resolve any illicit connections or flows.	The measurement for this BMP is the data collected from the area screened during the life of the permit and the illicit flows removed from the MS4.	SLCDPU Storm Water Quality Program
X	X	X	X	X		BMP 29: Implement MOU with SLCoHD	<ul style="list-style-type: none">To have a MOU between Salt Lake City Public Utilities and the Salt Lake County Health department regarding enforcement of state health laws, rules, regulations, and standards applying to the municipal separate	The measurement for this BMP is the number of illicit discharges and illegal connections that are resolved as a result of this MOU between the two agencies.	SLCDPU Storm Water Quality Program

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Schedule					BMP	Goal	Measurement	Responsibility
Permit Year								
1	2	3	4	5				
						storm sewer system.		
X	X	X	X	X	BMP 30: Maintain staff to respond to reports of illicit discharges.	<ul style="list-style-type: none">To have a staff available to respond to any illicit discharges and resolve the problem with clean up, and/or Cease and Desist order and or Notice of Violations issued by SLC and or SLCHD.	The measurement for this BMP is the number of illicit discharges that have required response and correction. An additional measurement is the number of trained personnel within the City.	SLCDPU Water Quality Division, Storm Water Quality Program, Stormwater Maintenance Program, Salt lake City Fire and HAZMAT.
X	X	X	X	X	BMP 31: Promote interagency cooperation concerning illicit flows investigation.	<ul style="list-style-type: none">To work together in a cooperative effort with other Regulatory agencies to resolve illicit and or illegal discharges.	The measurement for this BMP is the number of illicit flows investigated and corrected and cooperation between agencies and stakeholders.	SLCDPU Water Quality Division
X	X	X	X	X	BMP 32: Pursue prosecutions and court ordered solutions to contamination problems.	<ul style="list-style-type: none">To resolve significant contamination problems that may require court orders and prosecutions.	The measurement used for this BMP is the number of prosecutions and court ordered solutions that resolve significant contamination problems.	SLCDPU Water Quality Program
X	X	X	X	X	BMP 33: Investigate dry weather flows.	<ul style="list-style-type: none">To Dry Weather Screen the MS4 flows to systematically investigate and remove illicit flows.	The measurement used for this BMP is the portion of the MS4 monitored, and the illicit discharges removed.	SLCDPU Water Quality Program
*	*	*	*	*	BMP 36: Provide OSHA HAZWOPER training to selected personnel.	<ul style="list-style-type: none">To have personnel trained to respond to spills correctly and safely.	The measurement for this BMP is the number of personnel trained to respond to spills.	SLCDPU Water Quality Program
X	X	X	X	X	BMP 37: Continue to promote program of public reporting of illicit discharges.	<ul style="list-style-type: none">To have a program developed that promotes the interest of pollution prevention to the public, and provides information regarding illicit flows and reporting procedures.	The measurement for this BMP is the number of illicit flows reported and resolved.	SLCDPU Water Quality Program
X	X	X	X	X	BMP 38: Continue education program for industrial users on oil and toxic materials disposal.	<ul style="list-style-type: none">To have an education program that is targeted to industry and business audiences encouraging proper disposal of oil and toxic materials.	The measurement for this BMP is the number of industries and businesses that are educated and properly disposing oil and toxic materials.	SLCDPU Water Quality Program
X	X	X	X	X	BMP 39: Continue education for residential users on oil and toxic materials disposal.	<ul style="list-style-type: none">To have an education program aimed at residential audiences to promote the proper disposal of oil and household toxic materials.	The measurement for this BMP is the number of residents that are educated and properly disposing of material at the Household Hazardous Waste Facility.	SLCDPU Water Quality Program
X	X	X	X	X	BMP 40: Continue reporting and investigating infiltration of sanitary sewage to storm drains.	<ul style="list-style-type: none">To eliminate infiltration from the sanitary sewer into the storm drain system.	The measurement for this BMP is the number or problems resolved regarding infiltration of sanitary sewage to the storm	SLCDPU Water Quality and pretreatment program

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Schedule						BMP	Goal	Measurement	Responsibility
Permit Year									
1	2	3	4	5					
								drain system. The aggregate portion of the collection system investigated is another measurement.	
X	X	X	X	X		BMP 44: Staff a position for coordinating storm water pollution prevention.	<ul style="list-style-type: none">To have a full time position available to work with industries to minimize the pollutants released to the Salt Lake City storm drain.	The measurement for this BMP is staffing the positions	SLCDPU Water Quality Program
X	X	X	X	X		BMP 50: For City projects identify erosion control measures as a specific bid item.	<ul style="list-style-type: none">To have consistent erosion control measures for City projects.	The measurement for this BMP is the City projects that have erosion control measures as specific bid items.	SLCDPU Water Quality Program and Engineering Division

An asterisk (*) indicates BMPs that are done as needed or as applicable within the permit cycle

(x) Indicates year to be implemented or describes an on-going BMP

6.0 CONSTRUCTION SITE STORM WATER RUNOFF CONTROL

Salt Lake City will continue to implement a *Construction Site Storm Water Runoff Program* to reduce pollutants to the MEP in any storm water runoff to the MS4 from construction sites with a land disturbance of greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale.

6.1 DESCRIPTION

This program also will be integrated with the Public Education and Outreach Program and the Long-term Storm Water Management Program to provide storm water information and permit compliance information to the public, contractors and developers. The following BMPs describe implementation tasks and assessment tasks to be completed by Salt Lake City for the Construction Site Storm Water Runoff Control Program. Progress towards the measurable goals will be documented in the Annual Report.

6.1.1 CONSTRUCTION SITE STORM WATER RUNOFF CONTROL ORDINANCE

Objective: To have legal authority to regulate and enforce construction activities with the intent to reduce pollutants from storm water runoff.

Permit Requirement: Part 4.2.4.1., 4.2.4.2.1, 4.2.4.1.1, 4.2.4.1.2, and 4.2.4.2

Description: Salt Lake City Storm Water Ordinance 53, Title 2 & 17 defines regulation for construction site storm water runoff controls including: requirements for BMPs, the development and implementation of a SWPPP, right of entry for inspections, escalating enforcement, and state and local permitting requirements. The Ordinance requires that construction sites meet the most current version of the UPDES permit for construction activities. An SOP or similar document shall be developed and implemented to detail the enforcement strategy.

BMP 12: Enforce the requirements of Salt Lake City Ordinances.

BMP 32: Pursue prosecutions and court ordered solutions to significant contamination problems.

6.1.2 PRE-CONSTRUCTION SWPPP AND PLAN REVIEW

Objective: Conduct Pre-construction reviews of SWPPP and plans to ensure BMPs are developed to minimize the impact to the MS4.

Permit Requirements: 4.2.4.3., 4.2.4.3.2, 4.2.4.3.3, 4.2.4.3.4 & 4.2.4.4.3 – Construction Site Storm Water Runoff Control

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Description: The City will continue to have a SWPPP and plan review process as well as look for opportunities to encourage the use of LID and GI from construction sites with a land disturbance of greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale.

Pre-construction Review (Permit Requirement 4.2.4.3 & 4.2.4.3.1): Salt Lake City will continue SWPPP and Plan review, as well as develop an SOP or similar document for pre-construction review for all construction sites that disturb greater than or equal to one acre, including projects less than one acre that are part of a common plan of development or sale (**Appendix D**).

BMP 13: Provide Standard BMPs for site development to developers and engineers.

BMP 47: Coordinate with Salt Lake County regarding BMP guidance information for construction sites.

BMP 48: Continue to obtain and review SWPPPs prepared by contractors.

Checklist (Permit Requirement 4.2.4.3.2): Salt Lake City will continue to implement the use of a checklist during pre-construction reviews to ensure storm water quality issues are addressed (See **Appendix D**).

Low Impact Design (Permit Requirement 4.2.4.3.3): Salt Lake City will look for opportunities to encourage LID and GI.

Priority Construction Sites (Permit Requirement 4.2.4.3.4 & 4.2.4.4.3): Sites that discharge directly into or immediately upstream of waters that the state recognizes as impaired shall be identified as *Priority Construction Sites*. Inspections for these sites shall be conducted every twice monthly using an approved inspection form checklist.

6.1.3 CONSTRUCTION SITE INSPECTIONS AND ENFORCEMENT

Objective: Reduce storm water pollution from construction activities through inspections and enforcement actions.

Permit Requirements: Part 4.2.4.4. – Construction Site Storm Water Runoff Control

Description: Salt Lake City Storm Water staff will continue to provide construction site inspections on a monthly basis as needed. Inspections will include a review of the SWPPP, verification of compliance to permit requirements, and implementation of erosion and sediment controls along with any other BMPs in place to prevent pollution to the MS4. SOPs or similar documents will be developed to address inspections and enforcement.

BMP 44: Staff a position for coordinating storm water pollution prevention.

BMP 49: Develop a program to enforce SWMP

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

BMP 50: For City projects identify erosion control measures as specific did item.

Construction Site Inspection & Enforcement SOPs (Permit Requirement 4.2.4.2, 4.2.4.2.1, 4.2.4.2.2, & 4.2.4.4.): Salt Lake City will continue to inspect and enforce construction sites through ordinance or other regulatory mechanisms to ensure compliance with State and City permit requirements. SOPs for inspections and enforcement shall meet 2015 Permit requirement and will include, but are not limited to: measures to control erosion and sediment, escalating enforcement, and inspections throughout all phases of construction activity (See **Appendix D**).

6.1.4 CONSTRUCTION SITE STORM WATER TRAINING

Objective: Provide applicable training to personnel and their roles in regards to the Construction Site Storm Water Runoff Control Program.

Permit Requirements: 4.2.4.5 – Construction Site Storm Water Runoff Control

Description: The City will provide training as applicable for personnel regarding construction activities, including: permitting, plan review, construction site inspections, and enforcement. Training shall extend to third-party inspectors and plan reviewers as well. City Inspectors that conduct storm water quality inspections at construction sites are to obtain and maintain RSI certification. The following BMPs will continue to be implemented to employees are adequately trained.

BMP 46: Continue storm water quality training program for development review personal.

BMP 51: Participate in education training and seminars conducted by the State of Utah and other agencies.

6.1.5 RECORDS KEEPING

Objective: Maintain records of construction sites that disturb greater than or equal to one acre, including projects less than one acre that are part of a common plan of development or sale.

Permit Requirements: Part 4.2.4.2.2 & 4.2.4.6 – Construction Site Storm Water runoff Control

Description: Salt Lake City will continue to update and maintain tracking and documentation of all required and relevant construction sites that disturb greater than or equal to one acre, including projects less than one acre that are part of a common plan of development or sale. In 2015 the City began implementing the Cityworks® software program to track construction site inspections. Records for site plan reviews, SWPPPs, inspections and enforcement actions will continue to be maintained. These records will be kept for at least five years or until construction is complete, whichever is longer.

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

6.2 IMPLEMENTATION STATUS

Measurable goals for this BMP to be implemented and assessed during the permit term are presented in **Table 6.1**. The purpose of measurable goals is to gauge permit compliance and program effectiveness following the schedule identified.

Table 6.1 Implementation Status for Construction Site Storm Water Runoff Control

Schedule						BMP	Goal	Measurement	Responsibility
Permit Year									
1	2	3	4	5					
*	*	*	*	*		BMP 12: Enforce the requirements of Salt Lake City Ordinances	<ul style="list-style-type: none"> To provide protection, preservation, proper maintenance, and use of Salt Lake City's Water courses, lakes, ponds, floodplain, and wetland areas to include downstream drainage areas for present and future residents of Salt Lake City. 	The measurement for this BMP is the approval of required plans, and enforcement of the ordinance. Soils reports identifying soil stability, drainage control plans, and site grading and excavation plans must be submitted and approved prior to any work being done.	SLCDPU Water Quality Program
x	x	x	x	x		BMP 13: Provide Standard BMPs for site development.	<ul style="list-style-type: none"> To have a set of standard construction BMPs that are available to developers and engineering consultants that may be used to enhance storm water quality. 	The measurement of this BMP is the quality of the guidance document and the BMPs that are implemented during site development as a result of this document.	SLCDPU Water Quality Program
*	*	*	*	*		BMP 32: Pursue prosecutions and court ordered solutions to significant contamination problems.	<ul style="list-style-type: none"> To resolve significant contamination problems that may require court orders and prosecutions. 	The measurement used for this BMP is the number of prosecutions and court ordered solutions that resolve significant contamination problems. Salt Lake City has had one case where we worked with the Salt Lake Valley Health Department regarding a court ordered solution.	SLCDPU Water Quality Program
x						BMP 44: Staff a position for coordinating storm water pollution prevention	<ul style="list-style-type: none"> To have a full time position available to work with industries to minimize the pollutants released to the Salt Lake City storm drain. 	The measurement for this BMP is staffing the positions	SLCDPU Storm Water Quality Program
	x					BMP 46: Develop a storm water quality-training program for development review personnel.	<ul style="list-style-type: none"> To expand the knowledge of site development review personnel regarding storm water pollution prevention techniques and practices. 	The measurement for this BMP is the training provided to the development review personnel. The quality of the training and topics discussed should focus on storm water quality techniques and practices for site development.	SLCDPU Water Quality Program
x	x	x	x	x		BMP 47: Coordinate with Salt Lake County to develop construction site	<ul style="list-style-type: none"> To have a guidance manual for BMPs at construction sites that can be used by contractors in the Salt Lake area. 	The measurement for this BMP is the quality of the guidance document and the BMPs at construction sites that are implemented as a result of this document.	SLCDPU Water Quality Program

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Schedule						BMP	Goal	Measurement	Responsibility
Permit Year									
1	2	3	4	5					
						BMP guidance manual.			
x	x	x	x	x		BMP 48: Continue to obtain and review SWPPPs prepared by contractors	<ul style="list-style-type: none"> To obtain SWPPPs prepared by contractors on all sites in Salt Lake City disturbing more than one acre. 	The measurement for this BMP is the number of construction sites which meet the greater than 1 acre criteria, and or part of a CPoD that have developed and implemented a SWPPP.	SLCDPU Water Quality Program
x	x	x	x	x		BMP 49: Develop a program to enforcement SWPPP.	<ul style="list-style-type: none"> To have an interdepartmental understanding of addressing the enforcement of construction activity erosion control plans and SWPPPs. 	The measurement for this BMP is an SOP/SOI that clearly defines the procedures for enforcement of the SWPPP, and the number of enforcement actions taken.	SLCDPU Water Quality Program
x	x	x	x	x		BMP 50: For City projects identify erosion control measures as a specific bid item.	<ul style="list-style-type: none"> To have consistent erosion control measures for City projects. 	The measurement for this BMP is the City projects that have erosion control measures as specific bid items.	SLCDPU Water Quality Program and Engineering Division
x	x	x	x	x		BMP 51: Participate in education training and seminars conducted by the State of Utah and other agencies.	<ul style="list-style-type: none"> To share information and new techniques through storm water seminars. 	The measurement of this BMP is the training and dissemination of information made available to Salt Lake City storm water personnel.	SLCDPU Water Quality Program

An asterisk (*) indicates BMPs that are done as needed or as applicable within the permit cycle

(x) Indicates year to be implemented or describes an on-going BMP

7.0 LONG-TERM STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT (POST-CONSTRUCTION STORM WATER MANAGEMENT)

New development and redevelopment areas can impact storm water quality because of increased runoff and resulting higher flow velocities. The Long-Term Storm Water Management in New Development and Redevelopment Program addresses post construction storm water runoff to the MS4 from new development and redevelopment construction sites disturbing greater than or equal to one acre, including projects less than one acre that are part of a common plan of development or sale with the intent to control flow and improve water quality by requiring post construction storm water controls to limit the discharge rate to mirror the pre-development hydrology of the previously undeveloped site.

7.1 DESCRIPTION

Salt Lake City will address long term post-construction controls in accordance with the Construction Site Storm Water Runoff Control Program through ordinance and other mechanisms including plan review for new development and redevelopment sites, inventory of post construction storm water controls, an incentive program, and an inspection and enforcement program. Structural and non-structural BMPs, and a training program for applicable personnel. Progress towards measurable goals will be detailed in the Annual Report. In addition, Salt Lake City requires all commercial, industrial, and residential developments with impervious areas greater than 15,000 square feet to provide onsite detention facilities to limit the discharge to a pre development rate of 0.2 cubic feet per second per acre (cfs/acre) during the 100 year storm. As an incentive, Salt Lake City offers sites that incorporate BMPs and provide greater onsite retention discounted rates for the storm water impact fee.

7.1.1 LONG-TERM STORM WATER MANAGEMENT ORDINANCE

Objective: Reduce pollutants in storm water runoff from post construction sites.

Permit Requirement: Part 4.2.5.1., 4.2.5.2., 4.2.5.3.1, and 4.2.5.5.1 – Long-term Storm water Management in New Development and Redevelopment

Description: Implement and enforce City ordinances in regard to post-construction storm water controls.

Ordinances (Permit Requirement 4.2.5.1 & 4.2.5.5.1): The following Salt Lake City Ordinances are meant to give legal authority to enforce requirements intended to reduce impacts to storm water quantity and quality for new development and redevelopment projects.

- Salt Lake City Ordinance 53, Title 2 and 17: Sections of this ordinance include requirements for any person required to obtain an UPDES permit comply with all provisions of said permit, and includes access for inspections and enforcement actions against violations.

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

- Salt Lake City Zoning Ordinance Chapter 21A.34.130 (Riparian Corridor Overlay District): This ordinance establishes a special overlay district for all lands near and adjacent to watercourses, lakes, ponds, flood plains and wetland areas. One of the stated purposes of the overlay zone is to improve water quality, both by filtering and storing sediments and attached pollutants, nutrients, and compounds before they drain into streams or wetlands, and by maintaining the natural pollutant assimilating capacities of stream, flood plains and wetlands.

BMP 12: Enforce the requirements of Salt Lake City Ordinances.

Enforcement Strategy and SOP (Permit Requirement 4.2.5.2 & 4.2.5.2.1): Implement enforcement policies outlined in Salt Lake City Ordinance 53, Title 17, Chapter 17.84 and 17.87 as well as develop an SOP that further details the escalating enforcement process.

7.1.2 SITE PLAN REVIEW

Objective: Review all plans for new development and redevelopment projects for Long-Term Post-Construction BMPs

Permit Requirement: Part 4.2.5.3., 4.2.5.4.1., 4.2.5.4.2. & 4.2.5.4.3. – Long-term Storm water Management in New Development and Redevelopment
Part 4.2.4.3.1 – Construction Site Storm water Runoff Control

Description: Require and implement Long-Term Post-Construction BMPs during the plan review process.

Structural and Non-structural BMPs (Permit Requirement 4.2.5.3.1 & 4.2.5.3.2): Salt Lake City will implement non-structural BMPs as part of the review process for construction Permits. Examples of non-structural BMPs include the following:

- Minimize development in areas susceptible to erosion and sediment loss
- Minimize the disturbance of native soils and vegetation
- Preserve areas that provide important water quality benefits
- Implement measures for flood control
- Protect the integrity of natural resources and sensitive areas

Salt Lake City will implement structural BMPs as part of the construction review process as applicable. The following BMPs will continue to be implemented to reduce and control storm water quality and quantity:

BMP 11: Continue the requirement of on-site detention for development.

BMP 12: Enforce the requirements of Salt Lake City Ordinances.

BMP 18: Review proposed street projects for applicability of structural BMPs.

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

BMP 26: Review all new development plans for compliance and illicit connections

Encourage Low Impact Design and Green Infrastructure (4.2.5.3.2): Salt Lake City will continue to look for opportunities to encourage the use of LID and GI when reviewing projects for new construction permits as well as when facility upgrade plans are submitted.

Retrofit Plan (Permit Requirement 4.2.5.3.3): The City will develop a plan to address the potential of retrofitting existing developed sites that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale that are adversely impacting water quality.

In regards to evaluating potential retrofit projects for City facilities, the following BMPs will continue to be implemented.

BMP 19: Review all proposed storm water projects for applicability structural BMPs.

BMP 20: Review detention basins for feasibility of retrofitting for water quality enhancements.

Calculating Runoff Volumes (Permit Requirement 4.2.5.3.4): Salt Lake City requires developments with impervious areas greater than 15,000 square feet to provide onsite detention facilities to limit the discharge to a pre development rate of 0.2 cfs/acre during the 100 year storm. This regulation has been in place since 1978. The use of onsite detention promotes the reduction of the rate and volume of storm water discharges and improves storm water quality by reducing the post development run off velocities and resulting sediment transportation. The basins also collect floatable debris and litter before it can be discharged to a receiving water.

SWPPP Review for Long-Term Storm Water Management Measures (Permit Requirement 4.2.5.4.1): Salt Lake City will review SWPPPs of applicable New and Redevelopment sites with the intent to implement the use of Long-Term Management Measures. This will include proposed long-term BMP maintenance plans.

Preferred Design Specifications (Permit Requirement 4.2.5.4.2 & 4.2.5.4.3): In 2012, Salt Lake City developed a Design Standards and Processes Manual. Section 2.2.2 of the manual addresses Storm water controls, including additional options and requirements for flood control, volume reduction, and storm water quality. The City recommends the consideration of Green GI or LID to meet these goals.

BMP 13: Provide Standard BMPs for site development to developers and engineers.

BMP 47: Coordinate with Salt Lake County regarding BMP guidance information for construction sites.

7.1.4 LONG-TERM STORM WATER MANAGEMENT INSPECTION AND ENFORCEMENT

Objective: Inspect long-term storm water management measures to ensure adequate long-term operation and maintenance.

Permit Requirement: Part 4.2.5.5.1., 4.2.5.5.2. & 4.2.5.5.3. – Long-term Storm water Management in New Development and Redevelopment

Description: Continue to inspect and enforce post-construction storm water management measures and implement SOPs.

Long-term Storm Water Management Inspections (Permit Requirement 4.2.5.5.): Salt Lake City shall inspect all applicable permanent structural BMPs at least once during installation; and once every five years thereafter. Inspections and records will continue to be documented and maintained. Inspections shall include the following documentation:

- Inspection Date
- Name and signature of inspector
- Project location
- Current owner information
- A description of the condition of the storm water control measure
- Specific maintenance issues or violations

BMP 14: Continue an annual review procedure to inspect private drainage detention basins to ensure control structures are in place and functioning properly.

Ordinance Provision for Inspections on Private Property (Permit Requirement 4.2.5.5.1): Title 17, Chapter 17.84.500 – Inspection Right of Entry, grants legal authority to be allowed access to applicable sites during both construction phase and post-construction phase for inspections of long-term storm water BMPs as outlined in the ordinance.

Long-Term Storm Water Management Enforcement (Permit Requirement 4.2.5.5): Title 17, Chapter 17.87, addresses violations in the ordinance to any long-storm water management issues that may adversely affect storm water quality. Enforcement of violations may also include the removal of any storm water impact fee discount the owner/operator may be receiving if they have BMPs that detain or retain storm water.

Inspection and Enforcement SOPs (Permit Requirement 4.2.5.5): Salt Lake City will continue to develop and implement an SOP that details the inspection and enforcement process for Long-Term Storm Water Management.

7.1.5 POST-CONSTRUCTION STORM WATER MANAGEMENT EMPLOYEE TRAINING

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Objective: Provide adequate training for personnel involved in post-construction storm water management.

Permit Requirement: Part 4.2.5.6. – Long-term Storm water Management in New Development and Redevelopment

Description: Salt Lake City will provide training for applicable personnel with regards to storm water management, plan review, and inspections and enforcement. Training records shall be documented and maintained. The following BMP will continue to be implemented for training:

BMP 46: Continue storm water quality training program for development review personal.

7.1.6 LONG-TERM STORM WATER BMP INVENTORY

Objective: Maintain an inventory of post-construction structural storm water control measures.

Permit Requirement: Part 4.2.5.7., 4.2.5.7.1, & 4.2.5.7.2 – Long-term Storm water Management in New Development and Redevelopment

Description: Salt Lake City will continue to maintain an inventory of long-term storm water control measures for applicable new development and redevelopment sites, and will update this inventory as necessary per inspections. The inventory will include the following information:

- Project name
- Owner name and contact information
- Location
- Start and end date
- Description of each storm water control measure/BMP
- Description of maintenance requirements
- Inspection information

7.2 IMPLEMENTATION STATUS

Measurable goals for this BMP to be implemented and assessed during the permit term are presented in

Table 7.1. The purpose of measurable goals is to gauge permit compliance and program effectiveness following the schedule identified.

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Table 7.1 Implementation Status for Long-Term Storm water Management Program

Schedule					BMP	Goal	Measurement	Responsibility
Permit Year								
1	2	3	4	5				
X	X	X	X	X	BMP 11: Continue requirements for on-site detention for developments.	<ul style="list-style-type: none">To improve water quality by engineering on-site storage facilities, which are designed to improve water quality and allow a more controlled runoff discharge through storm drain piping or groundwater recharge.	The measurement for this BMP is the number of drainage plans approved.	SLCDPU Water Quality, GIS, and Engineering Divisions
X	X	X	X	X	BMP 12: Enforce the requirements of Salt Lake City Ordinances.	<ul style="list-style-type: none">To provide protection, preservation, proper maintenance, and use of Salt Lake City's Water courses, lakes, ponds, floodplain, and wetland areas to include downstream drainage areas for present and future residents of Salt Lake City.	The measurement for this BMP is the approval of required plans, and enforcement of the ordinance. Soils reports identifying soil stability, drainage control plans, and site grading and excavation plans must be submitted and approved prior to any work being done.	SLCDPU Water Quality, GIS, and Engineering Divisions
x	x	x	x	x	BMP 13: Provide Standard BMPs for site development.	<ul style="list-style-type: none">To have a set of standard construction BMPs that are available to developers and engineering consultants that may be used to enhance storm water quality.	The measurement of this BMP is the quality of the guidance document and the BMPs that are implemented during site development as a result of this document.	SLCDPU Water Quality Division
X	X	X	X	X	BMP 14: Continue annual review program for private drainage detention facilities.	<ul style="list-style-type: none">To ensure that control structures are in place and functioning properly on private drainage detention basins to protect water quality and meet 100-year, 24-hour storm event runoff requirements.	The measurement for this BMP is the inspections on the private detention basins to insure control structures are in place and functioning properly.	SLCDPU Water Quality, GIS, and Engineering Divisions
X	X	X	X	X	BMP 18: Review proposed street projects for applicability of structural BMPs.	<ul style="list-style-type: none">The goal of this BMP is to review all street maintenance projects for applicability of installation of structural BMPs such as grass swales and detention basins to reduce pollutants.	The measurement of this BMP is that 100% of all street maintenance projects are reviewed and inspected with structural BMPs installed. As these structural BMPs are installed, the key measurement is the reduction of pollutants transported into the rivers and streams.	SLCDPU Water Quality, GIS, and Engineering Divisions
X	X	X	X	X	BMP 19: Review all proposed storm water projects for applicability of structural BMPs.	<ul style="list-style-type: none">The goal of this BMP is to develop the best methodology for evaluating and improving water quality on all storm water capital projects.	The measurement of this BMP is the number of storm water projects reviewed and the impact the capital improvements have on improving water quality discharging to the receiving water bodies	SLCDPU Water Quality, GIS, and Engineering Divisions
*	*	*	*	*	BMP 20: Review detention basins for feasibility of retrofitting for water quality enhancements.	<ul style="list-style-type: none">To review and develop a plan regarding the feasibility of retrofitting existing detention basins for water quality enhancements.	The measurement for this BMP is the review process of existing structural controls and implementation of retrofits to the structures to enhance storm water quality.	SLCDPU Water Quality, GIS, and Engineering Divisions

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Schedule						BMP	Goal	Measurement	Responsibility
Permit Year									
1	2	3	4	5					
X	X	X	X	X	BMP 26: Review all new developments plans for compliance and illicit connections.	<ul style="list-style-type: none">The goal of this BMP is to insure that all new commercial and industrial development plans are in compliance and that illicit connections to the storm drain are not constructed.	The measurement for this BMP is the number of plans reviewed.	SLCDPU Water Quality, GIS, and Engineering Divisions	
X	X	X	X	X	BMP 46: Continue a storm water quality-training program for development review personnel.	<ul style="list-style-type: none">To expand the knowledge of site development review personnel regarding storm water pollution prevention techniques and practices.	The measurement for this BMP is the training provided to the development review personnel. The quality of the training and topics discussed should focus on storm water quality techniques and practices for site development.	SLCDPU Water Quality, GIS, and Engineering Divisions	
X	X	X	X	X	BMP 47: Coordinate with Salt Lake County regarding BMP guidance information for construction sites.	<ul style="list-style-type: none">To have a guidance manual for BMPs at construction sites that can be used by contractors in the Salt Lake area.	The measurement for this BMP is the quality of the guidance document and the BMPs at construction sites that are implemented as a result of this document.	SLCDPU Water Quality, GIS, and Engineering Divisions	

An asterisk (*) indicates BMPs that are done as needed or as applicable within the permit cycle

(x) Indicates year to be implemented or describes an on-going BMP

8.0 POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

Salt Lake City's Pollution Prevention and Good Housekeeping for Municipal Operations Program (O & M) will address City-owned and operated facilities, City operations and maintenance activities, and training for applicable City personnel. The ultimate goal of the program is to prevent or reduce pollutant runoff to the MEP from all City-owned or operated facilities and operations.

8.1 DESCRIPTION

The City will maintain and prioritize an inventory of City-owned and operated facilities and storm water controls, continue to develop and implement BMPs for operations and maintenance personnel, provide training to applicable staff, and develop SOPs in regards to the O & M program.

8.1.1 FACILITY INVENTORY

Objective: Continue to Develop and maintain an inventory of all City-owned and/or operated facilities.

Permit Requirement: Part 4.2.6.1. & 4.2.6.2.

Description: Salt Lake City will maintain and update an inventory of all City-owned or operated facilities and storm water controls including those mentioned in section 4.2.6.1 of the 2015 permit. The City will review and update the inventory annually.

8.1.2 PRIORITY FACILITY IDENTIFICATION AND SOPS

Objective: To identify priority City-owned or operated facilities and develop and implement facility-specific SOPs or similar type documents.

Permit Requirement: Part 4.2.6.2, 4.2.6.3., 4.2.6.4. & 4.2.6.5. - Pollution Prevention & Good Housekeeping for Municipal Operations

Description: The City will identify "Priority Facilities" whose potential for discharge of storm water pollutants warrants additional procedures or measures to reduce or eliminate impacts to storm water quality. Salt Lake City Storm Water Quality personal shall asses the inventory of the city owned and or operated facilities and identify facilities that use or store chemicals including sediment and vehicle maintenance activities that have a high potential to generate storm water pollution. Based on the inventory assessment *Salt Lake City Storm Water Quality personal* will visit the facilities and perform and document site evaluations of the facilities that have the highest potential to generate storm water pollutants for "Priority" considerations.

Identify Priority Facilities (*Permit Requirement 4.2.6.3*): Based on the assessment of City-owned or operated facilities the city will identify those facilities and/or operations that have the highest potential to generate storm water pollutants. These "priority facilities" will be deemed as "High

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Priority”. High Priority facilities will be required to perform weekly, Quarterly comprehensive inspections, and Quarterly visual storm water monitoring.

Priority Facility-specific SOPs (Permit Requirement 4.2.6.4): Facility-specific SOPs will be developed for each identified “Priority Facility” and LID techniques shall be considered for all new and redeveloped City-owned or operated facilities.

Buildings and Facilities (Permit Requirement 4.2.6.4.1): Salt Lake City will develop and implement SOPs for building and facility maintenance, operations, good housekeeping practices, and leaks and spill management, prevention

Parks and Open Space (Permit Requirement 4.2.6.4.3): SOPs will be developed and implemented with the intent to address potential storm water quality pollutants to the MEP associated with Parks and Open Space areas, including: chemical application, good housekeeping practices, proper waste disposal, management of trash containers, equipment maintenance, and building exteriors.

Material Storage, Heavy Equipment Storage and Maintenance Areas (Permit Requirement 4.2.6.4.2): Salt Lake City will develop and implement SOPs for these facilities/areas and cleanup including.

Vehicle and Equipment (Permit Requirement 4.2.6.4.4): The City will develop and implement SOPs for activities associated with vehicle maintenance and repair.

Roads, Highways and Parking Lots: The City will develop and implement SOPs as needed to address City-owned roads, highways and parking lots, and any other activities or maintenance associated with these facilities that may affect water quality.

BMP 5: Continue to clean leaves from the gutters and inlets during the fall leaf

BMP 15: season. Support the existing street sweeping program.

BMP 16: Review salt pile storm water management.

Storm Water Collection and Conveyance System (Permit Requirement 4.2.4.6): SOPs will be developed and implemented to address inspections, cleaning and repair of the storm water system including catch basins, pipes, ditches and canals, culverts and structural BMPs. Structural BMPs will be inspected on an annual basis. More frequent inspections and maintenance will occur in those areas deemed as higher priority based on water quality concerns and the amount and type of material that typically accumulates in an area. The City will continue to document disposal of all debris removed from the storm water conveyance system.

BMP 1: Continue with the present schedule of drainage system maintenance. Clean all required portions of the system on a 5 year cycle.

BMP 2: Inspect all major storm drains and detention basins within the permit cycle.

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

- BMP 7:** Encourage and support citizen clean up days of selected waterways and channels.
- BMP 8:** Use the Cityworks® work order system to track and schedule storm drain maintenance activities.
- BMP 10:** Continue a program for the disposal of sediments from storm drain cleaning.

8.1.3 HIGH PRIORITY FACILITY OPERATIONS AND MAINTENANCE INSPECTION PROGRAM

Objective: Reduce pollutants from City-owned or operated high priority facilities.

Permit Requirement: 4.2.6.6, 4.2.6.6.1, 4.2.6.6.2, & 4.2.6.6.3 – Pollution Prevention and Good Housekeeping for Municipal Operations

Description: Priority facilities will have dedicated personnel familiar with their facilities and operations to conduct inspections and Training including:

Weekly Visual Inspections: Weekly visual inspections of high-priority facilities will be conducted as part of the SOPs and will include storm water BMPs, evidence of spills, etc. Records of these inspections will be maintained.

Quarterly Comprehensive Inspections: Comprehensive inspections will be conducted as part of the SOPs on a quarterly basis at the high-priority facilities. These inspections will include storm water controls for waste storage areas, dumpsters, vehicle and equipment maintenance/fueling areas, material handling areas, etc. Any deficiencies identified will be corrected and documented in the inspection report. Records of these inspections will be maintained.

Quarterly Visual Observation of Storm water Discharges: Quarterly visual observations of the quality of storm water discharges will be conducted during the wet season at the high-priority facilities as part of the SOPs. Observations will be conducted and will be documented. Efforts will be made to remedy any observed problems as appropriate. Reports of these observations will be maintained.

8.1.4 WATER QUALITY ASSESSMENT OF FLOOD CONTROL PROJECTS

Objective: Continue to review new flood management structural controls and the consideration of potential retrofits for existing controls with the intent to reduce pollutants in storm water runoff.

Permit Requirement: Part 4.2.6.7. – Pollution Prevention and Good Housekeeping for Municipal Operations

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Description: This section is integrated with the Long-term Storm water Management Program (Section 7.1.2- Site Plan Review) and will complement the management of long-term structural BMPs owned/operated by the City. The City will develop and implement a process that considers potential impacts to water quality and hydrology when assessing new flood management projects and existing structural controls.

Flood Management Project Assessment and Existing Structural Control Evaluation (4.2.6.7.1): Salt Lake City Storm Water Utility conducted a complete basin and master planning effort with the Preparation of Part 2 of the original Permit application. The use of structural components to enhance storm water quality will be considered during the selection of recommended flood control improvements. The following BMPs will be implemented to meet task objectives:

BMP 19: Review all proposed storm water projects for applicability of structural BMPs.

BMP 20: Review detention basins for feasibility of retrofitting for water water quality enhancements.

8.1.5 CITY CONSTRUCTION PROJECTS

Objective: To ensure all City construction projects comply with the UPDES general construction permit.

Permit Requirement: Part 4.2.6.8 – Pollution Prevention and Good Housekeeping for Municipal Operations

Description: City construction projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale will be required to meet the criteria and be covered under the UPDES Storm water General Permit for Construction Activities.

BMP 17: Continue procedures for monitoring storm water management on Public construction projects.

BMP 18: Review proposed street projects for applicability of structural BMPs.

8.1.6 EMPLOYEE TRAINING

Objective: Provide training for Salt Lake City employees who have primary construction, operation, or maintenance job functions that are likely to impact storm water quality.

Permit Requirement: Part 4.2.6.9. – Pollution Prevention and Good Housekeeping for Municipal Operations

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Description: The City will continue to provide training for employees whose primary roles are likely to impact storm water quality. The following BMPs addressing employee training will continue to be implemented:

BMP 9: Conduct annual training for drainage system maintenance personnel

BMP 36: Continue provide HAZWOPER training to applicable personnel.

8.2 IMPLEMENTATION STATUS

Measurable goals for this BMP to be implemented and assessed during the permit term are presented in **Table 8.1**. The purpose of measurable goals is to gauge permit compliance and program effectiveness following the scheduled identified.

Table 8.1 Implementation Status for Pollution Prevention/Good Housekeeping Program

Schedule						BMP	Goal	Measurement	Responsibility
Permit Year									
1	2	3	4	5					
X	X	X	X	X		BMP 1: Clean all required portions of the drainage system every 5 years.	<ul style="list-style-type: none">To keep the storm drainage conveyances clean and clear of debris, and minimize organic matter and litter from entering into the storm drainage system and Waters of the State	The Cityworks®Work Order System is used to track system maintenance. Each system feature such as pipes, manholes, and detention basins, have been assigned a unique record in the data- base. Maintenance activity on each structural feature of the Salt Lake City system is tracked. The number of complaints is also tracked.	SLCDPU Storm water Quality and Maintenance Programs
X	X	X	X	X		BMP 2: Inspect all major storm drains and detention basins within the permit cycle.	<ul style="list-style-type: none">To keep all of the major storm drains and detention basins in repair and clean of any debris or sediment that may keep them from efficient operation.	The Cityworks®Work Order System will be used for keeping track of all of the major storm drains and detention basins inspected, and document any repairs or cleanup.	SLCDPU Storm water Quality and Maintenance Programs
X	X	X	X	X		BMP 5: Remove leaves from gutters during the fall leaf season.	<ul style="list-style-type: none">To clean leaves out of the gutters and drainage intakes before they get into the storm drain system. This minimizes organic material that may otherwise convey into the Waters of the State.	The tons of leaves that are removed and taken to various locations for composting will be used for measuring the success of this BMP.	SLCDPU Storm water Quality and Maintenance Programs and Salt Lake Public Services
X	X	X	X	X		BMP 7: Support citizens clean up days of selected waterways.	<ul style="list-style-type: none">To improve the aesthetics of selected waterways by removing debris and to promote citizen awareness and responsibility regarding the waterway.	The change in the amount of debris removed from the waterway and hauled to the landfill is one measurement of the success of this BMP.	SLCDPU Storm water Quality and Maintenance Programs and Salt Lake Public Services
X	X	X	X	X		BMP 8: Track drainage system maintenance using Cityworks® system.	<ul style="list-style-type: none">To document and track system maintenance, with the computerized work order system. (Cityworks®). This documentation will be used to keep track of maintenance activity on each structural feature of the Salt Lake City	The measurement for this BMP is the work performed on the storm drainage system. The number of work orders assigned and the repairs and/or replacements to portions of the drainage system to insure the systems are clean and function properly.	SLCDPU Storm Water Maintenance Program

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Schedule						BMP	Goal	Measurement	Responsibility
Permit Year									
1	2	3	4	5					
						system and provide information for future maintenance activities			
X	X	X	X	X	BMP 9: Conduct annual training for drainage system maintenance personnel.	<ul style="list-style-type: none">To insure that storm drainage maintenance personnel are aware of their responsibility in maintaining storm water quality as work is performed.	The measurement for this BMP is the training provided for maintenance personnel. The quality of the training and topics discussed should focus on BMP that they can implement to maintain storm water quality while performing their job. Another aspect of the training should focus on illicit discharge identification.	SLCDPU Storm water Quality and Maintenance Programs	
X	X	X	X	X	BMP 10: Continue proper disposal methods for sediments from storm drain cleaning.	<ul style="list-style-type: none">To ensure proper disposal of sediments from storm drain cleaning in an efficient and environmentally sound manner.	The measurement for this BMP is the number of loads that are properly de-watered and hauled to the landfill for disposal. This disposal method is used to dispose of the sediment in an environmentally sound manner.	SLCDPU Storm water Maintenance Program	
X	X	X	X	X	BMP 15: Support the existing Salt Lake City Street Sweeping program.	<ul style="list-style-type: none">The goal of this BMP is to reduce the impact on receiving waters from pollutants and debris accumulating on the streets from residential, industrial, and commercial use.	The measurement of this BMP is the miles of street swept and debris removed from the streets.	SLCDPU Storm water Quality Program	
X	X	X	X	X	BMP 16: Review salt pile storm water management.	<ul style="list-style-type: none">To have an environmentally sound storm water management plan implemented around street deicing salt piles.	The measurement for this BMP is the prevention of the salt, and brine solution from leaving the containment area and migrating to storm drainage systems or leaching into the groundwater.	SLCDPU Storm water Quality Program and SLC Public Services	
X	X	X	X	X	BMP 17: Continue procedures for monitoring storm water management on public construction projects.	<ul style="list-style-type: none">The goal of this BMP is to meet Storm Water conditions by identifying and controlling problems with erosion, sedimentation, or other pollutants that may enter the drainage system on CED Projects.	The measurement for this BMP is the UPDES construction permits, SWPPPs, and erosion and sediment controls implemented on Public Service Projects.	SLCDPU Storm water Quality Program	
X	X	X	X	X	BMP 18: Review proposed street projects for applicability of structural BMPs.	<ul style="list-style-type: none">The goal of this BMP is to review all street maintenance projects for applicability of installation of structural BMPs such as grass swales and detention basins to reduce pollutants.	The measurement of this BMP is that 100% of all street maintenance projects are reviewed and inspected with structural BMPs installed. As these structural BMPs are installed, the key measurement is the reduction of pollutants transported into the rivers and streams.	SLCDPU Storm Water Quality Program and Engineering Division and Public Services Division	
X	X	X	X	X	BMP 19: Review all proposed storm water projects for applicability of structural BMPs.	<ul style="list-style-type: none">The goal of this BMP is to develop the best methodology for evaluating and improving water quality on all storm water capital projects.	The measurement of this BMP is the number of storm water projects reviewed and the impact the capital improvements have on improving water quality discharging to the receiving water bodies.	SLCDPU Storm Water Quality Program and Engineering Division	
*	*	*	*	*	BMP 20: Review detention basins for feasibility of	<ul style="list-style-type: none">To review and develop a plan regarding the feasibility of retrofitting existing detention	The measurement for this BMP is the review process of existing structural controls and implementation of	SLCDPU Storm Water Quality Program and	

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Schedule						BMP	Goal	Measurement	Responsibility
Permit Year									
1	2	3	4	5					
					retrofitting for water quality enhancements	basins for water quality enhancements.	retrofits to the structures to enhance storm water quality.	Engineering Division	
X	X	X	X	X	BMP 34: Continue to implement storm drain spill response plan.	<ul style="list-style-type: none">To have a storm drain spill response plan that is consistently used when a spill occurs.	The measurement for this BMP is the number of storm drain spill responses.	SLCDPU Storm Water Quality and Maintenance Program	
X	X	X	X	X	BMP 36: Continue to provide HAZWOPER training to applicable personnel	<ul style="list-style-type: none">To have personnel trained to respond to spills correctly and safely.	The measurement for this BMP is the number of personnel trained to respond to spills.	SLCDPU Storm Water Quality Program	

An asterisk (*) indicates BMPs that are done as needed or as applicable within the permit cycle

(x) Indicates year to be implemented or describes an on-going BMP

9.0 INDUSTRIAL AND HIGH RISK RUNOFF

Salt Lake City will continue to maintain and inspect Industrial UPDES permitted businesses and will develop and implement an oversight program to monitor and control the discharge of pollutants to the City's MS4 from industrial and priority commercial facilities.

9.1 DESCRIPTION

The Industrial and High Risk Runoff Program will continue to be implemented with the intent to reduce pollutants to the MEP from industrial and high risk facilities. In addition Salt Lake City will develop a priority commercial oversight program.

The goals described in this section of the SWMP include: continuing to develop and maintain inventory, prioritization of facilities, conducting inspections, enforcement of storm water quality requirements, and employee training.

9.1.1 INDUSTRIAL AND PRIORITY COMMERCIAL FACILITY INVENTORY AND PRIORITIZATION

Objective: Maintain and update the inventory of Industrial and Priority Commercial facilities that pose the greatest potential to discharge pollutants into the MS4.

Permit Requirements: 4.3.1 and 4.3.4 - Industrial and High Risk Runoff

Description: Salt Lake City will continue to update and maintain an inventory of industrial facilities, in addition Salt Lake City will develop a priority commercial facilities inventory with the intent to develop a Priority Commercial facilities oversight program.

Inventory will include sites/sources that have the greatest potential to contribute a significant pollutant load to the MS4, sites with a past history of water quality problems, and any site/sources that discharge directly to an impaired water body, that generates pollutants for which the water body segment is impaired. The inventory will be updated as needed, and/or in accordance with site inspections.

Business licenses with SIC/NAICS and Commercial/Industrial User Questionnaires (CIUQ) will continue to be reviewed for indicators of commercial and industrial facilities that may be likely to discharge pollutants to the MS4.

Industrial Facility Inventory & Prioritization (Permit Requirement 4.3.1. & 4.3.2.): Salt Lake City will identify permitted and non-permitted industrial sites using the City's current database in conjunction with the State of Utah's MSGP database. The MSGP identifies target industrial groups. These groups are required to obtain a State/City issued Storm water Permits. The industrial inventory will include sites/sources listed in 4.3.1.2 of the 2015 permit. Industrial

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

facilities will be prioritized based on expired permits, non-permitted sites, violation history, proximity to a water body, and on the basis of the potential for water quality impacts including pollutants of concern.

Priority Commercial Facility Inventory (Permit Requirement 4.3.1.): The commercial facilities will be identified based on the type of activities associated with the business which show the greatest risk to discharge pollutants into the MS4. IDDE history in accordance with SLCoHD records also may be used to determine priority commercial industries. Commercial sites/sources in section 4.3.1.2 of the permit shall be considered for inclusion in the inventory based on priority. The City will develop a list of priority sites and a five year plan to record and inspect these sites/sources.

The Industrial and priority commercial inventory shall include the following information for each site:

- Name
- Address
- Physical location of storm drain receiving discharge
- Name of receiving water
- Pollutants potentially generated by the site/source
- Identification of whether the site/source is (1) tributary to an impaired water body segment (i.e., whether it is listed under Section 303(d) of the Clean
- Water Act) and (2) whether it generates pollutants for which the water body segment is impaired.
- A narrative description including the NAICS
- System (NAICS) codes, which best reflects the principal products or services provided by each facility.
- In addition, data from NPDES pretreatment programs within the MS4 boundary on significant industrial users (SIUs) could also be used to identify and prioritize industrial sites.

The following BMPs will continue to be implemented in accordance with the Industrial and High Risk Runoff Program:

- | | |
|-----------------------|--|
| <u>BMP 23:</u> | Maintain a database of industrial users based on NAICS/SIC codes. |
| <u>BMP 38:</u> | Continue to implement an education program for industrial and commercial users on oil and toxic materials disposal |
| <u>BMP 41:</u> | Maintain an industrial user's database. |
| <u>BMP 43:</u> | Identify and Prioritize industrial and priority commercial groups. |
| <u>BMP 44:</u> | Staff a position for coordinating storm water pollution prevention. |

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

BMP 45: Distribute water quality education materials to Industrial and priority commercial facilities.

9.1.2 INDUSTRIAL AND PRIORITY COMMERCIAL FACILITY INSPECTIONS

Objective: To inspect industrial and priority commercial facilities to ensure appropriate storm water control measures are being implemented.

Permit Requirements: 4.3.3, 4.3.4, 4.3.5, & 4.3.6 - Industrial and High Risk Runoff

Description: Salt Lake City will conduct inspections of industrial and priority commercial facilities based on the prioritization process. Inspections and their documentation shall be done properly, thoroughly and to meet permit requirements.

Industrial Facility Inspections (Permit Requirement 4.3.3): Salt Lake City will continue to inspect industrial facilities and track permitted facilities to ensure that they are inspected at least once during the permit term. High priority facilities may be inspected more frequently as needed. No exposure permits shall be tracked and monitored for significant changes.

BMP 42: Obtain and review SWPPP prepared by Industrial users within the Salt Lake City area.

Priority Commercial Facility Inspections (Permit Requirement 4.3.4): Commercial facilities will be identified and inspected in conjunction with the IDDE process and may involve coordination with the SLCoHD. The inventory and prioritization of these sites will determine when an inspection is initiated.

Inspections are scheduled, tracked and updated in a database that is maintained by the Storm Water Quality Program. Priority inspections may be prompted by expired and new State MSGP permits. The City also uses business licensing codes and a questionnaire for industrial and commercial customers that may also initiate a storm water inspection. No-exposure permits (NEC) are tracked separately and updated as needed.

As per Section 4.3.5 of the 2015 Permit, industrial and priority commercial inspections shall include at a minimum:

- Conduct a visual observation for evidence of unauthorized discharges, illicit connections, and potential discharge of pollutants to storm water;
- Verify whether the facility is required to be authorized under the UPDES MSGP for Storm water Discharges Associated with Industrial Activities and whether the facility has in fact obtained such permit coverage;

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

- Require the facilities to select, install, implement, and maintain storm water control measures as necessary to minimize storm water pollution. Industrial and commercial facilities that discharge into impaired water bodies may need to implement additional controls as necessary to prevent the discharge of pollutants of concern.
- Evaluate the facility's compliance to select, design, install, and implement storm water control measures;
- Evaluate the facility's compliance with any other relevant local storm water requirements;

Inspections will be documented and tracked to identify problem areas to ensure they're conducted at the proper frequency. As per the 2015 permit, documentation will include the following information when applicable:

- The inspection date and time;
- The name(s) and signature(s) of the inspectors;
- Weather information and a description of any discharges occurring at the time of the inspection;
- Any previously unidentified discharges of pollutants from the site;
- Any control measures needing maintenance or repairs;
- Any failed control measures that need replacement;
- Any incidents of noncompliance observed; and
- Any additional control measures needed to comply with the permit

Follow up Inspections and Enforcement (Permit Requirement 4.3.6): Salt Lake City will conduct follow up inspections and enforcement activities as necessary to ensure storm water quality control measures are implemented and permit requirements are met. These records will be documented and maintained by the City. Enforcement will be implemented in accordance with Salt Lake City Ordinances and the Utah Water Quality Act Civil Penalty Determination Flowchart.

9.1.3 EMPLOYEE TRAINING

Objective: Provide training to applicable employees to ensure inspections are conducted and documented properly and that permit requirements are met.

Permit Requirements: 4.3.7 – Industrial and High Risk Runoff

Description: Salt Lake City will provide training opportunities to personnel whose job duties include the Industrial and High Risk Runoff Program. Training shall include requirements of the MSGP for discharges associated with industrial activities or other local requirements. Employees shall go through the RSI

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

training, receive on the job training, and will attend other training opportunities as available. All applicable training records shall be documented.

9.2 IMPLEMENTATION STATUS

The implementation status for these BMPs are to be implemented and assessed during the permit term and are presented in **Table 9.1**. The purpose of measurable goals is to gauge permit compliance and program effectiveness following the schedule identified.

Table 9.1 Implementation Status for Industrial/High Risk Runoff Program

Schedule						BMP	Goal	Measurement	Responsibility
Permit Year									
1	2	3	4	5					
x	x	x	x	x		BMP 22: Continue SWMP program similar to the pretreatment program.	<ul style="list-style-type: none">To develop a program similar to the wastewater pretreatment program that is proactive in working with the businesses in Salt Lake City. The goal is to provide the businesses with information and assistance to help them stay in compliance with storm water objectives.	The measurement for this BMP is the percent of industries with permits, and the percent of SWPPPs that are implemented. The ability to get businesses to comply and meet storm water standards is very important for the long-term success of the program. The number of inspections, enforcement of illegal discharges, and disconnection of illegal connections is another measurement beneficial to the storm water and pretreatment programs.	SLCDPU Storm Water Quality Program
x	x	x	x	x		BMP 23: Maintain industrial user NAICS and SIC code database.	<ul style="list-style-type: none">To have an updated listing of local industries having a Standard Industrial Classification Code, (SIC) requiring them to acquire State Industrial UPDES and Salt Lake City storm water permits and a SWPPP implemented.	The measurement of this BMP is the percent of total required industries on the database that obtain permits and meet storm water regulations as a result of contacts made from the use of this data base.	SLCDPU Storm Water Quality Program
*	*	*	*	*		BMP 38: Continue to develop an education program for industrial & commercial users on oil and toxic materials disposal	<ul style="list-style-type: none">To have an education program that is targeted to industry and business audiences encouraging proper disposal of oil and toxic materials.	The measurement for this BMP is the number of industries and businesses that are educated and properly disposing oil and toxic materials.	SLCDPU Storm Water Quality Program
x	x	x	x	x		BMP 41: Maintain an industrial user's database.	<ul style="list-style-type: none">To have an industrial users database available with Section 313 of Title III of the 1986 (SARA) chemicals or heavy polluters for tracking purposes.	The measurement for this database is an updated database record that is available when a pollutant is detected and traced back to the source as a result of the database.	SLCDPU Storm Water Quality Program
*	*	*	*	*		BMP 42: Salt Lake City will obtain copies of all the SWPPP prepared for industrial facilities within the Salt Lake City area.	<ul style="list-style-type: none">To obtain copies and review SWPPPs prepared by industries in the Salt Lake City area and make sure of their implementation.	The measurement for this BMP is the number of industries that have prepared a SWPPP.	SLCDPU Storm Water Quality Program

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Schedule						BMP	Goal	Measurement	Responsibility
Permit Year									
1	2	3	4	5					
					Additional controls may be placed on the facility if deemed appropriate.				
	x	x	x	x	BMP 43: Identify and Prioritize industrial and priority commercial groups.	<ul style="list-style-type: none">To identify and prioritize industrial and priority commercial facilities based on sites/sources that pose the greatest threat to water quality.	The Measurement of this BMP will be the amount of facilities identified and listed in the industrial and priority commercial database.	SLCDPU Storm Water Quality Program	
x	x	x	x	x	BMP 45: Distribute water quality education materials to Industrial and priority commercial facilities.	<ul style="list-style-type: none">To provide information to target industrial groups with BMPs regarding water quality, including notifying the industrial facilities of the compliance requirements of the State General Industrial Storm Water Permit.	The measurement of this BMP is the number of target industrial groups that are provided with water quality materials and State/City Industrial Storm Water Permit.	SLCDPU Storm Water Quality Program	

An asterisk (*) indicates BMPs that are done as needed or as applicable within the permit cycle

(x) Indicates year to be implemented or describes an on-going BMP

10.0 MONITORING, RECORDKEEPING, AND REPORTING

Monitoring is an integral part of storm water management, as the findings and data can be used to assess the City's MS4 and the effectiveness of the program, as well as potentially serve to identify trends and priority areas. Recordkeeping and documentation of the SWMP and storm water management will continue to be implemented and the Annual report will serve to assess and report yearly findings and activities of the storm water program. Monitoring, recordkeeping, and reporting will be done in accordance with the 2015 permit.

10.1 DESCRIPTION

The City will continue to implement wet weather monitoring and dry weather screening. Wet weather monitoring serves to identify pollutants and their concentrations during qualified storm events. The dry weather screening will compliment the IDDE program and serve to identify outfalls, as well as illicit connections and discharges during dry weather periods. Recordkeeping will be integrated with all aspects of the SWMP as required by the 2015 permit, as well as the Annual report. This section will detail those programs and BMPs to be implemented by Salt Lake City. Progress towards the measurable goals will be documented in the Annual Report.

10.1.1 MONITORING

Objective: To gather data that's representative of Salt Lake City's storm water quality and to identify outfalls and any illicit connections and discharges.

Permit Requirement: Part 5.2 – Monitoring, Recordkeeping and Reporting

Description: Continue wet weather monitoring, dry weather screening, and provide employee training for monitoring programs.

Wet Weather Monitoring (Permit Requirement 5.2.1): Wet Weather sampling is done at three locations. Each location represents a specific land use category – Residential, Light Industrial, and Mixed Use (See **Figures 3-5**):

- JOR 8.32 Located at 900 South Gale Street represents mixed land use (commercial, residential and light industrial).
- MIL 2.60 Located at the Forest Dale golf course represents residential land use.
- LED 1.87 Located at 5500 West on the Lee Drain represents industrial land use.

Sampling at the above locations is conducted twice each year – once in the spring and once in the fall. Weather forecasts are monitored on a daily basis to determine when a representative storm event is expected. Approximately 24 hours prior to the prediction of a representative storm, preparations for sampling begin. At this point in the event, the sampling units are programmed to take samples at specified volume intervals, based on predicted rain volume.

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Grab samples are taken at each station on the rising limb of the hydrograph and analyzed for pH, Oil and Grease, and Total Cyanide. An automatic sampler continues to sample at each location throughout the storm event. When the runoff ceases, or when flow returns to approximate normal base flow, the sample bottles are collected. This sample is then composited based on flow rate and total volume and taken to a certified laboratory for analysis of the samples collected. The composite sample is analyzed for pH, BOD, Hardness, Nitrogen, Phosphorus, TDS, TSS, and metals. During the storm event, field measurements of pH and temperature are taken at each sampling site. In addition, general observations such as rain gage reading, flow level and rate reading, and status of equipment are recorded by the automatic sampler.

Dry Weather Screening (Permit Requirement 5.2.3): Dry weather screening will be complimented by the IDDE program (Section 5.1 of the SWMP) and will serve to identify and map known outfalls while looking to recognize any illicit discharges during dry weather periods. Salt Lake City will screen all known outfalls at least once during the permit term.

BMP 33: Investigate dry weather Flows.

Any modifications to the monitoring program will be submitted to DWQ for approval.

Employee Training: Salt Lake City will ensure personnel responsible for conducting wet weather monitoring and dry weather screening are adequately trained. Training will include proper sampling techniques and completion of Chain-of-Custody forms.

10.1.2 RECORDKEEPING

Objective: To document and record all applicable activities in the SWMP and Storm Water Quality Program.

Permit Requirement: Part 5.3 – Monitoring, Recordkeeping and Reporting

Description: Recordkeeping is a significant component of the SWMP and the Storm Water Quality Program. The City will record and retain all required documents set forth in the 2015 permit, including: plans, records of all programs, and all records of all monitoring information. These records shall be retained for at least five years.

10.1.3 REPORTING

Objective: Provide reporting to summarize and evaluate information to improve the SWMP and Storm Water Quality Program as necessary.

Permit Requirement: Part 5.4 – Monitoring, Recordkeeping and Reporting
Part 4.5 – Reviewing and Updating Storm Water Management Programs

Description: Salt Lake City will continue to provide annual reporting that describes yearly activities of the Storm Water Quality Program in regards to the SWMP. The wet weather monitoring program will

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

provide data to develop a five year technical water quality report to identify and assess trends in storm water quality. The SWMP shall be reviewed and updated as necessary and all modifications made with approval of DWQ.

Annual Report (Permit Requirement 5.4.1.): Salt Lake City shall submit an annual report to DWQ by October 1 every year within the permit term detailing the activities from July 1- June 30 related to the SWMP and the 2015 permit. This report will be signed in accordance with Part 6.8 of the 2015 permit.

Technical Water Quality Report (Permit Requirement 5.4.2.1.): Salt Lake City will submit a technical storm water quality report every five years, providing a five-year summary of wet weather monitoring data. The report will attempt to assess trends in storm water quality.

SWMP Update, Review and Modifications (Permit Requirement 5.4.2.1.): Salt Lake City shall conduct a review of the SWMP annually during the development of the Annual report. The SWMP is meant to be a dynamic document and may change during the permit cycle; any modifications to the SWMP will be submitted to DWQ in accordance with Part 4.5 of the 2015 permit.

10.2 IMPLEMENTATION STATUS

Measurable goals for these BMPs are to be implemented and assessed during the permit term are presented in **Table 10.1**. The purpose of measurable goals is to gauge permit compliance and program effectiveness following the schedule identified.

Table 10.1 Implementation Status for Storm Water Monitoring, Recordkeeping, & Reporting Program

Schedule						BMP	Goal	Measurement	Responsibility
Permit Year									
1	2	3	4	5					
x	x	x	x	x		BMP 8: Use the Cityworks® work order system to track and schedule storm drain maintenance activities.	<ul style="list-style-type: none"> To document and track system maintenance, with the computerized work order system. (Cityworks®). This documentation will be used to keep track of maintenance activity on each structural feature of the Salt Lake City system and provide information for future maintenance activities. 	The measurement for this BMP is the work performed on the storm drainage system. The number of work orders assigned and the repairs and/or replacements to portions of the drainage system to insure the systems are clean and function properly.	SLCDPU Storm Water Maintenance
*	*	*	*	*		BMP 23: Maintain industrial user NAICS and SIC code database	<ul style="list-style-type: none"> To have an updated listing of local industries having a Standard Industrial Classification Code, (SIC) requiring them to acquire State Industrial UPDES and Salt Lake City storm water permits and a SWPPP implemented. 	The measurement of this BMP is the percent of total required industries on the database that obtain permits and meet storm water regulations as a result of contacts made from the use of this data base.	SLCDPU Storm Water Quality Program

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

Schedule						BMP	Goal	Measurement	Responsibility
Permit Year									
1	2	3	4	5					
x	x	x	x	x		BMP 25: Maintain records and database of all illicit connection investigations.	<ul style="list-style-type: none"> The goal of this BMP is to have records and a database of all illicit connections, their enforcement, and resolution for future reference. 	The measurement of this BMP is the number of illicit connection investigations and their resolutions. In 2014, forty-Four reports regarding illicit discharges or connections were investigated. The significant increase in discharges reported can be attributed to increased enforcement, education, public involvement and responsibility.	SLCDPU Storm Water Quality Program
		x	x	x		BMP 33: Investigate Dry Weather flows.	<ul style="list-style-type: none"> To Dry Weather Screen the MS4 flows to systematically investigate and remove illicit flows. 	The measurement used for this BMP is the portion of the MS4 monitored, and the illicit discharges removed.	SLCDPU Storm Water Quality Program
x	x	x	x	x		BMP 41: Maintain an industrial user database.	<ul style="list-style-type: none"> To have an industrial users database available with Section 313 of Title III of the 1986 (SARA) chemicals or heavy polluters for tracking purposes. 	The measurement for this database is an updated database record that is available when a pollutant is detected and traced back to the source as a result of the database	SLCDPU Storm Water Quality Program
x	x	x	x	x		BMP 42: Obtain and review SWPPP prepared by industrial users within the Salt Lake City area.	<ul style="list-style-type: none"> To obtain copies and review SWPPPs prepared by industries in the Salt Lake City area and make sure of their implementation. 	The measurement for this BMP is the number of industries that have prepared a SWPPP.	SLCDPU Storm Water Quality Program

An asterisk (*) indicates BMPs that are done as needed or as applicable within the permit cycle

(x) Indicates year to be implemented or describes an on-going BMP

Salt Lake City Storm Water Coverage Area

0 0.5 1 Miles

Date: 7/21/2015
GIS Division
Salt Lake City Department of Public Utilities

Background source: Utah AGRC

FIGURE 2 - SALT LAKE CITY STORM WATER PROGRAM ADMINISTRATION CHART

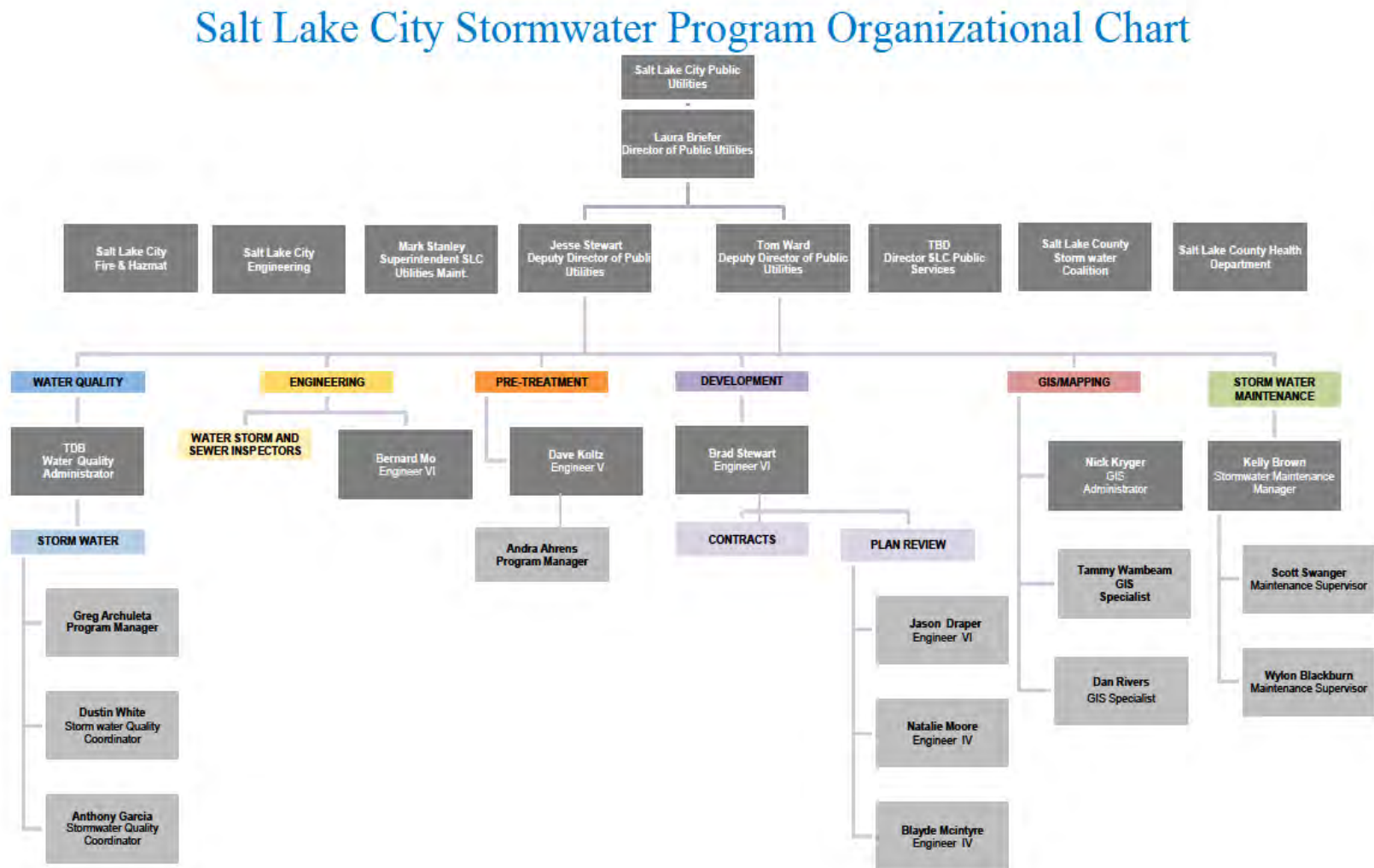
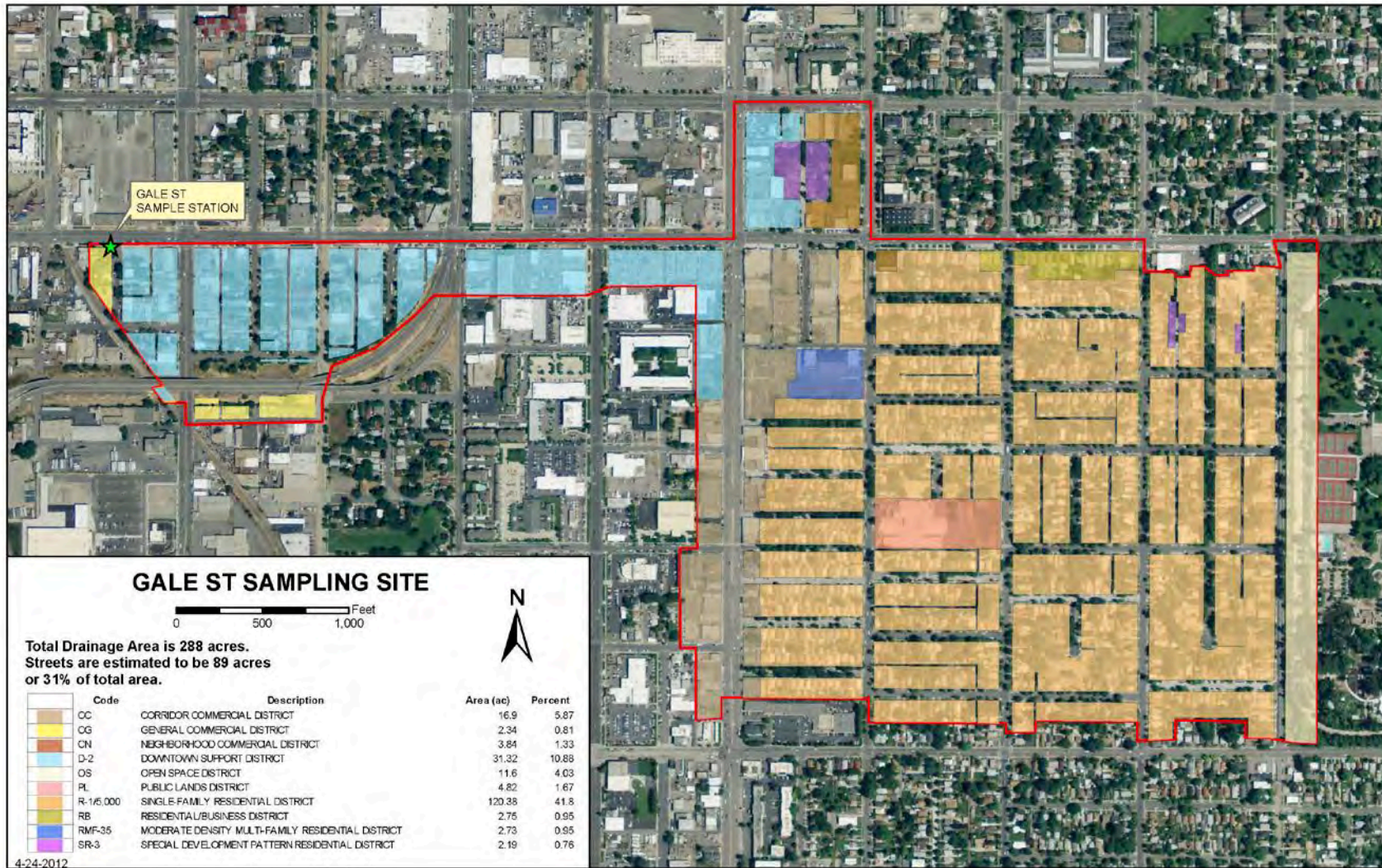


FIGURE 3 - WET WEATHER MONITORING: GALE STREET DRAINAGE BASIN MAP (JOR 8.32)



file - O:\Arcview\arogis projects\stormwater\galest sampler4-9-12.mxd

FIGURE 4 - WET WEATHER MONITORING: LEE DRAIN DRAINAGE BASIN MAP (LED 1.87)

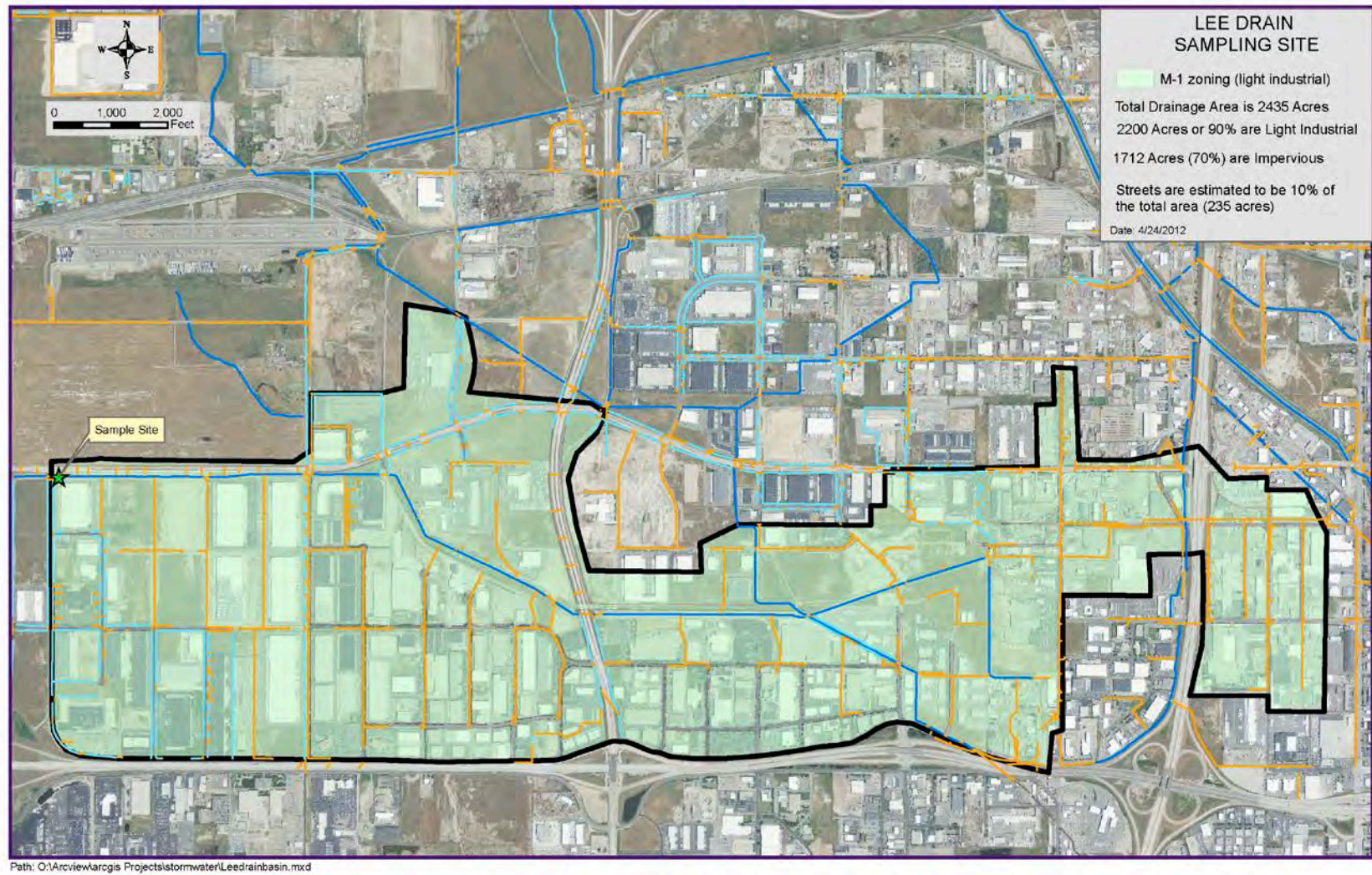
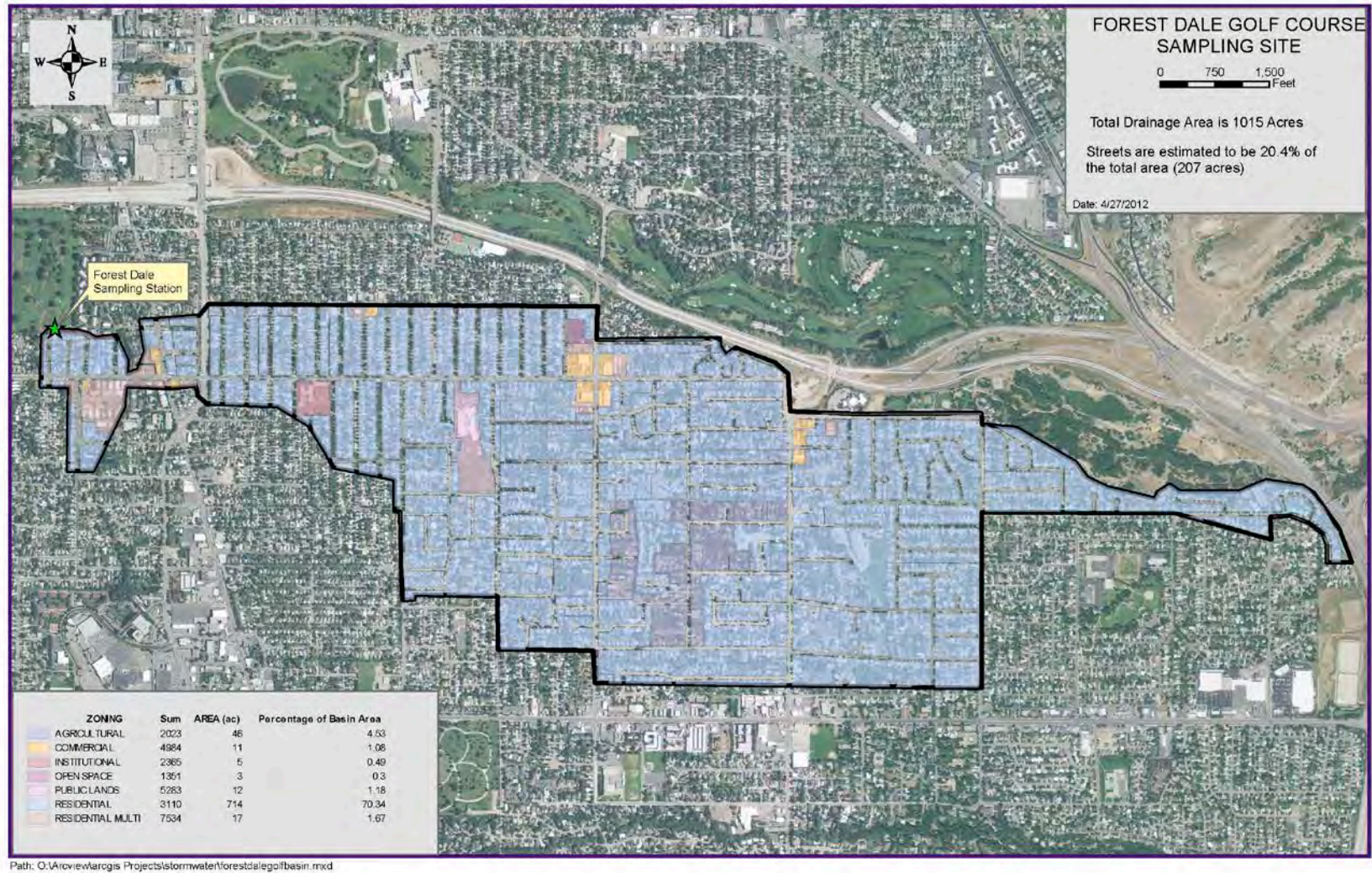


FIGURE 5 - WET WEATHER MONITORING: FOREST DALE BASIN MAP (MIL 2.60)



APPENDIX A – MOU Between Salt Lake City and Salt Lake County Health Department

Awaiting final signatures.

MEMORANDUM OF UNDERSTANDING
between
SALT LAKE COUNTY
on behalf of its Salt Lake County Health Department
and
SALT LAKE CITY
on behalf of its Public Utilities Department

RECORDED
NOV 09 2015
CITY RECORDER

This Memorandum of Understanding ("MOU") is entered into this nd~~1~~ day of ^{Dec.}~~July~~, 2015 between Salt Lake County ("County") on behalf of its Salt Lake County Health Department ("SLCoHD") and Salt Lake City ("City") on behalf of its Department of Public Utilities ("Public Utilities"). The County and City are sometimes jointly referred to hereinafter as the "Parties." The purpose of the MOU is to memorialize, clarify, define and describe the cooperative efforts of the Parties as described below.

RECITALS:

Whereas, the Parties are both governmental entities as defined under the Utah Interlocal Cooperation Act, (the "Act") Utah Code Ann. §§ 11-13-101 et seq. and are authorized under the Act to enter into this MOU; and

WHEREAS, the Salt Lake County Health Department is organized as a "county" health department and exists pursuant to Utah Code Ann. §26A-1-103, and Chapter 9.04 of the Salt Lake County Code of Ordinances; and

WHEREAS, the SLCoHD is responsible for enforcing state laws, administrative rules, local ordinances, standards and regulations relating to public health, sanitation, safety, and environmental quality as provided for in the Utah Local Health Department Act, Utah Code Ann. §26A-1-114; and

WHEREAS, pursuant to §26A-1-114(1), the SLCoHD may enforce state laws, local ordinances, department rules and local health department standards and regulations in all incorporated and unincorporated areas of Salt Lake County; and

PROPERTY OF SALT LAKE
CITY RECORDER'S OFFICE
P.O. BOX 145515
SALT LAKE CITY, UTAH 84114-5515

WHEREAS, the SLCoHD has adopted health regulations including Health Regulation #13, "Wastewater Disposal Regulation" which prohibits the discharge or release of pollutants or contaminants into storm sewers, drains, gutters or waters of the state; and

WHEREAS, Health Regulation #13 is incorporated by reference in Section 9.32.010 of the Salt Lake County Code of Ordinances; and

WHEREAS, Utah Code Ann. §17-8-5 provides that the county legislative body may promulgate regulations to protect channels, storm sewers, and drains, and may provide for the enforcement of those regulations; and

WHEREAS, Salt Lake City has adopted Section 17.84.100 of the Salt Lake City Code of Ordinances which makes it unlawful to: A. Make any discharge for which a discharge permit is required, without first obtaining a discharge permit; B. Make any discharge under a discharge permit in violation of the terms and conditions of such discharge permit, or otherwise violate the terms and conditions of a discharge permit; or C. Construct, use, maintain or allow to remain in place an illicit connection, whether or not the connection was permissible under law or practices applicable or prevailing at the time of connection; and

WHEREAS, Salt Lake City has enacted Section 17.84.200 of the Salt Lake City Code of Ordinances which requires: Any person conducting an activity which can reasonably be anticipated to create the risk of a prohibited discharge shall provide adequate protection against accidental discharge through the use of structural and nonstructural Best Management Practices ("BMPs"). Such BMPs include, but are not limited to: a) Implementing procedures or practices which tend to reduce the likelihood of an accidental discharge, and b) Installing structures or facilities designed to prevent such accidental discharge. BMPs to prevent an accidental discharge shall be provided and maintained at the person's own cost and expense. Failure to provide or maintain such BMPs, or any discharge resulting from such failure, shall be considered a violation of this chapter; and

WHEREAS, Section 1.12.050 of the Salt Lake County Code of Ordinances provides that the violation of any provisions of an ordinance constitutes a Class B Misdemeanor; and

WHEREAS, Utah Code Ann. §26A-1-120(3)(a) of the Utah Local Health Department Act provides that the district attorney shall prosecute criminal violations of the public health laws and rules of the departments of health and environmental quality; and

WHEREAS, the Parties wish to enter into this MOU to formalize the procedure for the enforcement of the applicable statutes, ordinances and health regulations to protect water quality.

NOW, THEREFORE, in consideration of the following mutual promises, terms and conditions, it is agreed by the Parties as follows:

1. RESPONSIBILITIES OF THE SLCoHD.

- 1.1 The SLCoHD's Environmental Health Division is responsible for investigating incidents involving spills, releases or the discharge of pollutants, contaminants, or wastes into waterways and drainage systems.
- 1.2 The SLCoHD will respond to any reports from Public Utilities regarding spills, releases or the discharge of pollutants, contaminants or wastes in gutters, storm drains and flood control facilities. The SLCoHD will also report to Public Utilities any complaints received or violations discovered by the SLCoHD's personnel.
- 1.3 The SLCoHD will provide an annual report to Public Utilities that includes the status of the complaints and actions taken in response to complaints in the unincorporated county.
- 1.4 The health regulations adopted by the Salt Lake County Board of Health, pursuant to Section 9.04.060 of the Salt Lake County Code of Ordinances, contain procedures to

PROPERTY OF SALT LAKE
CITY RECORDER'S OFFICE
P.O. BOX 145515
SALT LAKE CITY, UTAH 84114-5515

enforce violations through civil administrative or criminal proceedings depending upon the severity of the violation.

1.5 Based on the foregoing legal authority, the SLCoHD will initiate appropriate enforcement actions to compel compliance with the regulations or pursue sanctions for violations as required by the City's UPDES storm water discharge permit.

1.6 Copies of Warning Letters and Notices of Violations issued for stormwater discharges in Salt Lake City will be sent to the attention of the Water Quality and Treatment Administrator, Salt Lake City Public Utilities at 1530 South West Temple, Salt Lake City, Utah 84105.

1.7 The SLCoHD provides household hazardous waste facilities to all citizens of incorporated and unincorporated Salt Lake County. Services may also include mailers, ads, and collection events. Businesses are allowed to dispose of certain hazardous wastes at these facilities for a fee. To the extent possible, such facilities will be provided within the boundaries of the City.

2. RESPONSIBILITIES OF PUBLIC UTILITIES.

2.1 Public Utilities will report to the SLCoHD incidents involving spills, releases or the discharge of pollutants, contaminants, or wastes into gutters and storm drains covered by the UPDES storm water permit. Incidents will be reported as soon as practicable by telephone to the SLCoHD 24-hour hotline at (801) 580-6681 or during business hours to SLCoHD's Bureau of Water Quality office at (385) 468-3862.

2.2 Public Utilities will cooperate with the SLCoHD in any investigation or enforcement action initiated by SLCoHD. Cooperation that Public Utilities may provide include, but is not limited to, information regarding permits, storm water system maps, dye testing, and recommendations for the extent of clean-up in the storm water system.

- 2.3 Public Utilities will handle Storm Water Pollution Prevention Permit approvals and enforcement related to violations of the approved permit. The SLCoHD will investigate illicit discharges entering the storm drain system.
- 2.4 Public Utilities will carry out the construction and post construction regulatory activities related to storm water engineering controls. Regulatory activities related to this include, but not limited to, plan approvals, installation inspections, post construction inspections, management -expectations and maintenance of required engineered controls.
- 2.5 Public Utilities will report to the SLCoHD any spills, illicit connections, releases or the discharge of pollutants, contaminants, or wastes into waterways and drainage systems that are identified through dry weather and wet weather screenings.
3. COORDINATION. Representatives of the Parties will participate in the investigation and enforcement of alleged violations of health regulations, rules and ordinances to protect storm sewers and drains as required by the City's UPDES storm water discharge permit. In addition, the Parties will confer to determine an appropriate legal remedy on a case-by-case basis, including administrative, civil and criminal actions.
4. TRAINING. The Parties agree to pursue training resources with the goal of improving water quality, environmental enforcement, public awareness, and compliance.
5. REPRESENTATIVES. The parties designate the following representatives (and their successors) to administer this MOU and for the purposes of written notice:

SLCoHD:

Gary L. Edwards, Executive Director
Salt Lake County Health Department
2001 South State Street #S2500
Salt Lake City, Utah 84190
(385) 468-4117

Public Utilities:

Jeffrey T. Niermeyer, Director
Salt Lake City Public Utilities
1530 South West Temple
Salt Lake City, Utah 84105
(801) 483-6900

6. EFFECTIVE DATE. The effective date shall be the date the Parties sign the MOU and shall continue in effect until terminated by either party giving six months written notice to the designated representative of the other party.
7. NOTICES. Any notice required hereunder shall be deemed given, if in writing to the Parties designated representatives identified in paragraph 5 herein.
8. AMENDMENT. The parties may amend this MOU by a writing executed by the parties. No amendment shall be effective if it is not in writing or if it is not executed by all the Parties.
9. ENTIRE AGREEMENT. This MOU contains the entire agreement between the Parties and no statements, promises or inducements not contained in this MOU shall be binding or valid.
10. NO AGENCY. The Officers, employees, representatives or agents of each Party shall not be deemed to be the agents of the other Party.
11. GOVERNMENTAL IMMUNITY. County and City are both governmental entities subject to the Utah Governmental Immunity Act ("Act"), Utah Code Ann. §§ 63G-7-101, et. seq. (1953, as amended). Consistent with the waivers and retentions of immunity found in the Act which apply to all functions of government, no matter how labeled, the parties agree that each party is responsible for, and shall indemnify the other party from, its own acts which it commits or which are committed by its own officers, employees or agents. By entering into this MOU, neither party waives any defenses otherwise available under the provisions of the Act.

PROPERTY OF SALT LAKE
CITY RECORDER'S OFFICE
P.O. BOX 145515
SALT LAKE CITY, UTAH 84114-5515

IN WITNESS WHEREOF, the Parties execute this Memorandum of Understanding the day and year recited above.

Salt Lake County:

By:

Mayor or Designee

Dated:

APPROVED BY:

Salt Lake County Health Department

By:

Gary L. Edwards, M.S.
Executive Director

Dated:

7/15/15

APPROVED AS TO FORM:

Salt Lake County District Attorney

By:

Melanie F. Mitchell
Deputy District Attorney

Dated:

8 July 2015

Salt Lake City:

By: *David Graham*
Mayor or Designee *Acting Mayor*

Dated: Nov. 9, 2015

APPROVED BY:

Jeffrey T. Niermeyer
Jeffrey T. Niermeyer
Salt Lake City Public Works Department

Dated: _____

Salt Lake City Attorney's Office

By: *E. Russell Vetter*
E. Russell Vetter
Senior City Attorney

Dated: 11/3/15

ATTEST:
Julie Ward
CITY RECORDER

RECORDED
NOV 09 2015
CITY RECORDER



PROPERTY OF SALT LAKE
CITY RECORDER'S OFFICE
P.O. BOX 145515
SALT LAKE CITY, UTAH 84114-5515

APPENDIX B – Salt Lake City Stormwater and Riparian Ordinance

SALT LAKE CITY ORDINANCE
No. 53 of 2007
(Amending Title 2 and Title 17 of the Salt Lake City Code,
relating to the Storm Water Sewer System)

* * *

AN ORDINANCE AMENDING TITLE 2 AND TITLE 17 OF THE SALT LAKE CITY CODE, RELATING TO THE STORM WATER SEWER SYSTEM; REQUIRING A CITY DISCHARGE PERMIT FOR CERTAIN ACTIVITIES RESULTING IN DISCHARGE TO THE STORM WATER SEWER SYSTEM; AUTHORIZING ENFORCEMENT ACTION, FINES AND PENALTIES FOR PROHIBITED DISCHARGES AND OTHER PROHIBITED CONDUCT; AND RELATED MATTERS.

* * *

Be it ordained by the City Council of Salt Lake City, Utah:

SECTION 1. Section 2.08.100 of the Salt Lake City Code is hereby amended to read as follows:

2.08.100 Department of Public Utilities:

A. Functions: The department of public utilities shall have charge of and be responsible for:

1. The acquisition, transportation, storage, treatment and distribution of all irrigation, raw and potable water for the city and its designated service areas, including, but not limited to:

a. All farms and watershed lands, so far as the same affect the water supply of the city;

b. All water sources from which the domestic supply is or may be taken;

c. All reservoirs, conduits, tanks, and water mains, city fire hydrants located within the city, and appurtenant equipment and properties;

d. All irrigation gates, dams, flumes, ditches, canals, reservoirs and related facilities necessary for the proper control and distribution of irrigation water for which the city is acting as distributing agent, or in connection with any water exchange agreements to which the city is a party; and

2. Keeping records of the location of all principal gates, dams, flumes, ditches, canals and reservoirs and water rights owned by the city, which

records shall show the nature of construction, the length and capacity of the principal canals and ditches, and such other information as may be necessary to enable a proper understanding of the city's rights from an examination thereof; and

3. The ownership, operation and maintenance of a sanitary sewer utility system for the collection, treatment, and disposal of wastewater generated within the city, including the facilities necessary therefor; and

4. The ownership, operation and maintenance of a storm water sewer utility system for the collection and disposal of storm water and floodwaters generated or collected within the city.

B. Water Boards, Miscellaneous: The director of the department of public utilities shall represent the city, if consistent with law, on the various water or sewer boards, commissions and similar administering bodies on which the city is entitled to sit by virtue of state law, contractual agreement or bylaws of such bodies.

C. Enterprise Funds: The water, sanitary sewer and storm water sewer divisions of the department of public utilities shall be operated as separate enterprise funds. The collection, accounting and expenditure of each shall be in accordance with existing fiscal policies of the city.

SECTION 2. Title 17 of the Salt Lake City Code is hereby reorganized to include, and there is hereby created within such Title 17, a new Division III entitled "Storm Water Sewer System." Division III of Title 17 shall generally include all Salt Lake City Code provisions relating to the City's storm water sewer utility system, including Chapters 75 through 91 of Title 17.

SECTION 3. Division III of Title 17 of the Salt Lake City Code is hereby subdivided to include, and there are hereby created within such Division III, the following Chapters:

17.75	General Provisions
17.78	Definitions
17.81	Storm Water Sewer Utility; Establishment and Funding
17.84	Discharges Into City Storm Water Sewer System

17.87 Enforcement

17.91 Miscellaneous

SECTION 4. There is hereby enacted a new Section 17.75.100, to read as follows:

17.75.100 Short Title.

The ordinance codified in this Division III shall be known collectively as the Salt Lake City Storm Water Control Ordinance. References to "this ordinance" shall be deemed to refer to and include all sections contained in Chapters 17.75 through 17.91, inclusive.

SECTION 5. Existing Section 17.75.010 is hereby repealed in its entirety and reenacted as Section 17.75.200, to read as follows:

17.75.200 Findings and Purposes.

A. Findings on Storm Water Runoff Harm. The city council finds that storm water runoff has the potential for causing property damage and erosion; carrying concentrations of nutrients, chemicals, heavy metals, oil and toxic materials into receiving waters and groundwater; degrading the integrity of city streets, curbs, gutters and other infrastructure; reducing residents' access to emergency services; and imposing other hazards to both life and property. For these and other reasons, storm water runoff has the potential for adversely impacting the health, safety, property, recreational opportunities and general welfare of the community. The city council has determined that the potential for such negative impacts will increase as the amount of storm water runoff increases due to the city's physical growth and urban development.

B. State and Federal Regulation. The federal government has established, through the Clean Water Act, regulations regarding storm water runoff for the protection of receiving waters. The State of Utah has also enacted the Water Quality Act, together with related regulations. These federal and state laws and regulations are administered through the Utah Department of Environmental Quality and include requirements that the city obtain, and abide by the provisions of, a UPDES permit for the city's discharge of storm water runoff into receiving waters.

C. Purposes and Objectives. In view of the foregoing, the purposes and objectives of this ordinance are to:

1. Provide for and maintain a storm water sewer system for collecting and disposing of storm water runoff;

2. Establish the inspection, surveillance and monitoring procedures, and all related rules and regulations, necessary to regulate discharges into the storm water sewer system, and to establish the legal authority to enforce compliance with such rules and regulations; and

3. Provide fair, equitable and nondiscriminatory rates and charges which will generate sufficient revenues to construct, operate, improve and maintain the storm water sewer system at a level commensurate with storm water sewer management needs. It shall be the policy of the city that present and future costs of operating the storm water sewer system shall be fairly allocated among the various users of the storm water sewer system through the establishment of rates and charges based upon such factors as the intensity of development of the parcel; the types of development on the parcel; the amount of impervious surface on the parcel; the cost of maintenance, operation, repair and improvements of the various parts of the system; the quantity and quality of the runoff generated; and other factors which present a reasonable basis for distinction, and which will allow for management of the storm water sewer system in a manner that protects the public health, safety and welfare.

SECTION 6. Section 17.75.300 is hereby enacted to read as follows:

17.75.300 Authority.

This ordinance is adopted under the authority of the Utah Water Quality Act, the federal Clean Water Act and the rules and regulations promulgated thereunder relating to storm water discharges, as well as certain requirements set forth in the city's UPDES permit for storm water discharges, issued by the Utah Department of Environmental Quality. Specifically, Section 19-5-115(10), Utah Code Annotated, authorizes the city to enact and enforce rules and ordinances for the implementation of the Water Quality Act, including storm water discharges.

SECTION 7. Section 17.75.400 is hereby enacted to read as follows:

17.75.400 Responsibility for Administration.

The director shall be responsible for administering, implementing, and enforcing the provisions of this ordinance. Any powers granted or duties imposed upon the director may be delegated by the director to persons in the employ of the city and under the supervision of the director.

SECTION 8. Section 17.75.020 is renumbered as Section 17.78.100, and is amended to read as follows:

17.78.100 Definitions:

For purposes of this ordinance, the following words, terms and phrases shall have the following meanings:

“Best management practices” or “BMPs” means schedules of activities, prohibitions of practices, maintenance procedures, treatment requirements, operating practices, techniques, methodologies or other management practices that, through experience and research, have proven reliable to prevent or reduce pollutants from entering the storm water sewer system, and that are recognized, required, or accepted as BMPs under the Clean Water Act, the Water Quality Act, and related rules, regulations, guidance documents and storm water permits issued thereunder. BMPs shall be an integral part of a SWPPP as necessary for compliance with an NPDES or a UPDES permit, or a city discharge permit under this ordinance.

“City” means Salt Lake City Corporation, a municipal corporation of the State.

“City discharge permit” means a permit to discharge storm water into the city’s storm water sewer system, issued pursuant to Section 17.84.400 of this ordinance.

“Clean Water Act” means the federal Water Pollution Control Act, 33 U.S.C. § 1251 *et seq.*, as amended, including all related rules and regulations.

“Construction activity” means activities for which a UPDES General Construction Storm Water Permit, as defined in the rules promulgated under the Clean Water Act, must be obtained. These include construction activities such as clearing and grubbing, grading, excavating and demolition, that disturb one acre of land or more.

“Council” means the Salt Lake City Council.

“County” means the Salt Lake County, Utah.

“Department” means the city’s department of public utilities.

“Developed parcel” means any parcel which has been altered by grading or filling of the ground surface, or by construction of any improvements or other impervious surface area that affects the hydraulic properties of the parcel.

“Director” means the director of the department, or the director’s duly authorized designee.

“Discharge” means any addition or introduction of any pollutant into the storm water sewer system or any watercourse. Discharge includes any storm water runoff.

“Discharge permit” means and includes any permit regulating discharges into the storm water sewer system, including a UPDES permit, an NPDES permit and a city discharge permit.

“EPA” means the U.S. Environment Protection Agency.

“Equivalent residential unit” or “ERU” means the unit of measurement of the magnitude of use of the storm water sewer system attributable to a developed parcel. One ERU is equal to the storm water runoff from a developed parcel containing two thousand five-hundred square feet of combined impervious surface area, in any configuration, which is the estimated contribution of storm water runoff from the average single-family residential dwelling unit and accompanying parcel of land.

“Impervious surface” means that hard surface area of a developed parcel that either prevents or retards the entry of water into the soil mantle and/or causes water to run off the surface in greater quantities or at an increased rate of flow from that which would be present under natural conditions. Impervious surfaces may include, but are not limited to, rooftops, concrete or asphalt paving, walkways, patios, driveways, parking lots or storage areas, trafficked gravel, or other surfaces which similarly impede the natural infiltration into the ground of runoff of storm and surface water.

“Illicit connection” means any drain, pipe, connection or conveyance, whether on, above or below the surface, which is connected from a commercial or industrial land use to the storm water sewer system and which does not meet the requirements of the city, including without limitation the requirement that such connection or conveyance be documented in plans, maps or equivalent records and approved by the director.

“Industrial activity” means, generally, activity for which an NPDES permit or UPDES permit is required. Industrial activity is more particularly defined in 40 C.F.R. § 122.26(b)(14) and Utah Administrative Rule R.317-8-2.5, which definitions are incorporated herein by reference. Such activities include, by way of example, manufacturing, processing or raw materials storage at an industrial plant, and most construction activity on parcels of one acre and greater.

“National Pollutant Discharge Elimination System” or “NPDES” means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing discharge permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318 and 405 of the Clean Water Act.

“NPDES permit” means a permit issued by the EPA that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group or general area-wide basis.

“On-parcel mitigation” or “mitigation” means storm water control facilities designed to city standards located on the parcel, which either hold runoff for a short period of time and release it to the storm water sewer system, or hold water for a considerable length of time and disperses it by evaporation or infiltration into the ground.

“Operator” means, with respect to any industrial activity, the person or persons who either individually or taken together meet the following two criteria: (1) they have operational control over the site specifications (including the ability to make modifications in specifications); and (2) they have the day-to-day operational control of those activities at the site necessary to ensure compliance with SWPPP requirements and any permit conditions.

“Parcel” means the smallest separately segregated unit or plot of land which is documented and given a property serial number by the county.

“Person” means any individual, partnership, co-partnership, firm, limited liability company, corporation, association, joint stock company, trust, estate, government entity or any other entity recognized by law, and any offices, departments, institutions, bureaus or agencies thereof.

“Pollutant” means anything that causes or contributes to pollution. Pollutant includes, without limitation: dredged soil, solid waste, incinerator residue, sewage, garbage, sewage sludge, filter backwash, munitions, chemical wastes, biological materials, toxic materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, recreational and agricultural waste discharged into water or into the storm water sewer system.

“Pollution” means the alteration, through the introduction of a pollutant, of the physical, thermal, chemical, or biological quality of, or the contamination of, any waters of the State or waters of the United States, that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property, or to the public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.

“Premises” means any building lot, parcel, or portion of land whether improved or unimproved, including adjacent sidewalks and parking strips.

“Prohibited discharge” means any discharge prohibited by Section 17.84.100 of this ordinance.

“Responsible party” means (1) an operator; (2) a person who uses the storm water sewer system or discharges to the storm water sewer system, whether or not pursuant to a discharge permit; or (3) a person responsible for emergency response for a facility or operation.

“Single-family residential parcel” means any parcel of land which is improved with a dwelling unit as defined by Section 17.72.030(2)(b) of the Salt Lake City Code.

“Small construction activities” means construction activities, including clearing, grading and excavating land, that result in the disturbance of equal to or greater than one acre and less than five acres of land, including projects of less than one acre that are part of a larger common plan of development or sale.

“State” means the State of Utah.

“Storm water” means (i) storm water runoff, (ii) snow melt runoff, and (iii) surface runoff and drainage from other sources which contains no pollutants.

“Storm Water Pollution Prevention Plan” or “SWPPP” means a plan required by a discharge permit which describes and ensures the implementation of the best management practices and activities to be implemented by a person or operator to identify sources of pollution or contamination at a site and the actions to eliminate or reduce pollutant discharges to storm water, the storm water sewer system and/or receiving waters to the maximum extent practicable.

“Storm water rules” means the rules promulgated by the State relating to storm water discharges, and set forth in Utah Administrative Rule R.317-8-3.9.

“Storm water sewer facilities” means any facilities comprising part of the storm water sewer system.

“Storm water sewer system” means the city-owned and operated system of conveyances designed or used for collecting, storing, controlling, treating and/or conveying storm water. This system includes, but is not limited to, sidewalks, roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made or altered channels, reservoirs or piped storm drains. This system does not include any part of the sanitary sewer system.

“Storm water sewer utility” means the utility created through this chapter in Section 2.08.100 of the Salt Lake City Code, which operates, maintains, regulates and improves storm water facilities and programs within the city.

“Undeveloped parcel” means any parcel which is not a developed parcel.

“UPDES permit” means a permit issued by the Utah Department of Environmental Quality that authorizes the discharge of pollutants to waters of the State, whether the permit is applicable on an individual, group or general area-wide basis.

“Utah Pollutant Discharge Elimination System” or “UPDES” means the program delegated to the State by the EPA pursuant to 33 U.S.C. § 1342(b) and Sections 19-5-101 to 123 of the Utah Code.

“Violation” means a violation of any provision of any storm water discharge permit, this ordinance or any order, rule or regulation issued or promulgated hereunder.

“Water Quality Act” means the statute codified at Section 19-5-101 *et seq.*, Utah Code Annotated, as amended, including all related rules and regulations.

“Watercourse” means aqueducts, pipelines, natural or artificial streams or channels through or in which water at any time flows.

SECTION 9 Section 17.75.030 is hereby repealed.

SECTION 10. Section 17.75.040 is hereby repealed.

SECTION 11. Section 17.75.050 is hereby renumbered as Section 17.81.100, and is amended in its entirety to read as follows:

17.81.100 Establishment of Storm Water Sewer Utility; Administration of Storm Water Sewer Facilities.

The storm water sewer utility has been established pursuant to Section 2.08.100, and is operated as a separate enterprise fund within the department of public utilities. All portions of the storm water sewer system (other than streets, curbs, gutters and sidewalks), shall be operated, managed and administered by the director within the storm water sewer utility.

SECTION 12. Section 17.75.060 is hereby repealed.

SECTION 13. Section 17.75.070 is hereby renumbered as Section 17.81.200, and is amended to read as follows:

17.81.200 System of Rates and Charges.

A. There are hereby imposed storm water sewer service fees, rates and charges on the owner of each developed parcel within the city, except (i) governmentally owned streets, and (ii) parcels on which are located storm water sewer facilities operated and maintained by, or for, the county. The charges shall fund the administration, planning, design, construction, water quality programming, operation, maintenance and repair of existing and future storm water sewer facilities.

B. Residential service charges for use of the storm water sewer system shall be as follows:

1. Single-family residential and duplex parcels, less than or equal to .25 acres, shall constitute one ERU and are charged three dollars per month.
2. Single-family or duplex parcels greater than .25 acres shall constitute 1.4 ERUs and are charged four dollars and twenty cents per month (tier two).
3. All triplex and fourplex residential parcels shall constitute two ERUs and are charged six dollars per month (tier three).

C. Undeveloped Parcels. Undeveloped parcels shall not be assessed a storm water service charge.

D. Other Parcels. The charge for all other parcels shall be based upon the total square footage of measured impervious surface, divided by two thousand five- hundred square feet, or one ERU, and rounded to the nearest whole number. The actual total monthly service charge shall be computed by multiplying the total ERUs for a parcel by the monthly rate of three dollars.

E. Credit for On-Parcel Mitigation. Nonresidential parcels with on-site storm water detention or retention facilities are eligible for a service charge credit upon application to the director by the person owning the parcel, or such person's agent. The amount of credit, if any, for on-site detention or retention facilities is based on the following formula:

$$P = 0.25 + 0.70 (\text{factor}) + 0.05 (\text{Permit})$$

The foregoing symbols have the following meanings:

P	Percentage of total service charge to be applied to each parcel.
0.25	Represents ten percent for department administration cost plus fifteen percent for utility operation and maintenance costs (half of the estimated total cost for utility operation and maintenance).
0.70	Represents fifteen percent for utility operation and maintenance (half of the estimated total cost for utility operation and maintenance) plus fifty-five percent for a utility capital improvement program.
Factor	Restricted discharge (Qr) from a developed parcel divided by the peak discharge (Qp) from the same developed parcel which would result if

the flow restriction facilities were not in place.

0.05

Represents five percent for NPDES storm water permit for the parcel.

Permit

The rate adjustment which applies when the parcel has an NPDES discharge permit from the State, will be equal to zero. When the parcel is included in the city NPDES permit, this rate adjustment is equal to one.

1. Mitigation credit is available only for those nonresidential parcels whose storm water facilities meet the city's design and maintenance standards.

2. The director shall provide a complete on-site mitigation evaluation at the request and expense of the person owning the parcel, or the owner's duly authorized agent.

F. Low-income Abatement. A person who owns a single-family residential parcel and is qualified for an abatement of the minimum monthly water charge pursuant to Section 17.16.670 of the Salt Lake City Code shall be eligible for a fifty-percent reduction of the service charge for such parcel.

G. Non-service Abatement. A parcel which is not directly or indirectly benefited by the storm water sewer utility shall be entitled to an abatement of the service charge for said parcel. In order to receive such abatement, the owner, or the owner's agent, shall apply, in writing, to the director pursuant to Section 17.81.400.

SECTION 14. Section 17.75.080 is hereby renumbered as Section 17.81.300, and is amended to read as follows:

17.81.300 Billing and collection.

A. Billing. In the case of developed parcels, the department shall cause billings for storm water sewer utility services to be mailed periodically to the person who has signed for water and sanitary sewer service to the parcel. The amounts to be billed shall be included on the existing department bill as a separate line item. In the case of undeveloped parcels, a storm water-only billing will be sent to the owner of the parcel, as shown on the records of the county recorder.

B. Collection.

1. In the event partial payment is made on a combined bill, the payment shall be applied first to franchise fees due, and then to each service on a pro rata basis.

2. In the event of delinquency, fees and charges levied in accordance herewith shall be a debt due the city. If this debt is not paid within thirty days after billing, it shall be deemed delinquent. The department shall have the right to terminate water, sewer and other city services to the premises to enforce payment. Any uncollected amount due from the person or persons who own the parcel on any inactive, terminated or discontinued account may be transferred to any active account under the same person or persons' name(s) and, upon failure to pay such bill after at least five days' prior written notice, water and other city services to that account and parcel may be discontinued.

3. Water, sewer, garbage and storm sewer service shall not be restored until all charges have been paid in full.

C. Storm Water Sewer Utility Enterprise Fund. All funds received from storm sewer service charges shall be placed in the storm water sewer enterprise fund and kept separate and apart from all other city funds. The collection, accounting and expenditure of all storm water sewer utility funds shall be in accordance with existing fiscal policy of the city.

SECTION 15. Section 17.16.040(B) is hereby renumbered as Section 17.81.400(A), and new Sections 17.81.400 (B), (C) and (D) are adopted, to read as follows:

17.81.400 Storm Water Impact Fee.

A. A fee equal to three hundred seventy four dollars (\$374.00) for each one-fourth (1/4) acre or portion thereof shall be imposed on all new development within city boundaries for storm water improvements.

B. Such fee shall be paid prior to city issuance of a building permit.

C. All storm water improvements to be maintained by the city shall be installed in the public right of way, or on other property owned by the city or with respect to which the city has all necessary easements, shall be subject to approved by the director as to materials, design and construction, and shall be under the

director's exclusive control. All excavation and other permits necessary shall be obtained at the expense of the applicant. All facilities not accepted by the city as part of the storm water sewer system shall be maintained by the property owners.

D. All storm water sewer facilities shall be constructed at the expense of the person, persons or corporation seeking the building permit, without special taxes being levied to pay for the same. All storm water sewer facilities shall be extended, at minimum, to the far end of the lot being serviced. All roads shall be subgraded prior to installation of the storm water sewer facilities.

SECTION 16. Section 17.16.040 is hereby amended to read as follows:

17.16.040 Water Connection Fees and Certain Connection Requirements.

A. * * *

B. When a residential building is demolished and the existing service is reused for a replacement structure within five (5) years after demolition, no new connection fees will be charged. If the meter size is increased, a credit shall be given in the amount of the previously paid connection fee. After five (5) years from date of demolition, the property owner will be required to pay a new meter connection fee.

C. When a commercial building, such as a hotel, motel, industrial building, etc., is demolished the water connection fee shall be based and charged on the new additional use pursuant to subsection A of this section. After five (5) years from the date of demolition, the property owner will be required to pay a new water connection fee.

D. All connection fees shall be paid prior to city issuance of a building permit, except connection fees for water main extensions covered in section 17.16.300 of this chapter, which shall be paid pursuant to such section.

E. In all cases, the pipe and type of materials to be furnished and installed in the public right of way, or per written agreement are to be maintained by the city, shall be approved by the public utilities director and shall be under the director's exclusive control. All excavation and other permits necessary shall be obtained at the expense of the applicant. Pipe and material outside the public way and pipe and materials installed as private pipelines or services shall be maintained by the property owners.

F. All water main extensions shall be made at the expense of the person, persons or corporation petitioning for the extension, and shall be

made without special taxes being levied to pay for the same. All water mains shall be extended, at minimum, to the far end of the lot being serviced. All roads shall be subgraded prior to installation of the public utilities facilities.

G. Additional charges will be imposed for the cost, installation, and inspection of meters. Said fees will be fixed and charged as determined by the director of the department of public utilities on a cost basis.

SECTION 17. Section 17.75.090 is hereby renumbered as Section 17.81.400, and is amended to read as follows:

17.81.500 Appeal of charges.

A. Those single-family and duplex parcels larger than .25 gross acres, but having less than three thousand square feet of impervious surface, may request a reduction of the charge to the tier-one level of three dollars per month.

B. Any owner or person who considers the city's storm water charge as applied to a parcel owned by such person to be inaccurate, or who otherwise disagrees with the utility rate determination, may apply to the director for a service charge adjustment. Such a request shall be in writing and state the grounds for such an appeal. The director shall review the case file and determine whether an error was made in the calculation or application of the charge and make an adjustment to the charge, if necessary, to provide for proper application of the city's rates and charges pursuant hereto. In all cases, the decision of the director shall be final unless appealed.

C. Any appeal of the amount billed under this ordinance shall be filed in writing with the director no later than twenty days after the billing. Any subsequent appeal shall be brought within twenty days after the date of the appealed decision.

D. Appeal of decisions made by the director may be brought before the public utilities advisory committee (PUAC), which may reevaluate the issue raised in the appeal. Decisions of the PUAC shall be final and conclusive.

E. Nothing in this ordinance shall be construed to grant a right to judicial review which does not otherwise exist at law.

SECTION 18. There are hereby enacted new Sections 17.84.100 through 17.84.800, to read as follows:

17.84.100 Prohibited Discharges and Connections.

Except as authorized by this ordinance, or by applicable federal or State law, it shall be unlawful to:

- (i) make any discharge for which a discharge permit is required, without first obtaining a discharge permit;
- (ii) make any discharge under a discharge permit in violation of the terms and conditions of such discharge permit, or otherwise violate the terms and conditions of a discharge permit; or
- (iii) construct, use, maintain or allow to remain in place an illicit connection, whether or not the connection was permissible under law or practices applicable or prevailing at the time of connection.

17.84.200 Preventing Accidental Discharge. Any person conducting an activity which can reasonably be anticipated to create the risk of a prohibited discharge shall provide adequate protection against accidental discharge through the use of structural and non-structural BMPs. Such BMPs include, but are not limited to (i) implementing procedures or practices which tend to reduce the likelihood of an accidental discharge, and (ii) installing structures or facilities designed to prevent such accidental discharge. BMPs to prevent an accidental discharge shall be provided and maintained at the person's own cost and expense. Failure to provide or maintain such BMPs, or any discharge resulting from such failure, shall be considered a violation of this ordinance.

17.84.300 City Discharge Permit.

A. Any person required to obtain an NPDES or UPDES permit in connection with storm water discharges associated with industrial activity, including small construction activity, or to operate under authority of such a permit, as required by the applicable provisions of the Clean Water Act and/or the Water Quality Act shall (i) obtain such permit as required and comply with all provisions of such permit and, in addition (ii) obtain a city discharge permit from the department and comply with the provisions thereof.

B. The term of the city's discharge permit shall be concurrent with the applicable NPDES or UPDES permit.

C. Persons required to obtain a city discharge permit pursuant to this section must file an application for a first-time city discharge permit within 60 days after the effective date of this ordinance.

D. No person may commence industrial activity, including small construction activity, until a city discharge permit required by subsection (A) above has been issued by the department. The city shall not issue a building permit for any project constituting industrial activity, including small construction activity, until a city discharge permit has been issued.

E. The director may include in a city discharge permit any and all reasonable requirements necessary to prevent a prohibited discharge to the storm water sewer system, including requirements to control erosion and sediment, waste such as discarded building materials, concrete truck wash out, chemicals, litter and sanitary waste, or any other pollutant, that may cause adverse impacts to water quality.

17.84.400 City Discharge Permit Application Process.

A. An application for a city discharge permit shall be submitted in writing to the director, and shall include, at a minimum, the following information: (i) the name and mailing address of the applicant, (ii) the location of discharge, (iii) the nature and general description of the activity giving rise to the discharge or potential discharge, (iv) A copy of the applicant's application for an NPDES permit, and (v) any other information reasonably requested by the director. The city anticipates that a full and complete application for an NPDES or UPDES permit, including all attachments, may be sufficient to satisfy these requirements.

B. The director may charge an application fee in an amount reasonably determined by the director to be sufficient to recoup the costs of the application process, but not to exceed \$125.

C. Within five (5) business days after submission of a completed application to the director, the director shall evaluate the application and either approve or deny the application. If approved, the city discharge permit issued by the director shall be accepted in writing by the applicant.

17.84.500 Inspection Right of Entry.

A. As a condition to the issuance of a city discharge permit, all applicants shall grant the director reasonable access to all relevant parts of the premises for the purposes of inspection, sampling, examination, copying of records that must be kept under the conditions of any discharge permit, monitoring compliance with all discharge permits, and performing any additional duties as defined by State and federal law. Reasonable access means, at a minimum, access during normal business hours, without prior notice, to all portions of a parcel and the improvements thereon which may contribute to a storm water discharge, subject only to bona fide safety or security precautions. Each city discharge permit shall contain provisions granting the city appropriate inspection rights. If the applicant has bona fide safety or security measures in force, the applicant shall make the necessary arrangements to allow prompt access by personnel from the city or its designated enforcement agent.

B. The director shall have the right to set up on any operator's property or any other representative location such devices as are deemed

necessary to conduct sampling, inspection, compliance monitoring and/or metering of the facility's discharges.

C. The director may require the operator to install sampling and monitoring equipment at the operator's expense. This sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the operator, at its own expense. All devices used to measure storm water flow and quality shall be calibrated to ensure accuracy.

D. Any temporary or permanent obstruction to safe and easy access to the area or facility to be inspected or sampled shall, unless part of a BMP, be promptly removed by the operator at the written or verbal request of the director. The costs of providing such safe and easy access shall be borne by the operator.

E. The director's request for reasonable access to a facility for the purposes of conducting any activity authorized or required by this ordinance shall not be unreasonably delayed by an operator.

17.84.600 Requirement for Use of Best Management Practices.

A. The director may adopt policies and procedures requiring BMPs for any activity, operation, or facility which may cause or contribute to a prohibited discharge.

B. Any person responsible for a parcel which is, or may become, the source of a prohibited discharge shall be required to implement, at said person's expense, additional structural and non-structural BMP's to prevent a prohibited discharge.

C. Compliance with all terms and conditions of a valid NPDES or UPDES permit shall be deemed compliance with all similar requirements of this Section.

17.84.700 Watercourse Protection.

Every person owning or occupying a parcel through which a watercourse passes shall keep and maintain that portion of the watercourse within such parcel free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, such person shall maintain existing privately-owned structures within or adjacent to the watercourse so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.

17.84.800 Accidental Discharges.

A. This Section shall apply to any person responsible for a facility, operation or parcel, or responsible for emergency response for a facility, operation

or parcel, whether or not a discharge permit is required to be obtained in connection with such facility, operation or parcel.

B. Notwithstanding other provisions of law, as soon as a person described in (A) above has information of any known or suspected release of materials which are resulting, or may result, in a prohibited discharge, such person shall take the following actions:

1. Such person shall take all necessary steps to ensure the recovery, containment and cleanup of such release.
2. Such person shall immediately notify the director of the incident by telephone. This notification shall be in addition to, and not in lieu of, any other notifications required under applicable law. The notification shall include location of the release, the type, concentration and volume of the material, and any corrective actions taken or planned.
3. Such person shall, within five (5) days following the incident, submit to the director a detailed written report describing the cause of the release and the measures to be taken to prevent similar future occurrences. Such notification shall not relieve the person of any expense, loss, damage or other liability which may be incurred as a result of the release, nor shall such notification relieve the person of any fines, civil penalties or other liability which may be imposed by this ordinance or other applicable law.
4. A notice shall be posted on the person's bulletin board or other prominent place advising employees of the incident, and of any possible dangers and safety precautions to be taken. Such notice shall also include recommended measures to prevent future releases.

C. Each person subject to this Section shall ensure that all employees are familiar with the requirements of this Section.

17.84.900 Release of Storm Water or Discharge Onto Other Property Prohibited.

It shall be unlawful to knowingly, intentionally or recklessly (i) release or direct the flow of storm water into any conveyance facilities, or onto any property, or (ii) make any discharge into any conveyance facilities or onto any property, without the legal right to do so. Violation of this Section shall constitute a class B misdemeanor.

SECTION 19. There are hereby enacted new Sections 17.87.100 through 17.87.950, to read as follows:

17.87.100 Notification of Violation.

Whenever the director finds a violation of this ordinance, the director may serve upon the responsible party a written notice of violation. Such written notice shall be served in person or by certified mail, return receipt requested. Within five (5) days after the receipt of such notice, an explanation for the violation and a plan for the satisfactory correction and prevention thereof, which shall include specific required actions, shall be submitted by the responsible party to the director. Submission of this plan in no way relieves the responsible party of liability for any violations occurring before or after receipt of the notice of violation. Nothing in this Section shall limit the authority of the director to take any action, including emergency actions or any other enforcement action, without first issuing a notice of violation.

17.87.150 Consent Orders.

The director is hereby empowered to enter into consent orders, assurances of voluntary compliance, or other similar documents establishing an agreement with any responsible party who is responsible for noncompliance. Such orders will include specific action to be taken by the responsible party. Consent orders shall have the same force and effect as administrative orders issued pursuant to Sections 17.87.250 and 17.87.300, and shall be judicially enforceable.

17.87.200 Show Cause Hearing.

The director may order any responsible party suspected of causing or contributing to violations(s), to appear before the director and show cause why a proposed enforcement action should not be taken. Written notice shall be served on the responsible party, and shall specify the time and place for the hearing, the proposed enforcement action, the reasons for such action, and a request that the responsible party show cause why this enforcement action should not be taken. The notice shall be served in person on any authorized representative of the responsible party, or by certified mail, return receipt requested, at least seven (7) days prior to the hearing. Whether or not the responsible party appears as ordered, immediate enforcement action may be pursued following the hearing date. A show cause hearing shall not be a prerequisite for taking any other actions against the responsible party.

17.87.250 Compliance Orders.

When the director finds a violation or continuing violation, he may issue an order to the responsible party directing that the responsible party come into compliance within thirty (30) days, or such shorter period as the director may determine. If the responsible party does not come into compliance within the time specified, the director may take any remedial action authorized by this ordinance. The issuance of an order pursuant to this Section shall not be a prerequisite to emergency remedial action deemed necessary by the director. Compliance orders may also contain other requirements to address noncompliance, including additional self-monitoring, and BMPs designed to minimize the amount of

pollutants discharged to the storm water sewer system. A compliance order may not extend a federal standard or requirement, nor does a compliance order release the responsible party from State or federal liability for any violation, including any continuing violation. Issuance of a compliance order shall not be a prerequisite to taking any other action against the responsible party.

17.87.300 Cease and Desist Orders.

When the director finds a violation, or finds that the responsible party's past violations are likely to recur, the director may issue an order to the responsible party directing it to cease and desist all such violations and directing the responsible party to:

A. Immediately comply with all requirements; and

B. Take such appropriate remedial or preventive action as may be needed to properly address a continuing or threatened violation, including halting operations, implementing additional BMPs, and/or terminating the discharge. Issuance of a cease and desist order shall not be a prerequisite to taking any other action against the responsible party.

17.87.350 Administrative Fines; Costs of Remediation.

A. Notwithstanding any other Section of this ordinance, any responsible party determined to be in violation of this ordinance may be fined in an amount not greater than ten thousand dollars (\$10,000) per violation, per day, as determined by the director in his reasonable discretion; provided, however, that a any fine based on a violation of Section 17.84.900 shall not exceed the fine imposed for a class B misdemeanor.

B. The director may charge a responsible party for the costs of preparing administrative enforcement actions, such as notices and orders, which charge may be assessed whether or not a fine under subsection (A) of this Section is also imposed.

C. The director may also charge a responsible party for the actual costs and expenses incurred by the city to respond to any discharge, regardless of whether such discharge occurs prior to or after the effective date of this ordinance and all remedial action taken. Such charges may include all labor, equipment and materials used by the city.

D. Assessments for fines and/or costs may be added to the responsible party's next scheduled storm water utility service charge, and the director shall have such other collection remedies as may be available for other service charges and fees.

E. Unpaid charges, fines, assessments and penalties shall, after sixty (60) calendar days, be assessed an additional penalty of ten percent (10%) of the

unpaid balance. Thereafter, interest on any unpaid balances, including penalties, shall accrue at a rate of one percent (1%) per month. A lien against the responsible party's property may be sought for unpaid charges, fines, and penalties.

F. Responsible parties desiring to dispute such fines or assessments must file a written request for the director to reconsider the fine or assessment, along with full payment thereof, within thirty (30) days after being notified of the fine or assessment. The director shall convene a hearing on the matter within fourteen (14) days after receiving the request from the responsible party. In the event the director determines that all or any portion of the fines, assessments or charges were improper, such amounts paid by the responsible party to the director shall be returned to the responsible party, without interest.

G. The imposition of fines, assessments or other charges shall not be a prerequisite for taking any other action against the responsible party.

17.87.400 Emergency Suspensions.

The director may order the immediate suspension or shutoff of a responsible party's discharge or storm water sewer system access (after informal notice to the responsible party), whenever such suspension or shutoff is necessary in order to stop an actual or threatened discharge which reasonably appears to present or cause a risk of an imminent or substantial:

- a. damage to the storm water sewer system or harm to the receiving waters,
- b. endangerment to the health, safety or welfare of any residents served by the storm water sewer system,
- c. interference with the operation of the storm water sewer system,
- d. violation of the City's UPDES permit, or
- e. endangerment to the environment.

Any responsible party notified of a suspension of its discharge shall immediately stop or eliminate its contribution or discharge. In the event of a responsible party's failure to immediately comply voluntarily with the suspension order, the director may take such steps as deemed necessary, including immediate severance of the storm water sewer system connection, to enforce such order. The director shall allow the responsible party to recommence its discharge when the responsible party has demonstrated to the satisfaction of the director that the period of endangerment has passed, unless the termination proceedings set forth in Section 17.87.450 are initiated against the responsible party. A responsible party that is responsible in whole or in part, for any discharge presenting imminent endangerment, shall submit to the director a detailed written statement

describing the causes of the harmful contribution and the measures taken to prevent any future occurrence, prior to the date of any show cause or termination of discharge hearing under Sections 17.87.200 and 17.87.450. Nothing in the Section shall be interpreted as requiring a hearing prior to any emergency suspension under this Section.

17.87.450 Termination of City Discharge Permit.

Violation by the holder of a city discharge permit of any of the provisions thereof, or of any of the provisions of this ordinance, shall be grounds for termination and revocation of such permit by the director. The permit holder shall be notified of the proposed termination of a discharge permit and be offered an opportunity to show cause under Section 17.87.200 hereof why the proposed action should not be taken.

17.87.500 Injunctive Relief.

Whenever the director finds a violation or continuing violation, the director may petition any court of competent jurisdiction for the issuance of a temporary or permanent injunction, as appropriate, which restrains or compels the specific performance of the discharge permit, order, rule, regulation or other requirement. In addition, the director may recover reasonable attorney fees, court costs, and other expenses of litigation by appropriate legal action against the responsible party for any violation. Such other action as appropriate for legal and/or equitable relief may also be sought by the director. A petition for injunctive relief need not be filed as a prerequisite to taking any other action against a responsible party.

17.87.550 Civil Fine and Cost Pass Through Recovery.

In the event that a responsible party discharges pollutants which causes the city to violate any conditions of its UPDES permit or otherwise violate any applicable law, rule or regulation, and the city is found to be liable for such discharges of pollutants (including civil or administrative fines, penalties or other charges), then the responsible party shall be fully liable to the total amount of such liability (including civil or administrative fines and penalties) incurred by or otherwise assessed against the City, including the administrative costs incurred.

17.87.600 Referral to State of Utah For Action.

The director may refer to the State criminal violations of any discharge permit conditions. The Utah Attorney General's office may offer the county the option of prosecuting the violator. Should the county decline, the State, in its discretion, may initiate appropriate criminal action. The director may assist the Utah Attorney General's office or the county with appropriate support for the action taken.

17.87.650 Performance Bonds.

The director may decline to reissue a city discharge permit to any responsible party which has caused a violation, unless such responsible party first files a satisfactory bond, payable to the director, in a sum not to exceed a value determined by the director to be necessary to achieve consistent compliance.

17.87.700 Liability Insurance.

The director may decline to reissue a city discharge permit to any responsible party which has caused a violation, unless the responsible party first submits proof that it has obtained financial assurances sufficient to restore or repair damage to the storm water sewer system, and indemnify and hold the city harmless from any future violation.

17.87.750 Water Supply Severance.

Whenever the director finds that a person has violated or continues to violate the provisions of this ordinance, or of any discharge permit, or order, rule or regulation issued or promulgated hereunder, water service to the person may be discontinued. Service will only recommence, at the person's expense, after it has satisfactorily demonstrated its ability to comply.

17.87.800 Public Nuisances.

Any violation of this ordinance is hereby declared a public nuisance and shall be corrected or abated as directed by the director. In addition to any other powers granted the director under this ordinance, the director shall be entitled to exercise all of the powers and remedies set forth in the provisions of the Salt Lake City Code governing nuisances, and shall be entitled to reimbursement for any costs incurred in removing, abating or remedying such nuisance.

17.87.850 Contractor Listing.

Responsible parties who have caused or significantly contributed to a violation:

A. Are not eligible to receive a contractual award for the sale of goods or services to the city as long as such violation is continuing and/or any fines hereunder remain unpaid, or remedial action required hereunder remains unperformed; and

B. Existing contracts for the sale of goods or services to the city may be terminated at the discretion of the mayor.

17.87.900 Nonexclusive Remedies.

The provisions of this ordinance are not exclusive remedies. The director reserves the right to take any, all, or any combination of these actions against a noncompliant responsible party. Enforcement of violations will generally be in

accordance with the department's enforcement plan. However, the director reserves the right to take other action against any responsible party when the circumstances warrant. Further, the director is empowered to take more than one enforcement action against any noncompliant responsible party. These actions may be taken concurrently.

17.87.950 Compensatory Actions.

In lieu of enforcement proceedings, penalties and remedies authorized by this ordinance for a violation of a storm water sewer discharge permit or requirement, the director may impose alternative compensatory actions such as storm drain stenciling, watercourse cleanup, and similar community service; or may impose education at the responsible party's expense.

SECTION 20. There are hereby enacted new Section 17.91.100 through 17.91.200, to read as follows:

17.91.100 Severability.

The provisions of this ordinance are hereby declared to be severable. If any provision, clause, sentence, or paragraph of this ordinance, or the application thereof to any person, establishment or circumstance shall be held invalid, such invalidity shall not affect the other provisions or application of this ordinance.

17.91.200 Ultimate Responsibility.

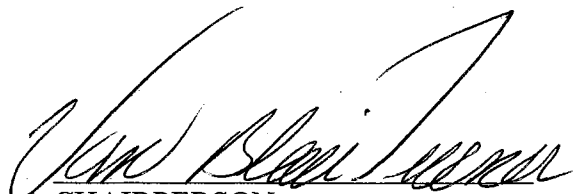
The standards set forth herein and promulgated pursuant to this ordinance are minimum standards; therefore this ordinance does not intend nor imply that compliance by any person will ensure that there will be no contamination, pollution, nor prohibited discharge. Review and approval of structures, facilities, and operating procedures shall not relieve a person from the responsibility of modifying a facility or process as necessary to meet the requirements hereof.

SECTION 21. This ordinance shall take effect immediately upon the date of its first publication.

Passed by the City Council of Salt Lake City, Utah this 14 day of

August, 2007.

APPROVED AS TO FORM
Salt Lake City Attorney's Office
Date 7/25/07
By ERL


CHAIRPERSON

ATTEST:


CHIEF DEPUTY CITY RECORDER

Transmitted to Mayor on August 17, 2007.

Mayor's Action: X Approved. Vetoed.

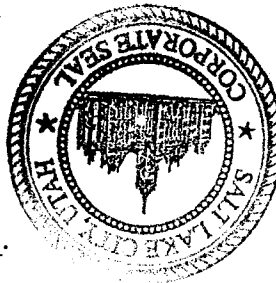

MAYOR


CHIEF DEPUTY CITY RECORDER

(SEAL)

Bill No. 53 of 2007.

Published: 8-24-07



Blank Page

21A.34.130: RCO RIPARIAN CORRIDOR OVERLAY DISTRICT²:

A. General Provisions:

1. Purpose Statement: The purpose of the RCO riparian corridor overlay district is to minimize erosion and stabilize stream banks, improve water quality, preserve fish and wildlife habitat, moderate stream temperatures, reduce potential for flood damage, as well as preserve the natural aesthetic value of streams and wetland areas of the city. This overlay district is intended to provide protection for the following aboveground streams, stream corridors and associated wetlands east of the Interstate 215 Highway: City Creek, Red Butte Creek, Emigration Creek, Parleys Creek, and Jordan River. Where these streams flow through areas already developed on the effective date of this section (January 15, 2008), the RCO is intended to achieve a reasonable balance between the dual nature of these areas: natural streams and developed land uses.
2. District Location: The RCO district applies to that portion of any lot or parcel of land located between the annual high water level (AHWL) of City Creek, Red Butte Creek, Emigration Creek, Parleys Creek and the Jordan River, where not located belowground, and a line which is one hundred feet (100') along a horizontal plane from the AHWL. The RCO district does not apply to any lot or parcel where a stream, with respect to such lot or parcel, is located entirely belowground in a pipe or covered channel.
3. Applicability: The RCO district regulations set forth in this section supplement regulations in the underlying base zoning district. RCO regulations shall govern any use or development conducted within the RCO district unless specifically exempted under the provisions of this section or another provision of this title.
 - a. An RCO permit is supplementary to any land use permit authorized under this title.
 - b. Canals and irrigation ditches are not subject to this section.
 - c. The surplus canal and watercourses west of Interstate 215 are regulated under section [21A.34.050](#), "LC Lowland Conservancy Overlay District", of this chapter and are not subject to this section.
4. Relationship To Other Laws: The requirements of the RCO district shall apply in addition to any other applicable federal, state, county, or city law or regulation.
 - a. Any use or development within the RCO district shall conform to applicable provisions of title 20, "Subdivisions", of this code and this title. Compliance with the requirements of this section shall not relieve a landowner from compliance with other applicable provisions of this title except as expressly otherwise set forth in this section.
 - b. If a landowner obtains a permit for a use or development located within the RCO district that is entirely within the jurisdiction of a federal or state government agency

or Salt Lake County, then the landowner shall also apply for a riparian protection permit. If the relevant federal, state, or county agency approves the use or development as in compliance with the agency's requirements, then the city shall issue the riparian protection permit subject to compliance with the federal, state, or county approval and shall not independently review the use or development for compliance with this section.

- c. If any portion of a proposed use or development is outside the jurisdiction of a federal, state, or county agency, then the applicant shall comply with the provisions of this section and shall obtain a riparian protection permit if required under the provisions of this section.
- d. Salt Lake County shall not be required to obtain a riparian protection permit for any county flood control activity authorized by the Utah code within or along a stream in the RCO district. However, Salt Lake County shall obtain a riparian protection permit for any stream restoration and nonflood control development or other use conducted by the county which is located within the RCO district.
- e. Any person who leases federal or state land, or any appurtenant structure or building located within the RCO district shall obtain a riparian protection permit if required under the provisions of this section.
- f. A city department or agency that conducts a use or development within the RCO district shall follow the requirements of this section and obtain a riparian protection permit if required for such use or development.
- g. The department of public utilities shall develop general permits as needed to address routine channel maintenance, possible emergency situations, and similar activities. These general permits shall provide how a particular use or development shall be conducted to avoid adverse stream corridor impacts and shall include required mitigation and restoration measures consistent with the provisions of this section. The process for reviewing and approving a general permit application shall be the same for a public or private person or entity.

B. Decision Making Authority:

- 1. Public Utilities Director: The public utilities director shall be responsible for implementing and administering the provisions of this section. The public utilities director:
 - a. May authorize a minor exemption and reasonable use exception to the provisions of this section as set forth, respectively, in subsections C5 and C6 of this section;
 - b. May render an administrative interpretation of any provision in this section pursuant to the procedures set forth in chapter 21A.12 of this title;
 - c. May not make any decision involving land use, zoning, subdivision, legal conformity in a zoning district, historic preservation, restoration, rehabilitation, or demolition of any structure except as expressly set forth in this section;

- d. Shall expedite the permit review process if an applicant reasonably demonstrates imminent danger to individuals or property is associated with the subject land;
- e. May adopt reasonable regulations, including approval of general permits, to implement the provisions of this section; and
- f. May designate one or more staff persons within the department to carry out these responsibilities. Wherever this section refers to the director, such reference shall also include the director's designee.

2. Public Utilities Advisory Committee: Pursuant to the authority granted in subsection [2.40.110](#) of this code, the public utility advisory committee shall hear and decide any appeal arising from a final decision granting or denying a riparian protection permit pursuant to procedures set forth in chapter 21A.16 of this title.

3. Appeal Of Decision: Any person adversely affected by any decision of the public utilities advisory committee may, within thirty (30) days after the decision is made, present to the district court a petition specifying the grounds on which the person was adversely affected.

C. Review Process And Procedures: An application for a riparian protection permit shall be considered and processed as set forth in this subsection.

1. Riparian Protection Permit Application: A complete application shall be submitted to the department of public utilities and shall contain at least the following information submitted by the applicant, unless certain information is determined by the public utilities director to be inapplicable or unnecessary to evaluate the application under the provisions of this section. The public utilities director may determine, consistent with the requirements of this section, other application matters such as the scale, quality, and details shown on maps and plans, and the number of application copies required for submittal.

- a. The applicant's name, address, telephone number and interest in the land;
- b. The landowner's name, address and telephone number, if different than the applicant, and the owner's signed consent to the filing of the application;
- c. The street address and legal description of the subject land;
- d. The zoning classification, boundaries of base and overlay zoning districts, and present use of the subject land;
- e. A complete description of the use or development for which a riparian protection permit is requested;
- f. Plan view and cross sections of the site which show:
 - (1) The riparian corridor boundary with respect to the subject land;

- (2) The annual high water line and each setback line from the AHWL (area A, 25 feet; area B, 50 feet; and area C, 100 feet), elevation, and slope;
 - (3) The location and setback of existing and proposed buildings and structures;
 - (4) Existing and proposed grades;
 - (5) Any nonnative or invasive vegetation identified by location, type, and size, including any area where invasive vegetation is proposed for removal;
 - (6) 100-year floodplain, past flood hazard areas, geological faults, high liquefaction areas, and slopes thirty percent (30%) or greater;
 - (7) Habitat of any known threatened or endangered species of aquatic and terrestrial flora or fauna, if required by the public utilities director;
 - (8) If wetlands exist on the subject land, a wetlands delineation approved by the U.S. army corps of engineers; and
 - (9) Such other and further information or documentation as the public utilities director may reasonably deem necessary for proper consideration of a particular application, including, but not limited to, geotechnical and hydrological reports required under subsection E8 of this section.
2. Riparian Corridor Delineation: The riparian corridor shall be delineated at the annual high water level.
 - a. When the annual high water level cannot be found, the top of the channel bank may be substituted if approved by the public utilities director.
 - b. A boundary location or delineation required under this section shall be prepared by a licensed professional hydraulic engineer, hydrologist, wetlands scientist, fluvial geomorphologist, another equivalent qualified environmental science professional, or the public utilities department.
 - c. Any wetland delineation within a stream corridor shall be approved by the U.S. army corps of engineers prior to submittal of the delineation to the public utilities director.
 - d. If a wetland exists within and extends beyond the one hundred feet (100') of the riparian corridor, the outermost edge of the wetland shall be the outer edge of the riparian corridor.
3. Determination Of Completeness: Upon receipt of an application for a riparian protection permit, the public utilities director shall make a determination of completeness of the application pursuant to section [21A.10.010](#) of this title.
4. Notice Of Applications For Additional Approvals: Whenever in connection with an application for a riparian protection permit, an applicant is requesting another type of approval, such as a building permit, subdivision, conditional use permit, variance,

special exception, or change in zoning or land use, each required notice shall include a reference to all other requested approvals.

5. Minor Exceptions Authorized: Minor exceptions to the provisions of this section may be approved by the public utilities director as provided in this subsection. A minor exception may not authorize an exception to a prohibited land use.

a. Criteria: A minor exception shall be approved only if the public utilities director finds the exception:

- (1) Is of a technical nature (i.e., relief from a dimensional or design standard);
- (2) Will not authorize a deviation of more than ten percent (10%) from an otherwise applicable numerical standard;
- (3) Is required to compensate for some unusual aspect of the site or proposed use or development generally not shared by landowners in the vicinity;
- (4) Supports a goal or objective consistent with any RCO master plan as may be adopted, subsequent restoration efforts, or the purpose of this section;
- (5) Will protect sensitive natural resources or better integrate development with the riparian environment;
- (6) Will avoid filling, grading, and construction of retaining walls; and
- (7) Is not likely to:
 - (A) Interfere with the use and enjoyment of adjacent land;
 - (B) Create a danger to public health or safety, particularly from flooding or erosion damage;
 - (C) Change stream bank stability or increase the likelihood of erosion; or
 - (D) Affect water quality.

b. Conditions May Be Required: In granting a minor exception, the public utilities director may attach any conditions necessary to meet the intent of this section. Any performance bond required by such conditions shall be administered as provided in this title and any other applicable provision of this code.

c. Time Limit: The public utilities director shall prescribe a time limit within which action under the minor exception shall begin. Failure to begin such action within the established time limit shall void the minor exception.

d. Burden Of Proof: The applicant shall have the burden of providing evidence to support a minor exception request.

6. Reasonable Use Exception: If a landowner believes application of the provisions of this section would deny all reasonable economic use of the owner's lot or parcel of

land, the owner may request a reasonable use exception pursuant to this subsection. A request for a reasonable use exception shall be made to the public utilities director and shall include basis for the owner's reasonable use exception request and any information set forth in [title 2, chapter 2.66](#) of this code which the public utilities director deems relevant to the request.

a. Criteria: The public utilities director shall approve a request for a reasonable use exception when all of the following criteria are met:

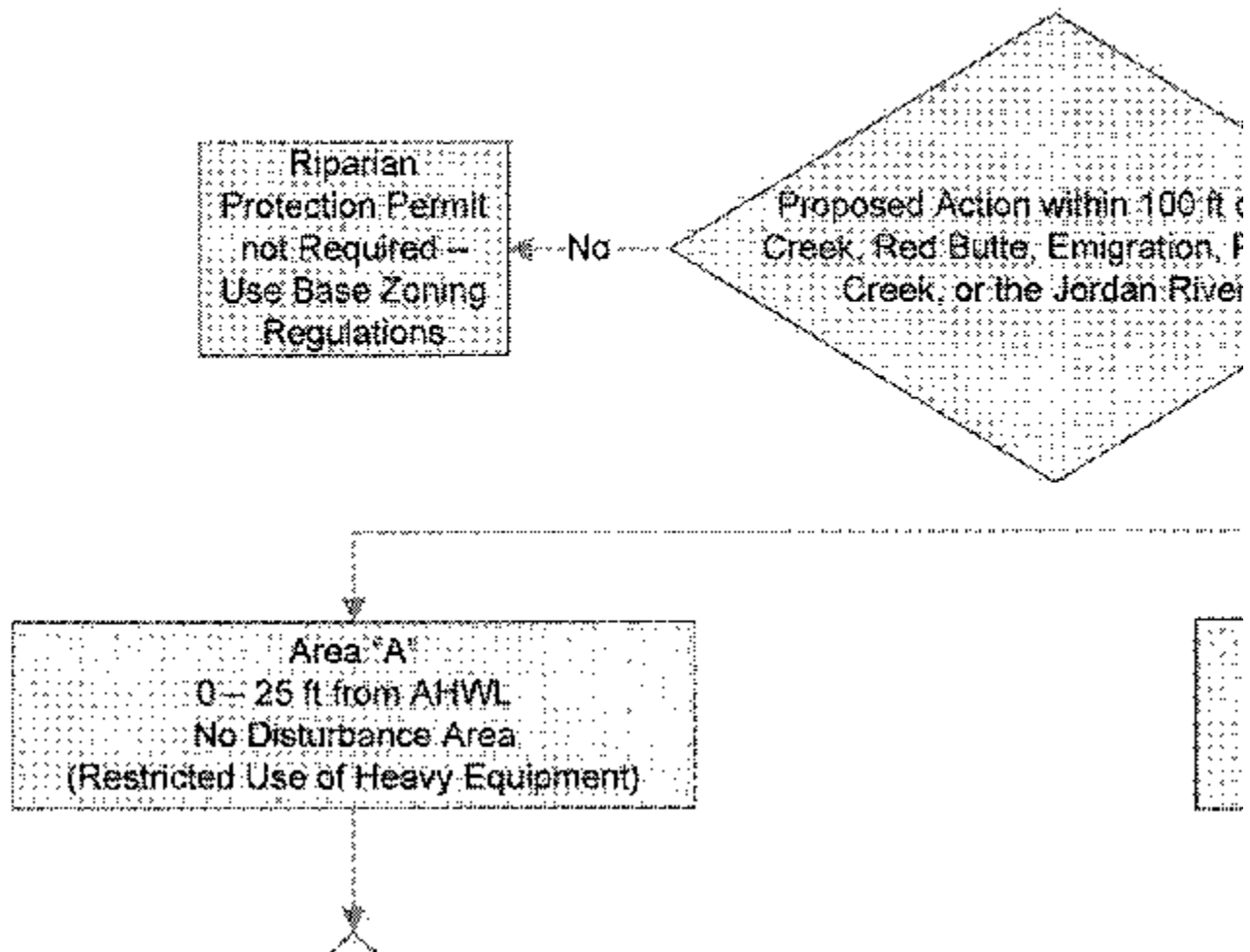
- (1) The application of the provisions of this section would deny all reasonable economic use of the land;
- (2) No other reasonable economic use of the land would have less impact on the riparian corridor area;
- (3) The impact to the riparian corridor area resulting from granting the reasonable economic use request is the minimum necessary to allow for reasonable economic use of the land;
- (4) The inability of the applicant to derive reasonable economic use of the land is not the result of actions by the applicant or the applicant's predecessor;
- (5) The reasonable economic use exception mitigates the loss of riparian corridor area functions to the extent reasonably feasible under the facts of the application; and
- (6) The reasonable economic use exception only authorizes a permitted or conditional use authorized by the underlying district and conforms to other applicable requirements of this title to the extent reasonably feasible under the facts of the application.

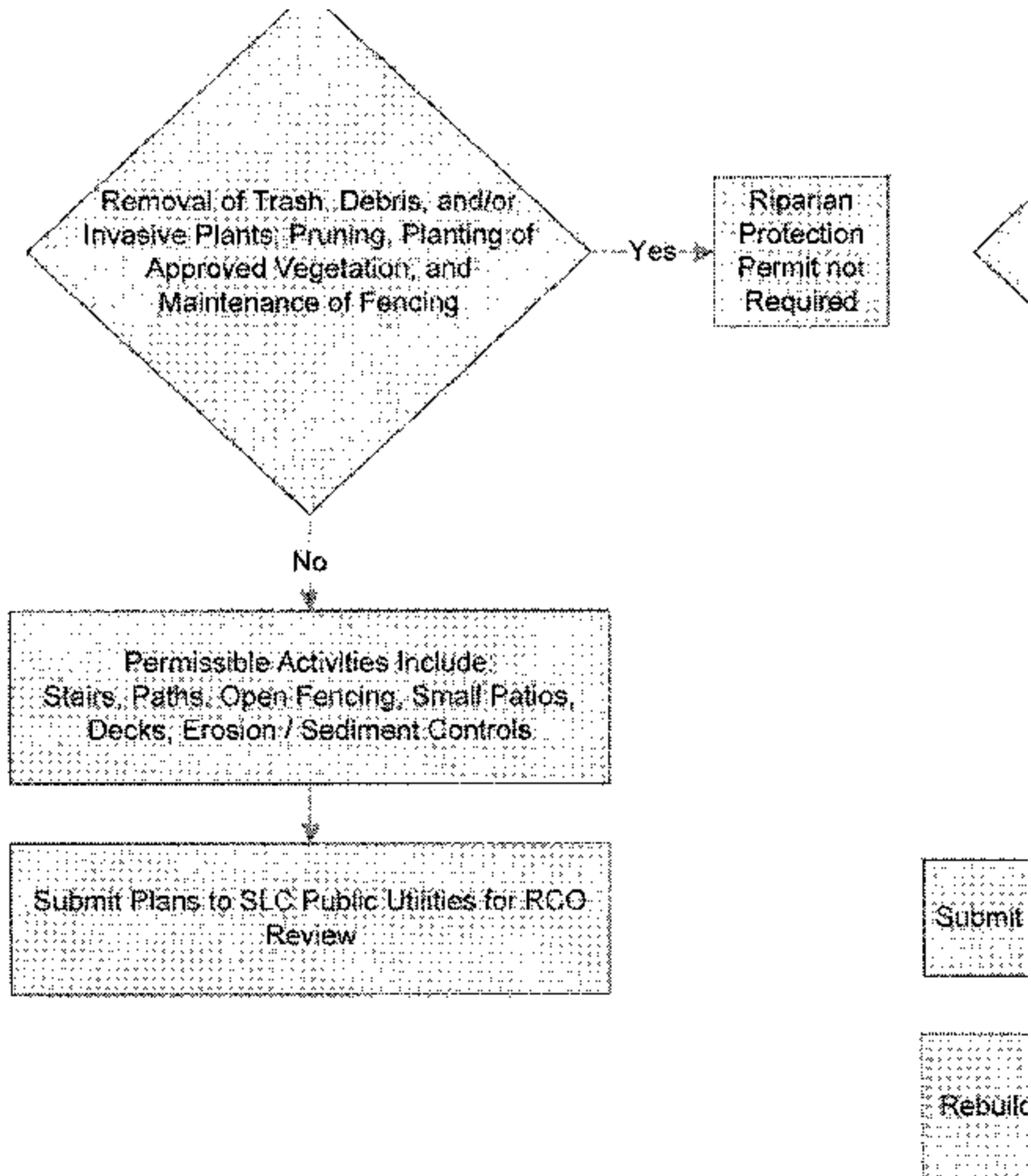
b. Burden Of Proof: The applicant shall have the burden of providing evidence to support a reasonable economic use exception request.

7. Action By Public Utilities Director: Following review of a complete application for a riparian protection permit, and any request for a minor exception or reasonable use exception, the director shall, pursuant to provisions of this section: a) approve the permit; b) approve the permit subject to specific modifications; or c) deny the permit. A riparian protection permit for the proposed use or development shall be approved if the public utilities director determines such action is in accord with the provisions of this section and meets the following criteria:

- a. Construction associated with the use or development is not reasonably anticipated to result in the discharge of sediment or soil into any storm drain, wetland, water body, or onto an adjacent lot or parcel; and
- b. Except as otherwise required under a reasonable use exception, the proposed use or development:

- (1) Will result in equal or better protection for the riparian corridor area, considering the provisions of this section, as reasonably determined by the public utilities director; and
 - (2) Will not occupy more than fifty percent (50%) of the total area within areas A and B described in subsection D2 of this section.
8. Appeal Of Decision: Any person adversely affected by a final decision of the public utilities director may within thirty (30) days after such decision appeal to the public utility advisory committee as provided in subsection B2 of this section.
9. Application Process Flow Chart: The riparian corridor permit application process is conceptually illustrated in table [21A.34.130-1](#) of this subsection C9. The provisions of this section shall prevail over any conflict with the flow chart.





D. Permitted Uses:

1. In General: No person shall engage in any ground disturbing use or development on a lot or parcel that will remove, fill, dredge, clear, destroy, armor, terrace, or otherwise

alter the RCO district through manipulation of soil or other material except as allowed by:

- a. This section and, where required by this section, the public utilities director; or
 - b. The U.S. army corps of engineers, Salt Lake County flood control, the Utah state engineer, or any other government agency with jurisdiction over land in the RCO district to the extent provided in subsection A4 of this section.
2. Permitted Use Areas; Developed Land: The following use areas are hereby established for developed lots or parcels within the RCO district as shown on illustration A of this subsection:
- a. Area A: A "no disturbance area" located between the annual high water line and twenty five feet (25') from the AHWL;
 - b. Area B: A "structure limit area" located between twenty five (25) and fifty feet (50') from the AHWL; and
 - c. Area C: A "buffer transition area" located between fifty (50) and one hundred feet (100') from the AHWL.

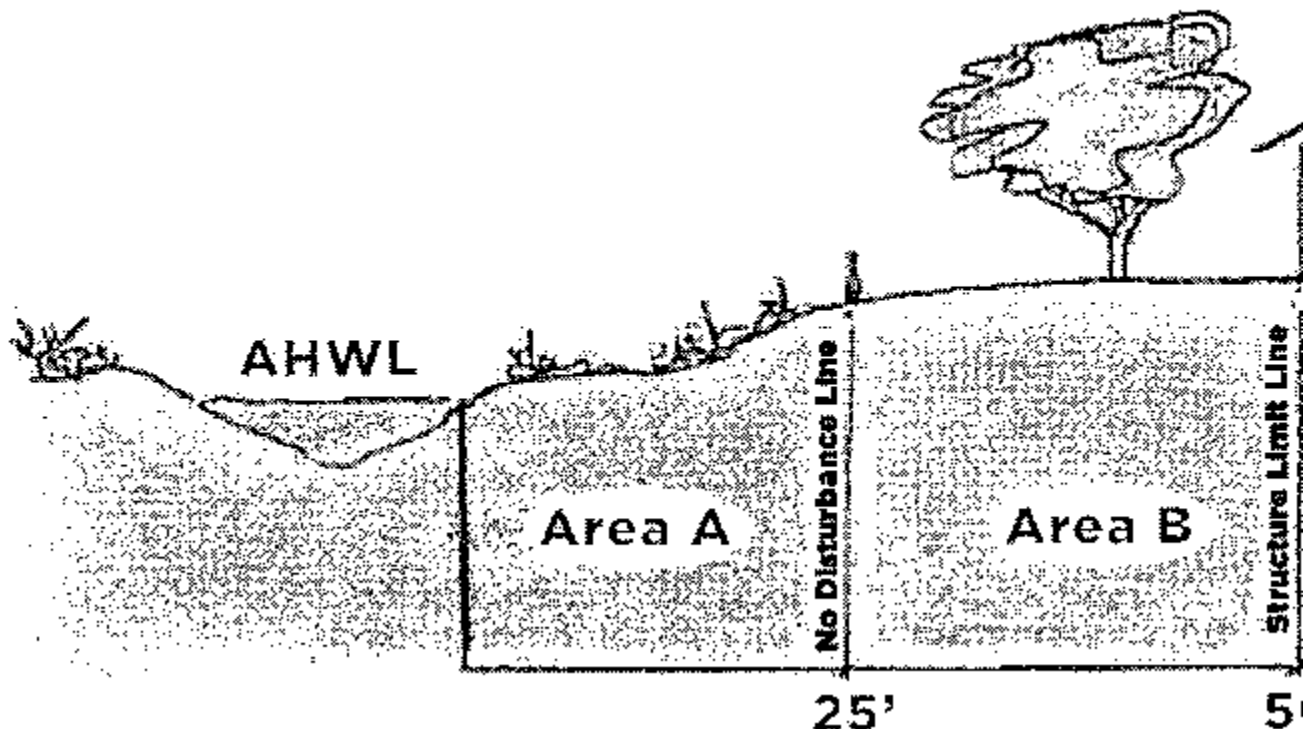


Illustration A
100 Foot Riparian Corridor

3. Permitted Use Area; Undeveloped Land: On a one acre or larger undeveloped lot or parcel within the RCO district, area A, the "no disturbance area" described above, shall be extended to one hundred feet (100') from the AHWL.
4. Permitted Use Table; Developed Land: Permitted uses allowed on a developed lot or parcel within the RCO district are shown on table [21A.34.130-2](#) of this subsection D4. Uses allowed by right are indicated by the letter "P"; uses which require a riparian protection permit are indicated by the letters "RPP"; and prohibited uses are indicated by a blank space.
 - a. Any use or development not shown on this table shall be prohibited unless authorized by a provision of this section or another applicable provision of this title.
 - b. Table 21A.34.130-2 of this subsection D4 is a summary of the provisions in this subsection D. The text of this section shall control over anything contrary shown on the table.

TABLE [21A.34.130-2](#)

USES ALLOWED BY AREA ON DEVELOPED LOTS

Use	Area A	Area B	Area C	Comments
Maintenance and use of any lawfully established use, development, or structure existing on January 15, 2008; any use, development, or structure established thereafter shall be authorized only as provided in this section	P	P	P	See subsection D6 of this section
Any action not constituting development or a ground disturbing activity except as otherwise set forth on this table	P	P	P	
Maintenance of existing lawn and garden areas	P	P	P	
Herbicide, pesticide and fertilizer application in accordance with best management practices	P	P	P	
Replanting noninvasive vegetation	P	P	P	
Maintenance tree pruning	P	P	P	

Minor ground disturbing activity	RPP	P	P	See subsections D7 and E1b of this section
Manual removal of trash, storm debris, and fallen, dead, or diseased trees	P	P	P	
Invasive plant removal	P	P	P	
Planting noninvasive vegetation	P	P	P	
Maintenance of existing fence or structure	P	P	P	
Pruning or tree removal within utility easement by responsible entity	P	P	P	
Tree removal and replacement	P	P	P	Permitted with some exceptions; see subsection E4 of this section
Activities approved by U.S. army corps of engineers or state engineer	P	P	P	See subsection D7g of this section
Open fence, new	P	P	P	See subsections D8 and E1b of this section
Open patio/deck	RPP	P	P	
Minimal grading		P	P	See subsection D8 of this section
Compost from yard debris		P	P	
Mechanized removal of fallen, dead, or diseased trees		P	P	
Use or development allowed by underlying district			P	See subsection D9 of this section
Commercial parking lot				Not permitted; see subsection D9 of this section
Leach field, stormwater retention pond, and detention basin				
Public utilities work	RPP/P	RPP/P	RPP/P	See subsection D11 of this section
	RPP	P	P	See subsection E1 of this section,

New construction or maintenance of access stairs, landscape walls, and paths				particularly subsection E1b of this section for permitted new construction
Low impact stream crossing	RPP			
Maintenance of existing irrigation and flood control devices	P	RPP	RPP	
Installation and maintenance of erosion control devices	RPP	RPP	RPP	
Building replacement and expansion	RPP	RPP	P	See subsection E2 of this section
Removal of debris or trees with heavy equipment	RPP	RPP	RPP	See subsections E3 and E4 of this section
Trail on publicly owned right of way	RPP	RPP	P	See subsection E9 of this section

5. Permitted Use Table; Undeveloped Land: Permitted uses allowed on an undeveloped lot or parcel within the RCO district are shown on table [21A.34.130-3](#) of this subsection D5. Uses allowed by right are indicated by the letter "P"; uses which require a riparian protection permit are indicated by the letters "RPP"; and prohibited uses are indicated by a blank space.

- a. Any use or development not shown on this table shall be prohibited unless authorized by a provision of this section or another applicable provision of this title.
- b. Table 21A.34.130-3 of this subsection D5 is a summary of the provisions in this subsection D. The text of this section shall control over anything contrary shown on the table.

TABLE 21A.34.130-3
USES ALLOWED ON UNDEVELOPED LAND

Use	Area A (100 Foot Setback Area)	Comments
Maintenance and use of any lawfully established structure or use existing on January 15, 2008; any use, development, or structure established	P	See subsection D6 of this section

thereafter shall be authorized only as provided in this section

Any action not constituting development or a ground disturbing activity except as otherwise set forth on this table

P

Maintenance of existing lawn and garden areas

P

Herbicide, pesticide and fertilizer application in accordance with best management practices

P

Replanting noninvasive vegetation

P

Maintenance tree pruning

P

Minor ground disturbing activity

P

See subsections D7, E1b and E4 of this section

Manual removal of trash, storm debris, and fallen, dead, or diseased trees

P

Pruning or tree removal within utility easement by responsible entity

P

Tree removal or replacement

P

Invasive plant removal

P

Planting noninvasive vegetation

P

Maintenance of existing fence or structure

P

Activities approved by U.S. army corps of engineers or state engineer

P

See subsection D7g of this section

Commercial parking lot

Not permitted; see subsection D9 of this section

Leach field, stormwater retention pond, and detention basin

Public utilities work

RPP/P

See subsection D11 of this section

Trail on publicly owned right of way

RPP

See subsection E9 of this section

6. Uses Allowed By Right On Developed Land; All Areas: The following uses may be conducted on a lot or parcel within area A, B, or C without a riparian protection permit:

- a. Maintenance and use of any lawfully established structure or use existing on January 15, 2008; any use, development, or structure established thereafter shall be authorized only as provided in this section;
 - b. Maintenance of lawns and gardens, including benches and pathways;
 - c. Application of herbicide, pesticide, and fertilizer, subject to applicable state and federal regulations and in accordance with best management practices identified by the department of public utilities;
 - d. Replanting of vegetation with noninvasive species identified by the public utilities director;
 - e. Maintenance pruning of existing trees; and
 - f. Any other activity which is not a development or other ground disturbing activity.
7. Uses Allowed By Right On Developed Or Undeveloped Land; Area A: The following minor ground disturbing activities shall be allowed by right in a residential district on a developed or undeveloped lot or parcel within area A without a riparian protection permit:
- a. Manual removal of trash, storm debris, and fallen, diseased, or dead trees or other vegetation by the landowner;
 - b. Pruning or removal of trees within a utility easement by the responsible entity;
 - c. Tree removal and replacement as provided in subsection E4 of this section;
 - d. Removal of invasive plants;
 - e. Planting of noninvasive vegetation shown on a list of approved and prohibited vegetation within riparian protection areas published by the department of public utilities and/or the urban forester;
 - f. Maintenance of an existing fence or structure within the original footprint if:
 - (1) Further stream bank armoring is not required; and
 - (2) Soil is not unstable due to steep slope movement; and
 - g. Construction activities approved by the U.S. army corps of engineers under the federal clean water act or the river and harbors act, or by the Utah state engineer under the stream alteration permit program as set forth in subsection A4 of this section.
8. Uses Allowed By Right On Developed Land; Area B: Uses allowed within area B on a developed lot or parcel without a riparian protection permit include:
- a. Any use described in subsection D4 of this section;

- b. Open fencing approved under a general permit promulgated by the public utilities director;
 - c. Construction of open patios which do not involve an existing grade change of more than two feet (2') and decks which are not higher than two feet (2') above grade;
 - d. Minimal grading;
 - e. Compost from yard debris; and
 - f. Mechanized removal of fallen, dead, or diseased trees as provided in subsection E4 of this section.
9. Uses Allowed By Right On Developed Land; Area C: Uses allowed within area C on a developed lot or parcel without a riparian protection permit include any use or development allowed by the underlying district or as set forth in subsections D7 and D8, or E1b of this section, except a leach field, stormwater retention pond, detention basin, or commercial parking lot.
10. Uses Allowed By Right On Undeveloped Land: Uses allowed on undeveloped land shall be as authorized by the underlying base zoning district, except within residential districts, the research park district, public lands districts, and the institutional and urban institutional district. Within such districts the following shall apply:
- a. The one hundred foot (100') nondisturbance area requirement as described in subsection D3 of this section; and
 - b. The use and development standards set forth in subsection E of this section.
11. Public Utilities Work: In addition to the uses listed on the foregoing tables, the city may complete work within the RCO district as provided in this subsection.
- a. Emergency Work: Emergency work to protect an immediate threat to life or land is allowed without a riparian protection permit.
 - (1) The city department undertaking the work shall notify the public utilities director of activity within twenty four (24) hours thereafter.
 - (2) Any stream channel or riparian area damaged as a result of city work shall be restored. The department of public utilities shall issue a riparian protection permit for such restoration work and shall inspect and approve the work undertaken.
 - (3) Temporary emergency structures, sandbags, and other emergency related materials shall be removed from the site in a timely manner.
 - b. Other Work: The following work may be undertaken within a riparian corridor protection area subject to the issuance of a riparian protection permit as provided in this subsection:
 - (1) Matters of public safety;

- (2) Work to protect life or property in an emergency;
- (3) Flood control;
- (4) Channel or riparian restoration;
- (5) Maintenance, including storm drainage system, irrigation structures, utility and street work;
- (6) Public utilities projects approved by the department of public utilities, including, but not limited to, new utility or street work; bridge maintenance, repair, replacement, or new construction; public trails, such as bike and pedestrian paths located on publicly owned land;
- (7) Public gathering places such as amphitheaters and gazebos located on publicly owned land;
- (8) Maintenance access roads; and
- (9) Utility service devices such as stormwater lift stations and irrigation structures.

- c. Equipment: Plans submitted for a riparian protection permit shall include a description of equipment to be used for any work proposed. Such equipment shall be sufficiently sized for the task and chosen to minimize any impact to a stream channel and the riparian corridor area.
- d. Construction Design Standards: The department of public utilities shall develop construction design standards applicable to projects approved under this subsection.

E. Use And Development Standards: Other uses and development standards within the RCO district shall be conducted as provided in this subsection and shall be consistent with any RCO master plan as may be adopted.

1. Area A: Development within area A shall conform to the standards set forth in this subsection.

- a. Developed Lot In A Residential District: On a developed lot in a residential district, no new construction shall occur closer than twenty five feet (25') to the annual high water level, except as permitted by this subsection.
- b. Allowed Minor Ground Disturbing Activities: The following activities shall be allowed in a residential district within area A if heavy equipment is not used and as provided by a riparian protection permit:
 - (1) New construction or maintenance of access stairs, landscape walls; and/or paths between vertical levels within area A and no more than one per level in terraced areas;

- (2) An open permeable patio or deck not located within a streambed and constructed in a manner that:
 - (A) Will not impede any high water flow above the AHWL;
 - (B) Does not change existing grade; and
 - (C) Is not greater than one hundred fifty (150) square feet;
 - (3) Low impact stream crossings;
 - (4) Construction of open fences, beyond the AHWL in any area within the RCO district, if approved by the public utilities director or as authorized by a general permit promulgated by the director;
 - (5) Maintenance of existing irrigation and flood control devices; and
 - (6) Installation and maintenance of erosion control devices, approved, if necessary, by the U.S. army corps of engineers, Salt Lake County flood control, the Utah state engineer or any other government authority with jurisdiction. Such erosion controls may include armoring, if, as reasonably determined by the approving authority:
 - (A) The armoring is authorized or required by the public utilities director and/or one or more of the foregoing government authorities;
 - (B) The armoring is necessary to protect the structural integrity of an existing structure on the land or significant loss of land area due to erosion;
 - (C) The landowner has reasonably exhausted less intrusive methods to prevent significant land damage;
 - (D) The armoring is placed only where necessary to prevent significant land damage in the foreseeable future; and
 - (E) The proposed armoring will not negatively impact other adjacent or downstream land.
2. Area B: Replacement, rebuilding, or expansion of a building within areas A and B shall conform to the standards set forth in this subsection.
- a. Replacement Buildings: Replacement or rebuilding of a preexisting structure in area A and/or B shall require a riparian protection permit and is allowed, consistent with

the continuation of nonconforming uses and noncomplying structures as set forth in section [21A.38.050](#) of this title, if:

- (1) The structure replaces a preexisting structure with the same type of structure or a structure of lesser impact pursuant to underlying zoning district standards;
 - (2) No portion of the footprint of the new structure is any nearer to the AHWL than the nearest point of the preexisting structure to the AHWL;
 - (3) The total square footage of the portion of the footprint of the new structure to be located within area A and/or B does not exceed the total square footage of the footprint of the old structure as it was located within area A and/or B;
 - (4) The new structure:
 - (A) Does not require further armoring of the stream bank; and
 - (B) Is not located in any unstable area due to movement of a steep slope, unstable soils, or geological activity along a fault that will not support the structural footprint; and
 - (C) Complies with applicable requirements of the underlying zoning district and any other applicable city regulation except as otherwise set forth in this section.
- b. Building Expansion: Notwithstanding any other provision of this title to the contrary, an existing structure (not including a deck, patio, or similar structure) may be expanded by up to twenty five percent (25%) in area A or B as provided by a riparian protection permit if such expansion does not result in any structure being built closer to the AHWL than any portion of the existing structure.
- (1) The foregoing rule shall also apply to a replacement structure.
 - (2) As a tradeoff for allowing expansion or replacement with a larger structure, the public utilities director shall require, as a condition of the riparian protection permit, that the landowner spend five percent (5%) of the project cost on stream bank restoration or specify a minimum number of linear feet of stream bank that shall be restored based on the size of the expansion and consistent with any RCO master plan as may be adopted and any subsequent restoration project applicable to the entire stream corridor.
3. Use Of Heavy Equipment In Areas A And B: Heavy equipment may be used in areas A and B as provided by a riparian protection permit issued pursuant to standards promulgated by the public utilities director to minimize and mitigate impacts from the use thereof, and subject to any applicable federal, state, and county requirements.
4. Tree Removal And Replacement: Trees located in area A, B, or C which are fallen, diseased, or dead, or which are less than two inches (2") in caliper, may be removed

without a riparian protection permit so long as replacement trees are planted in the same area.

a. Trees which are removed shall be replaced as follows:

- (1) For trees six inches (6") in caliper or less: One to one (1:1);
- (2) For trees six (6) to eight inches (8") in caliper: Two to one (2:1); and
- (3) For trees eight inches (8") or greater in caliper: Three to one (3:1).
- (4) Any replacement tree which does not survive for at least one year shall be replaced again.

b. Removal of live trees is prohibited without approval from the public utilities director. In determining whether a live tree should be removed, the director shall consult with the zoning administrator and the urban forester.

c. Replacement trees shall be an approved species and size shown on the list of approved and prohibited vegetation within riparian protection areas published by department of public utilities and/or the urban forester and shall have the following minimum size:

- (1) Deciduous trees shall have a minimum trunk size of two inches (2") in caliper, and
- (2) Evergreen trees shall have a minimum size of five feet (5') in height.

d. Any tree which is more than two inches (2") in caliper shall not be removed unless authorized by a riparian protection permit.

e. The director may promulgate a general permit for tree stump removal in any area within the RCO district. Removal of any tree stump located within twenty five feet (25') of the annual high water line shall be approved by the urban forester.

5. Development On Undeveloped Residential Lots Or Parcels: Development on an undeveloped residential lot or parcel which is one acre or larger and located within area A, B, or C shall meet the requirements of this subsection.

a. The no disturbance setback for such lots shall be increased to one hundred feet (100').

- (1) If the depth of the lot or parcel is less than two hundred feet (200'), then the setback shall be reduced by the ratio of the actual lot depth to two hundred feet (200').

- (2) The development potential (density) located within area B and C may be transferred to the balance of the subject lot or parcel and the minimum lot size in the zoning district may be reduced by the zoning administrator, on advice and consultation with the public utilities director, to accommodate such additional

density. In the alternative, the development potential (density) may be applied to an adjacent lot or parcel within the control or ownership of the applicant.

- b. When a new structure is proposed to be constructed on a lot or parcel with a reduced setback as a result of this subsection, the zoning administrator, on advice and consultation with the public utilities director, may reduce required front and side yard setbacks by a factor of twenty five percent (25%); provided, however, that the setback shall not be reduced by more than the ratio calculated under subsection E5a (2) of this section.
 - c. In all cases the minimum nondisturbance setback shall be at least fifty feet (50').
6. Development In Nonresidential Districts: A required setback on a lot or parcel located in a nonresidential district may be reduced to allow development within twenty five feet (25') of a stream if the stream is daylighted as provided in subsection E7 of this section.
7. Incentives For Stream Bank Restoration Or Daylighting In Nonresidential Districts: Any applicant for a project that daylights a stream or completes a city approved stream bank restoration program for at least fifty feet (50') along a stream in a riparian corridor shall be allowed to build within twenty five feet (25') of the AHWL, subject to a riparian protection permit approved by the public utilities director, so long as the applicant:
- a. Incorporates best practice stormwater management facilities to reduce water pollution as specified by the public utilities director;
 - b. Agrees to monitor and control trash, litter, and other pollutants along the stream; and
 - c. Installs an amenity in the corridor such as a plaza, benches, trail, and/or sidewalk that is open to and accessible by the public.
8. Steep Slope And Soil Stability Standards: As part of a riparian protection permit, the public utilities director may require a geotechnical report and impose greater setbacks for structures or buildings from the structure limit line to ensure safety. When unstable soils are suspected, regardless of the slope, the public utilities director may require a geotechnical report, increase the no disturbance line, and impose greater setbacks for a structure or building from the structure limit line to ensure safety.
- a. Replacement or repair of an existing retaining structure shall require a riparian protection permit.
 - b. Each proposed project shall be reviewed on an individual basis.
9. Trails: Trails may be established along a publicly owned right of way within any area located in the RCO district.
- a. A riparian protection permit shall be required for a trail located in area A.
 - b. Public access to private land adjoining a stream channel shall be prohibited unless authorized by the landowner or pursuant to an access easement.

F. Definitions: For the purpose of this section the following words and terms shall be defined as set forth below and shall apply in addition to the terms defined in chapter 21A.62 of this title:

ANNUAL HIGH WATER LEVEL (AHWL): The average (mean) elevation of City Creek, Red Butte Creek, Emigration Creek, Parleys Creek, and the Jordan River occurring during a calendar year as indicated by fresh silt or sand deposits, the presence of litter and debris, or other characteristics indicative of a high water level.

ARMORING: Material such as rock, concrete or stone filled gabion baskets placed along a stream bank to prevent erosion.

BANK: The confining sides of a natural stream channel, including the adjacent complex that provides stability, erosion resistance, and aquatic habitat.

BEST MANAGEMENT PRACTICES (Also Known As BMPs): The utilization of methods, techniques, or products demonstrated to be the most effective and reliable in minimizing adverse impacts on water bodies and the adjacent stream corridors.

CHANNEL: The bed and banks of a natural stream or river.

DAYLIGHTING: Restoring a piped drainage system to an open, natural condition.

DEVELOPMENT: The carrying out of any building activity, the making of any material change in the use or appearance of any structure or land, or the dividing of land into parcels by any person. The following activities or uses shall be taken for the purposes of these regulations to involve "development":

1. The construction of any principal building or structure;
2. Increase in the intensity of use of land, such as an increase in the number of dwelling units or an increase in nonresidential use intensity that requires additional parking;
3. Alteration of a shore or bank of a creek, pond, river, stream, lake or other waterway;
4. Commencement of drilling (except to obtain soil samples), the driving of piles, or excavation on a parcel of land;
5. Demolition of a structure;

6. Clearing of land as an adjunct of construction, including clearing or removal of vegetation and including any significant disturbance of vegetation or soil manipulation;
7. Deposit of refuse, solid or liquid waste, or fill on a parcel of land; and
8. For the purpose of this section, any ground disturbing activity.

The following operations or uses shall not be taken for the purpose of these regulations to involve "development":

1. Work by a highway or road agency or railroad company for the maintenance of a road or railroad track, if the work is carried out on land within the boundaries of the right of way;
2. Utility installations as stated in subsection [21A.02.050B](#) of this title;
3. Landscaping for residential uses; and
4. Work involving the maintenance of existing landscaped areas and existing rights of way such as setbacks and other planting areas.

EROSION: The process by which a ground surface is worn away by wind, water, ice, gravity, artificial means, or land disturbance.

EROSION CONTROL: A construction method, structure, or other measure undertaken to limit the detachment or movement of soil, rock fragments, or vegetation by water, wind, ice, and/or gravity.

FLOOD HAZARD AREA: An area with a high flood potential as determined by the federal emergency management agency.

FLOODPLAIN: The area likely to be inundated by water when the flow within a stream channel exceeds bank full discharge stage.

FOOTPRINT: The area under a structure at ground or grade level.

GENERAL PERMIT: A permit for a category of uses with similar characteristics authorized by the public utilities director.

GRADING: Any act by which soil is cleared, stripped, moved, leveled, stockpiled, or

any combination thereof, and includes the conditions that result from that act.

GROUND DISTURBING ACTIVITY: Removing, filling, dredging, clearing, destroying, armoring, terracing or otherwise altering an area through manipulation of soil or other material.

HABITAT: The physical environment utilized by a particular species, or species population.

HEAVY EQUIPMENT: A vehicle or machine designed for construction or earthmoving work including, but not limited to, a backhoe, bulldozer, compactor, crane, dump truck, excavator, front loader, grader, scraper, skid-steer loader, or tractor.

HIGH LIQUEFACTION POTENTIAL: Soil conditions where an earthquake with a fifty percent (50%) probability of occurring within a 100-year period will be strong enough to cause liquefaction.

INVASIVE SPECIES: A usually nonnative species that is highly successful in a new habitat and whose presence is significantly detrimental to native species.

LEACH FIELD: A porous soil area, through which septic tank leach lines run, emptying treated waste.

LIQUEFACTION: The strength and stiffness of saturated soil is reduced by earthquake shaking.

LOW IMPACT STREAM CROSSING: A walkway which does not impede the flow of water in a stream channel during a period of high water flow.

MINIMAL GRADING: Movement of soil with hand tools which does not change the existing elevation by more than one foot (1').

NATIVE VEGETATION: One or more plant species indigenous to a particular area.

NO DISTURBANCE LINE: That line which is located twenty five feet (25') from the AHWL as shown on illustration A of this section.

ONE HUNDRED FOOT BUFFER LINE: That line located one hundred feet (100') from the AHWL as shown on illustration A of this section.

100-YEAR FLOODPLAIN: An area adjoining a river or stream likely to be inundated during a flood having a magnitude expected to be equaled or exceeded once in one hundred (100) years on average.

OPEN FENCE: An artificially constructed barrier that allows light transmission and visibility through at least fifty percent (50%) of the fence.

OPEN PERMEABLE PATIO OR DECK: A patio or deck which does not impede the flow of water in a stream channel during a period of high water flow.

OVERLAY DISTRICT: See section [21A.62.040](#) of this title.

PUBLIC UTILITIES DIRECTOR: The duly appointed individual serving as director of the Salt Lake City department of public utilities.

RIPARIAN AREA: An area including a stream channel or wetland, and the adjacent land where the vegetation complex and microclimate conditions are products of the combined presence and influence of perennial and/or intermittent water, associated high water tables, and soils that exhibit some wetness characteristics.

RIPARIAN CORRIDOR: A one hundred foot (100') wide stream corridor measured from the annual high water level (AHWL) of the adjacent stream or wetland, which has a total width of at least two hundred feet (200') plus the width of the streambed plus any adjacent wetland.

RIPARIAN PROTECTION PERMIT: A permit issued by the public utilities director containing conditions which regulate or prohibit development under the provisions of this section.

RIPARIAN SETBACK: The area between the annual high water level of a stream and a line parallel to the stream which is a defined distance from the AHWL.

STORMWATER DETENTION BASIN: An artificial flow control structure used to contain floodwater for a limited period of time to provide protection for areas downstream during peak periods of rain or melting snow.

STREAM: City Creek, Red Butte Creek, Emigration Creek, Parleys Creek and the Jordan River.

STREAM CORRIDOR: A stream and adjacent land within a defined distance from the stream.

STRUCTURE: Anything constructed or erected with a fixed location on the ground or in/over the water bodies in the city. Structure includes, but is not limited to, buildings, fences, walls, signs, and piers and docks, along with any objects permanently attached to the structure.

STRUCTURE LIMIT LINE: That line which is located fifty feet (50') from the AHWL as shown on illustration A of this section.

UNSTABLE SOIL: Soil on a slope of greater than thirty percent (30%) which is likely to move unless stability measures are undertaken to prevent such movement.

WETLAND: Those areas inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

G. Measurements:

1. All distances noted in this section shall be measured along a horizontal plane from the annual high water level to the applicable riparian boundary line, property line, edge of building or structure, or other point. These distances are not measured by following the topography of the land. Consequently, on steeply sloped topography the measured overground distance may not accurately reflect the distances specified in the permits and conditions specified in this section.
2. When any distance measurement results in a fractional number, the required distance shall be measured to the nearest foot. Any fraction less than one-half foot ($\frac{1}{2}'$) shall be disregarded and fractions of one-half foot ($\frac{1}{2}'$) or larger shall be included in the measurement.
3. When measuring a required minimum distance, the measurement shall be made at the shortest distance between the two (2) points and perpendicular to the riparian setback line. (Ord. 62-08 § 1 (Exh. A), 2008; Ord. 3-08 § 3, 2008)

APPENDIX C – Salt Lake City Stormwater Quality Program Best Management Practices

Salt Lake City Storm Water Quality Best Management Practices

BMP	Description
BMP 1:	Continue with the present schedule of drainage system maintenance. Clean all required portions of the system.
BMP 2:	Inspect all major storm drains and detention basins within the permit cycle.
BMP 3:	Support “Tan Can” yard waste pickup for Salt Lake City residents.
BMP 4:	Support the Neighborhood annual cleanup program for Salt Lake City residents.
BMP 5:	Remove leaves from gutters during the fall leaf season.
BMP 6:	Support the Salt Lake City curbside recycling effort.
BMP 7:	Support scheduled citizen clean-up days of selected waterways.
BMP 8:	Track drainage system maintenance using Cityworks® system.
BMP 9:	Conduct annual training for drainage system maintenance personnel.
BMP 10:	Continue a program for the disposal of sediments from storm drain cleaning.
BMP 11:	Continue requirements for on-site detention for developments.
BMP 12:	Enforce the requirements of Salt Lake City Ordinances
BMP 13:	Provide Standard BMPs for site development to developers and engineers.
BMP 14:	Continue annual review program for private drainage detention facilities.
BMP 15:	Support the existing Salt Lake City Street Sweeping program.
BMP 16:	Review salt pile storm water management.
BMP 17:	Continue procedures for monitoring storm water management on public construction projects.
BMP 18:	Review proposed street projects for applicability of structural BMPs.
BMP 19:	Review all proposed storm water projects for applicability of structural BMPs.
BMP 20:	Review detention basins for feasibility of retrofitting for water quality enhancements.
BMP 21:	Continue education program on the proper use of pesticides and fertilizers.
BMP 22:	Continue SWMP program similar to the pretreatment program.
BMP 23:	Maintain industrial user NAICS/SIC code database.
BMP 24:	Coordinate with POTW pretreatment program.
BMP 25:	Maintain records and database of all illicit connection investigations.
BMP 26:	Review all new developments plans for compliance and illicit connections.
BMP 27:	Promote City-County Health Department Household Hazardous Waste Facility and Collection Days.
BMP 28:	Continue program for investigating illicit flows and connections.
BMP 29:	Implement Memorandum of Understanding (MOU) with City-County Health Department.
BMP 30:	Maintain staff to respond to reports of illicit discharges.
BMP 31:	Promote interagency cooperation concerning illicit flows investigation.
BMP 32:	Pursue prosecutions and court ordered solutions to contamination problems.
BMP 33:	Investigate dry weather flows.
BMP 34:	Continue to implement storm drain spill response plan.
BMP 35:	Maintain a list of certified contractors, suppliers and contracting procedures to respond to containment and cleanup of spilled materials.
BMP 36:	Continue to provide HAZWOPER training to applicable personnel
BMP 37:	Continue to promote program of public reporting of illicit discharges.
BMP 38:	Continue education program for industrial users on oil and toxic materials disposal.
BMP 39:	Continue education for residential users on oil and toxic materials disposal.
BMP 40:	Continue procedure for reporting and investigating possible exfiltration of sanitary sewage to the storm drain system.
BMP 41:	Maintain an industrial user’s database.
BMP 42:	Obtain and review SWPPP prepared by industrial users within the Salt Lake City area.
BMP 43:	Identify and Prioritize industrial and priority commercial groups.
BMP 44:	Staff a position for coordinating storm water pollution prevention.
BMP 45:	Distribute water quality education materials to Industrial and priority commercial facilities.
BMP 46:	Continue a storm water quality-training program for development review personnel.
BMP 47:	Coordinate with Salt Lake County regarding BMP guidance information for construction sites.
BMP 48:	Continue to obtain and review SWPPP prepared by contractors.
BMP 49:	Develop a program to enforce SWPPP.
BMP 50:	For City projects identify erosion control measures as a specific bid item.
BMP 51:	Participate in education training and seminars conducted by the State of Utah and other agencies.

APPENDIX D – Standard Operating Procedures



STANDARD OPERATING PROCEDURES FOR:

Salt Lake City Parks and Public Lands Division

TABLE OF CONTENTS

BUILDINGS – Dumpsters/Garbage Storage	1
BUILDINGS – Parking Lot Maintenance	2
IDDE - Call-in Inspections	3
IDDE - Opportunistic Illicit Discharge Observation	4
IDDE - Outfall Inspections	5
IDDE - Removing Illicit Discharges	6
IDDE - Tracing Illicit Discharges	7
PARKS – Chemical Application Pesticides, Herbicides, Fertilizers	8
PARKS – Cleaning Equipment	9
PARKS – Mowing and Trimming	10
PARKS – Open Space Management	11
PARKS – Pet Waste	12
PARKS – Planting Vegetation (Starters)	13
PARKS – Planting Vegetation (Seeds)	14
PARKS – Transporting Equipment	15
VEHICLES – Fueling	16
VEHICLES – Vehicle and Equipment Storage	17
VEHICLES – Washing	18

BUILDINGS – Dumpsters/Garbage Storage

1. Preparation.
 - a. Train employees on proper trash disposal.
 - b. Locate dumpsters and trash cans in convenient, easily observable areas.
 - c. Provide properly-labeled recycling bins to reduce the amount of garbage disposed.
 - d. Install berms, curbing, or vegetation strips around storage areas to control water entering/leaving storage areas.
 - e. Whenever possible store garbage containers beneath a covered structure or inside to prevent contact with storm water.
2. Process.
 - a. Inspect garbage bins for leaks regularly, and have repairs made immediately by responsible party.
 - b. Request/use dumpsters, and trash cans with lids and without drain holes.
 - c. Locate dumpsters on a flat, hard surface that does not slope or drain directly into the storm drain system.
3. Clean-up.
 - a. Keep areas around dumpsters clean of all garbage.
 - b. Have garbage bins emptied regularly to keep from overfilling.
 - c. Wash out bins or dumpsters as needed to keep odors from becoming a problem.
4. Documentation
 - a. Document training of employees

BUILDINGS – Parking Lot Maintenance

1. Preparation.
 - a. Conduct regular employee training to reinforce proper housekeeping.
 - b. Restrict parking in areas to be swept prior to and during sweeping using regulations as necessary.
 - c. Perform regular maintenance and services in accordance with the recommended vehicle maintenance schedule on sweepers to increase and maintain efficiency.
2. Process.
 - a. Sweep parking areas, as needed, or as directed by the city's responsible official.
 - b. Hand sweep sections of gutter if soil and debris accumulate.
 - c. Pick-up litter as required to keep parking areas clean and orderly.
3. Clean-up.
 - a. Dispose of sweepings properly (appropriate solid waste facility).
 - b. Street sweepers to be cleaned out in a manner as instructed by the manufacturer and in a location that swept materials cannot be introduced into a stormdrain.
 - c. Swept materials will not be stored in locations where storm water could transport fines into the stormdrain system.
4. Documentation.
 - a. Keep accurate logs to track swept parking areas and approximate quantities.
 - b. Document training of employees.

IDDE - Call-in Inspections

1. Preparation
 - a. Have a system in place to receive phone calls and collect information regarding suspected illicit discharges.
2. Process
 - a. Use the Incident Tracking Sheet to collect the appropriate information from the caller. Then, transfer the Incident Tracking Sheet to the proper authority (ie. department head, stormwater specialist, construction inspector, code enforcement officer, or other assigned personnel).
 - b. Promptly investigate reported incidents.
 - c. If an illicit discharge of unknown source is confirmed, follow the procedure of SOP IDDE - Tracing Illicit Discharges.
 - d. If an illicit discharge known source is confirmed, follow the procedure of SOP IDDE - Removing Illicit Discharges.
3. Clean up
 - a. Clean catch basin, clean storm drain, or initiate spill response, as applicable. Follow relevant SOPs.
4. Documentation
 - a. File all completed forms (ie. incident tracking, catch basins cleaning, storm drain cleaning).
 - b. Document any further action taken.
 - c. Review incidents reported by citizens on an annual basis to look for patterns of illicit discharges and to evaluate the call-in inspection program.

IDDE - Opportunistic Illicit Discharge Observation

1. Preparation
 - a. Be alert for potential illicit discharges to the municipal storm water system while going about normal work activities.
2. Process
 - a. Call the appropriate authority (ie. department head, stormwater specialist, construction inspector, code enforcement officer or a supervisor) if you see evidence of an illicit discharge.
 - b. Assess the general area of the illicit discharge to see if you can identify its source.
 - c. Whenever possible, take photographs of the suspected illicit discharge.
 - d. Responding stormwater department personnel or code enforcement officer will complete the following:
 1. Use the IDDE Incident Tracking Sheet to document observations.
 2. Obtain sample for visual observation and complete an Outfall Inspection Form, if applicable.
 3. Follow the procedure of SOP IDDE - Tracing Illicit Discharges.
3. Clean-up
 - a. Clean catch basin, clean storm drain, or initiate spill response, as needed. Follow relevant SOPs.
4. Documentation
 - a. File all completed forms (ie. Incident Tracking Form, Outfall Inspection Form, Catch Basin Cleaning Form, and Storm Drain Cleaning Log).
 - b. Document any further action taken.

IDDE - Outfall Inspections

1. Preparation:
 - a. Know the past and present weather conditions. Conduct inspections during dry weather periods.
 - b. Gather all necessary equipment including: tape measure, clear container, clipboard with necessary forms, flashlight, and camera (optional).
 - c. Obtain maps showing outfall locations and identifiers.
 - d. Obtain outfall description and observations from previous inspections, so the outfall can be accurately identified and observations compared.
2. Process
 - a. Perform an inspection of each outfall at least once per year. Whenever, possible use the same personnel for consistency in observations.
 - b. Identify each outfall with a consistent and unique identifier. For example "Howard Slough-#13". Use maps and previous inspection reports to confirm the outfall identity and location.
 - c. If dry weather flow is present at the outfall, then document and evaluate the discharge by completing the following steps:
 1. Collect field samples for visual observations in a clean, clear container and in a manner that avoids stirring up sediment that might distort the observation.
 2. Characterize and record observations on basic sensory and physical indicators (e.g., outfall condition, flow, odor, color, oil sheen) on the Outfall Inspection Form.
 3. Compare observations to previous inspections.
 4. If the flow does not appear to be an obvious illicit discharge (e.g., flow is clear, odorless, etc.), attempt to identify the source of the flow (groundwater, intermittent stream, etc.)
 - d. If an illicit discharge (such as raw sewage, petroleum products, paint, etc.) is encountered or suspected, follow the procedure of SOP IDDE - Tracing Illicit Discharges.
3. Cleanup - as necessary
4. Documentation
 - a. File completed outfall inspection forms.
 - b. Update maps if new outfalls are observed and inspected.

IDDE - Removing Illicit Discharges

1. Preparation
 - a. Obtain available property ownership information for the source of the illicit discharge.
2. Process
 - a. Determine who is financially responsible; and follow associated procedures as given below.

For Private Property Owner:
Contact Owner,
Issue Notice of Violation for violations of the municipal ordinance, and
Determine schedule for removal.

For Municipal Facility:
Notify appropriate municipal authority or department head,
Schedule removal, and
Remove illicit connection.
 - b. Suspend access to storm drain if threats of serious physical harm to humans or the environment are possible.
 - c. Direct responsible party to initiate repairs/corrections/cleanup. Coordinate with enforcement official for escalating penalties in accordance with the municipal ordinance.
 - d. Repair/correct cause of discharge if municipality is responsible. Schedule the work through the appropriate municipal authority or department head..
 - e. Seek technical assistance from the Weber-Morgan Health Department or Utah Department of Water Quality, if needed.
3. Clean up
 - a. Confirm illicit discharge is removed or eliminated by follow-up inspection.
4. Documentation
 - a. Maintain records of notice of violation and penalties.
 - b. Document repairs, corrections, and any other actions required.

IDDE - Tracing Illicit Discharges

1. Preparation

- a. Review / consider information collected when illicit discharge was initially identified and document using Incident Tracking Form or Outfall Inspection Form.
- b. Obtain storm drain mapping for the area of the reported illicit discharge.
- c. Gather all necessary equipment including: tape measure, clear container, clipboard with necessary forms, flashlight, and camera (optional).

2. Process

- a. Survey the general area / surrounding properties to identify potential sources of the illicit discharge as a first step.
- b. Trace illicit discharges using visual inspections of upstream points as a second step. Use available mapping to identify tributary pipes, catch basins, etc.
- c. If the source of the illicit discharge cannot be determined by a survey of the area or observation of the storm drain system, then consider the following additional steps:
 1. Use weirs, sandbags, dams, or optical brightener monitoring traps to collect or pool intermittent discharges during dry weather.
 2. Smoke test or televise the storm drain system to trace high priority, difficult to detect illicit discharges.
 3. Dye test individual discharge points within suspected buildings.
 4. Consider collecting bacterial samples of flowing discharges to confirm/refute illicit discharge.
- d. If the source is located, follow SOP IDDE - Removing Illicit Discharges.
- e. If the source cannot be found, add the location to a future inspection program.

3. Clean up

- a. Clean catch basin, clean storm drain, or initiate spill response, as applicable. Follow relevant SOPs.

4. Documentation

- a. Document tracing results for future reference.

PARKS – Chemical Application Pesticides, Herbicides, Fertilizers

1. Preparation
 - a. Make sure your state Chemical Handling Certification is complete and up-to-date before handling any chemicals.
 - b. Calibrate fertilizer and pesticide application equipment to avoid excessive application.
 - c. Use pesticides only if there is an actual pest problem.
 - d. Time and apply the application of fertilizers, herbicides or pesticides to coincide with the manufacturer's recommendation for best results ("Read the Label").
 - e. Know the weather conditions. Do not use pesticides if rain is expected. Apply pesticides only when wind speeds are low (less than 5 mph).
2. Process
 - a. Always follow the manufacturer's recommendations for mixing, application and disposal. ("Read the Label").
 - b. Do not mix or prepare pesticides for application near storm drains, preferably mix inside a protected area with impervious secondary containment (preferably indoors) so that spills or leaks will not contact soils.
 - c. Employ techniques to minimize off-target application (e.g. spray drift, over broadcasting,) of pesticides and fertilizers.
3. Clean-up
 - a. Sweep pavements or sidewalks where fertilizers or other solid chemicals have fallen, back onto grassy areas before applying irrigation water.
 - b. Triple rinse containers, and use rinse water as product.
 - c. Always follow all federal and state regulations governing use, storage and disposal of fertilizers, herbicides or pesticides and their containers. ("Read the Label")
 - d. Use spill kits
4. Documentation
 - a. Keep copies of MSDS sheets for all pesticides, fertilizers and other hazardous products used.
 - b. Record fertilizing and pesticide application activities, including date, individual who did the application, amount of product used and approximate area covered.

PARKS – Cleaning Equipment

1. Preparation
 - a. Review process with all Parks employees.
2. Process
 - a. Wash equipment in approved wash station.
3. Clean-up
 - a. Dispose of towels in proper trash receptacle.
 - b. Sweep floor and dispose of debris.

PARKS – Mowing and Trimming

1. Preparation
 - a. Process overview with all employees
 - b. Check the oil and fuel levels of the mowers and other equipment; fill if needed.
2. Process
 - a. Put on eye and hearing protection
 - b. Mow and trim the lawn
 - c. Sweep or blow clippings to grass areas
3. Clean-up
 - a. Mowers are to be scraped and brushed at shop – dry spoils are dry swept and disposed of
 - b. Wash equipment in approved wash station

PARKS – Open Space Management

1. Preparation
 - a. Provide a regular observation and maintenance of parks, golf courses, and other public open spaces.
2. Process
 - a. Ensure that any storm drain or drainage system components on the property are properly maintained.
 - b. Avoid placing bark mulch (or other floatable landscaping materials) in stormwater detention areas or other areas where stormwater runoff can carry the mulch into the storm drainage system.
 - c. Follow all SOPs related to irrigation, mowing, landscaping, and pet waste management.
3. Clean Up
 - a. Keep all outdoor work areas neat and tidy. Clean by sweeping instead of washing whenever possible. If areas must be washed, ensure that wash water will enter a landscaped area rather than the storm drain. Do not use soap for outdoor washing.
 - b. Pick up trash on a regular basis.
4. Documentation
 - a. Document any observed deficiencies for correction or repair.

PARKS – Pet Waste

1. Preparation

- a. Adopt and enforce ordinances that require pet owners to clean up pet wastes and use leashes in public areas. If public off-leash areas are designated, make sure they are clearly defined.
- b. Whenever practical and cost effective, install dispensers for pet waste bags and provide disposal containers at locations such as trail heads or parks where pet waste has been a problem. Provide signs with instructions for proper cleanup and disposal.

2. Clean up

- a. Provide temporary storage in a covered waste container, and dispose of properly. Preferred method of disposal is at a solid waste disposal facility.

3. Documentation

- a. Document problem areas for possible increased enforcement and/or public education signs.

PARKS – Planting Vegetation (Starters)

1. Preparation
 - a. Call the Blue Stakes Center of Utah at least 2 working days before any digging will be done, to reveal the location of any underground utilities.
 - b. Dial 811 or 1-800-662-4111
 - c. Decide where any spoils will be taken.

2. Process
 - a. Dig holes; place spoils on a tarp near the hole where they may easily be placed back around roots. Avoid placing spoils in gutter.
 - b. Bring each plant near the edge of the hole dug for it.
 - c. Check the depth of the hole, and adjust the depth if necessary. The depth of the hole for a tree should be as deep as the root ball, so that the top of the root ball is level with the top of the hole.
 - d. Carefully remove pot or burlap.
 - e. Place the plant in the hole.
 - f. Backfill the hole with existing spoils, compost, and a litter fertilizer if desired. Do not use excessive amendments.
 - g. Water the plant.
 - h. Stake the plant, if necessary, to stabilize it.

3. Clean-up
 - a. Move any extra spoils into truck or trailer. Place the spoils on a tarp if there is a likelihood that some of the dirt would be lost through openings in the bed.
 - b. Sweep dirt from surrounding pavement(s) into the planter area
 - c. Transport spoils to their designated fill or disposal area.

PARKS – Planting Vegetation (Seeds)

1. Preparation
 - a. Call the Blue Stakes Center of Utah at least 2 working days before any digging will be done, to reveal the location of any underground utilities.
 - b. Dial 811 or 1-800-662-4111
 - c. Decide on the application rate, method, water source, and ensure adequate materials are on hand.
 - d. Grade and prepare the soil to receive the seed. Place any extra soil in a convenient location to collect.
2. Process
 - a. Place the seed and any cover using the pre-determined application method (and rate).
3. Clean-up
 - a. Move any extra spoils into truck or trailer. Place the spoils on a tarp if there is a likelihood that some of the dirt would be lost through openings in the bed.
 - b. Sweep dirt, seed, and any cover material from surrounding pavement(s) into the planter area
 - c. Transport spoils to their designated fill or disposal area.

PARKS – Transporting Equipment

1. Preparation
 - a. Determine equipment needed for transport and method (trailer, truck bed) needed to transport equipment.
 - b. Conduct pre- trip inspection of equipment
2. Process
 - a. Load and secure equipment on trailer or truck
 - b. Load and secure fuel containers for equipment usage
3. Clean-up
 - a. Off load equipment
 - b. Store equipment and trailer in proper locate on
 - c. Conduct post-trip inspection of equipment
 - d. Wash equipment, if needed, according to the SOP for Cleaning Equipment SOP
4. Documentation
 - a. Pre-trip and post trip inspection report

VEHICLES – Fueling

1. Preparation
 - a. Train employees on proper fueling methods and spill cleanup techniques.
 - b. Install a canopy or roof over aboveground storage tanks and fuel transfer areas.
 - c. Absorbent spill clean-up materials and spill kits shall be available in fueling areas and on mobile fueling vehicles and shall be disposed of properly after use.
2. Process
 - a. Shut off the engine.
 - b. Ensure that the fuel is the proper type of fuel for the vehicle.
 - c. Nozzles used in vehicle and equipment fueling shall be equipped with an automatic shut off to prevent overfill.
 - d. Fuel vehicle carefully to minimize drips to the ground.
 - e. Fuel tanks shall not be 'topped off'.
 - f. Mobile fueling shall be minimized. Whenever practical, vehicles and equipment shall be transported to the designated fueling area in the Facilities area.
 - g. When fueling small equipment from portable containers, fuel in an area away from storm drains and water bodies.
3. Clean Up
 - a. Immediately clean up spills using dry absorbent (e.g., kitty litter, sawdust, etc.) sweep up absorbent material and properly dispose of contaminated clean up materials.
 - b. Large spills shall be contained as best as possible and the HazMat team should be notified ASAP.
4. Records
 - a. Comply with underground storage tank records and monitoring requirements.
 - b. Document training of employees.

VEHICLES – Vehicle and Equipment Storage

1. Preparation
 - a. Inspect parking areas for stains/leaks on a regular basis.
 - b. Provide drip pans or adsorbents for leaking vehicles.
2. Process
 - a. Whenever possible, store vehicles inside where floor drains have been connected to sanitary sewer system.
 - b. When inside storage is not available, Vehicles and equipment will be parked in the approved designated areas.
 - c. Maintain vehicles to prevent leaks as much as possible.
 - d. Address any known leaks or drips as soon as possible. When a leak is detected a drip pan will be placed under the leaking vehicle to collect the drip.
 - e. The shop will provide a labeled location to empty and store drip pans.
 - f. If any leaks are discovered, a drip pan will be used to collect the fluids and vehicle will be scheduled for repairs.
 - g. Clean up all spills using dry methods.
 - h. Never store leaking vehicles over a storm drain.
3. Clean Up
 - a. Any leaks that are spilled on the asphalt will be cleaned up with dry absorbent; the dry absorbent will be swept up and disposed of in the garbage.
 - b. The paved surfaces around the building will be swept every two weeks, weather permitting.

VEHICLES – Washing

1. Preparation
 - a. Provide wash areas for small vehicles inside the maintenance building that has a drain system which is attached to the sanitary sewer system.
 - b. Provide wash areas for large vehicles on an approved outside wash pad that has a drain system which is attached to the sanitary sewer system.
 - c. No vehicle washing will be done where the drain system is connected to the storm sewer system.
2. Process
 - a. Minimize water and soap use when washing vehicles inside the shop building.
 - b. Soap should not be used when washing vehicles outside the shop building. Water Only.
 - c. Use hoses with automatic shut off nozzles to minimize water usage.
 - d. When washing outside the building, it is the operators' responsibility to make sure all wash water is contained on the wash pad and does not have access to the storm drain.
 - e. Never wash vehicles over or a storm drain.
3. Clean Up
 - a. Sweep wash areas after every washing to collect what solids can be collected to prevent them from washing down the drain system.
 - b. Clean solids from the settling pits on an as needed basis.

Pesticide Applications

1. The first step in pesticide application is to identify the pest and the crop. This is done by observing the plant and the surrounding environment. The pest is identified by its appearance, behavior, and the damage it causes. The crop is identified by its name and the type of pest it is being treated for.

[illegible]

Parking Lots

PARKING LOTS

<u>Site</u>	<u>Class</u>	<u>Area</u>
Almond Park	1	0.0793
Silver Park	2	0.0790
Steiner	1	1.8613
Steiner	1	0.8330
Finch Lane	1	0.2846
Memory Grove Lower	1	0.9547
Memory Grove Upper	1	1.9565
Liberty Park	2	1.5272
Liberty Park	2	0.6666
Liberty Park	2	0.5799
Herman Franks	2	0.4539
Richmond	2	0.3350
Jordan Park	2	0.1861
Jordan Park	2	2.5426
9th South River Park	3	0.1998
Poplar Grove Park	3	0.3217
Sherwood Park	3	0.3414
Sherwood Park	3	0.3795
Old Childrens Museum	3	0.6103
Raging Waters Fire Lane	3	0.5164
Parks Shop	1	1.1768
Parks Shop	1	0.1862
Parks Shop	1	0.2788
Parks Shop	1	0.4412
Pioneer Precinct	1	0.8799
Sorensen Unity Center	1	0.6997
Sorensen Unity Center	1	0.9604
Sugar House Boys and Girls Club	1	1.4235
Fairmont Park	2	0.7928
Swimming Center	1	0.3325
Rotary Glen	2	0.5842
Sunnyside Park	3	0.9798
Sunnyside Park	3	0.4144
Riverside	3	0.2221
Riverside	3	0.2289
Riverside	3	0.5889
Westpointe	3	0.3681
Westpointe	3	0.4090
North Temple Trailhead	3	0.4044
17th South Riverpark	3	0.4051
Park N Ride	1	0.4097
Westside Senior Center	1	0.7363
Liberty Senior Center	1	0.2812

Liberty Senior Center	1	0.1069
10th East Senior Center	1	0.8038
Dee Glen Smith Center	1	0.7627
Dilworth	2	0.5838
Wasatch Hollow Park	3	0.2542
Popperton Park	3	0.1741
11th Ave Park	3	0.2674
Lindsey Gardens	3	0.3909
Fisher Mansion	3	0.2644
Total		31.5208

Parks Acreage

<u>Park Name</u>	<u>Acres</u>
------------------	--------------

7th East Parking	3.5
7th East Parking	
7th East Parking	
7th East Parking	
7th East Parking	
7th East Parking	
7th East Parking	
7th East Parking	
7th East Parking	
7th East Parking	
7th East Parking	
7th East Parking	
7th East Parking	
9th South River Park	4.5
17th South River Park	17
City and County-	11
City and County-	
City and County-	
Curtis Mini Park-	1.25
First Encampment Park	0.75
Fremont Parking	N/A
Gallacher Park-	0.25
Glendale Park	6
Glendale Youth Center	5
Glendale Unity Center	3
Herman Franks-	10
Herman Franks-	
Jefferson Park	3.25
Jordon Park North	33.5
Jordon Park South	
Jordon Park Peace Gardens-	
Library Commons-	8
Liberty Park- A	101.5
Liberty Park- B	
Liberty Park- C	
Liberty Park- D&F	
Liberty Park- E	
Liberty Park- G&J	
Liberty Park- H	
North Temple Parking	1.5
Pioneer Police Precinct	2
Poplar Grove	6.75

Poplar Grove Park North	
Poplar Grove Park West	
Richmond Park	2
Tauffer Park-	1
The Bend in the River	0.25
Vannes Tot Lot	0.25
Wasatch Hallow Park-	2
Wesemann Park	0.25
Westminister Park	0.5

350 S 400 W	0.25
5th West Island Rio Grande-	1
7th Ave & A St.	1
10th East Seniors-	3
11th Ave Park	25
14th Ave Tot Lot	0.75
Bateman Island-	0.25
Bonneville Pavilion	1
City Creek Islands	1.25
City Creek Park-	2
Cottonwood Park South	6
Davis Park	0.5
Donner Park	17
Donner Park West	
Donner Trail Park	
Ensign Downs	7
Fault Line Gardens	1
Guadeloupe Mini Park	1
Guardsman Way-	1
Harvard Island	0.5
Inglewood Mini Park-	0.5
Jackson Mini Park-	1
Jordan Meadows	2.4
Laird Park	1.75
Lindsay Gardens Irr/Re	15.25
Lindsay Gardens Irr/Snack	
Lindsay Gardens Middle	
Lindsay Gardens South	
Lindsay Gardens Upper Ball Park	
Madison Park	2
Memory Grove-	8.75
Memory Grove Restrooms	
Memory North East Capital	
Miami Street Retention	1
North Gateway	5
Parks Department-	7.5

Pioneer Park South	11.25
Pioneer Park West	
Popperton Park	8
Reservoir Park Southeast	6.5
Reservoir Park South	
Riverside Park-	28.5
Riverside Park-CPOC/Snack	
Riverside Park DPOC	
Rose Park Lane	1
Rosewood Park	22.25
Rotary Glen Park	24.3
Sherwood Park-	12.75
Shipp Mini Park	0.25
Steenblik Mini Park-	2
Steiner Aquatic-	3
Sunnyside Islands	0.25
Sunnyside Park-	27
Sunnyside Retention	
Swede Town Mini Park	0.75
Warm Springs	8.5
Westpointe Park	23
Westpointe Park West	
Yalecrest Islands-	0.5

Center Street/RE/IRR 4"	250
Center Street 6"	
North Plat	
Office Bldg	
Park Plat North	
Park Plat South	
Shop BLDG/RE/IRR	
U Plat	
U Street Parkstrip	
Upper Ball Park	
West 1 Tennis	
West 13	
West 14	
X Plat	

2nd West Track Islands	0.25
6th South River Trail	1
S Temple to 900 S D-2	N/A
635 S 800 W	4.5
635 S 800 W	
645 S 800 W	

693 S 800 W	
703 S 800 W	
737 S 800 W	
745 S 800 W	
795 S 800 W	
803 S 800 W	
837 S 800 W	
845 S 800 W	
881 S 800 W	
8th South River Bike Stop	0.25
9th South 9th East	0.25
1295 E Stratford Ave	2
1311 E Stratford Ave	
2661 S 1300 E	1.75
2700 S 1321 E	
13th South 15th East Island	0.25
13th South Island	0.25
13th South Tear Drop	0.25
17th South Retention	0.75
Arcadia Park	0.25
Artesian Well Park	0.25
Beldon Mini Park	0.25
Burgess Island	0.25
Cotton Park	0.25
Counrty Club Island	0.25
Dilworth Park	4.5
Elizabeth Sherman	1.5
Fairmont Park South POC	30
Fairmont Park Simpson Dead End	
Fairmont Park North Parking	
Fairmont Park East POC	
Fairmont Park West POC	
Fairmont Senior Citizen Bldg.	
Glendale Circle Island	0.75
Hidden Hallow	20
Hillcrest Park	0.75
1000 E Hollywood Ave	0.25
906 E Hollywood Ave	
Jefferson Circle	2
Jordon River Trail DF	N/A
Liberty Sr. Citizens Bldg/Irr	1.25
Modesto Park	5
Mormon Garden Parkstrip	0.25
Native Garden Parkstrip	0.25
Nelli Jack Park	0.25
Oneida Islands	0.75
Parley Pratt Plaza	0.5

Parley's Way	2.75
Post Street Tot Lot	0.5
Prison Islands	0.5
Property Maintenance Home	N/A
Roberta Laconia	0.25
Skyline Island	0.25
Stratford Park	2
UTA Substation Parkstrip	0.25
Waters Island	0.25
Westside Sr.Citizens Bldg/Irr	2

1st South Islands	0.25
950 E 200 S	0.75
1013 S 200 S	
1060 E 200 S	
1119 E 200 S	
1163 E 200 S	
867 W 200 S	2
945 W 200 S	
1073 W 200 S	
1305 W 200 S	
1143 W 200 S	
N Temple to 500 N+Quince St.	0.25
131 N 200 W	0.5
240 N 200 W	
350 N 200 W	
641 N 200 W	
676 N 200 W	
676 N 200 W	
4th North Stairs	0.5
450 S 400 W	0.7
550 S 400 W	
5th Ave & C St.	0.5
5th West Contracted Meters	
5th West Island Fountain	
10 N 500 W	2.5
5th West Parkstrip/Island	
10 N 500 W	
5th West Center Island	
66 S 500 W	
5th West Center Island	
150 S 500 W	
500 W South Temple	
42 S 500 W	
82 S 500 W	

505 S 500 W	0.5
550 S 500 W	
450 S 500 W	
550 S 500 W	
100 N to 900 S	N/A
42 S 600 E	2.75
70 S 600 E	
117 S 600 E	
137 S 600 E	
184 S 600 E	
211 S 600 E	
275 S 600 E	
405 S 600 E	
537 S 600 E	
551 S 600 E	
577 S 600 E	
737 S 600 E	
218 S 600 E	
7th Ave & A St. Extra	N/A
47 S 800 E	2.75
143 S 800 E	
237 S 800 E	
331 S 800 E	
440 S 800 E	
539 S 800 E	
647 S 800 E	
811 S 800 E	
44 N 800 W	2.5
152 N 800 W	
228 N 800 W	
10 S 800 W	
57 S 800 W	
107 S 800 W	
9th South Island	0.25
1000 E to 1200 E	N/A
1000 E to 1200 E	N/A
35 S 1200 E	2.5
72 S 1200 E	
121 S 1200 E	
160 S 1200 E	
174 S 1200 E	
336 S 1200 E	
401 S 1200 E	
13th Ave & J St.	0.25
4th Ave. Stairs	0.5
Almond Park	0.25
Aztec North	0.25

Aztec South	0.5
Beatrice Evans Park	0.25
1196 W Dupont-Boyscout	2
1196 W 1200 N-Boyscout	
1118 N Boy Scout Dr.	
Caballo Drive	0.45
Cottonwood Park North	19
Day Riverside Library East	4.5
Day Riverside Library West	
Dea Island	0.25
Dec Glenn Smith Tennis	2.75
Ensign Peak	10
Firestation/Tennis	0.25
1384 E South Temple	0.25
1406 E Perry Ave	0.25
1436 E South Temple	0.25
1449 E Perry Ave	0.25
2nd Ave & Military Way	0.25
Foot Hill BLVD	0.5
Ft Hill BLVD Parkstrip	
Ft Hill Church Parkstrip	
Gilgal Gardens	3
Independence Islands	0.25
Kletting Mini Park	0.25
Laird Circle	0.25
Miller Park	0.25
Normandie Island	0.25
North Gateway Restrooms	N/A
North Gateway State	N/A
North Temple Islands	0.25
North Temple Islands	
Oak Hills Concession/DF	2.5
Park-N-Ride	0.25
Porkchop Hill	2
Pugsley Ouray Mini Park	0.25
Redwood Meadows	1.25
355 S Wakara Way	1
450 S Chipeta Way	1
781 S Arapen Dr.	1
Silver Mini Park	0.25
SLC Arts Coucil	N/A
Streets Dept. Salt Dome	N/A
Sunnyside Round-a-bout	0.25
53 N Virginia St.	0.5
205 N Virginia St.	
241 N Virginia St.	
268 N Virginia St.	

Wall St. Islands	0.25
Warm Springs North	0.5

Chemical Lists

RESTROOM SUPPLIES

Toilet Bowl Cleaner - Kling

Bleach - Clorox

Stainless Steel Cleaner – Hyko

Cleanser – Comet (Powder)

Cleanser – Comet (Liquid)

Glass Cleaner #1 – Hyko

All Purpose Cleaner #8 – Hyko

Pina Colada Air Fair – Zep

Cinnamon Air Fair – Zep

Hand Cleaner – Permatex (smooth)

Hand Cleaner – Permatex (Pumice)

Disinfectant Detergent – Easy Pak

Anti -Bacterial Soap - Micrell

Blue Foaming Hand Soap - Deb

Chemtool – Berryman

Gloss Black Spray Paint – Rust oleum

Hand Sanitizer – Purell

Porcelain Cleaner - Husky

TURF CHEMICAL PRODUCTS

25-3-10 Fertilizer (Anderson)

31-0-10 Fertilizer (Anderson)

19-3-19 Fertilizer (Anderson)

Fungicide

Cascade

Milorganite

Snapshot

HI Step Mag

18-24-12 Starter Fertilizer

Propendi – Pre-Emergent

Millennium Ultra – Weed & Feed

Aqua Cap

Rout

Barricade

Pramitol – Ground Sterilant

Speed Zone

Round-Up Pro Max (1.6 Gallon)

Seven

Tordon

Milestone

Escort

Ice Melt – (Sno-Plow)

Pithium Control

District 1 Maps





Riverside Restrooms (4) concession stand X





Cottonwood Restroom ☐ Dog Bag X



Google

Eye alt: 5403 ft

© 2011 Google

40°47'14.20" N 111°53'55.13" W elev 4281 ft

warmsprings Restroom (1)

Imagery Date: 8/27/2010

252 ft

District 2 Maps





STORM
Drain



Sunnyside
Restroom



STEINER
SHED

hinosay
Restrooms







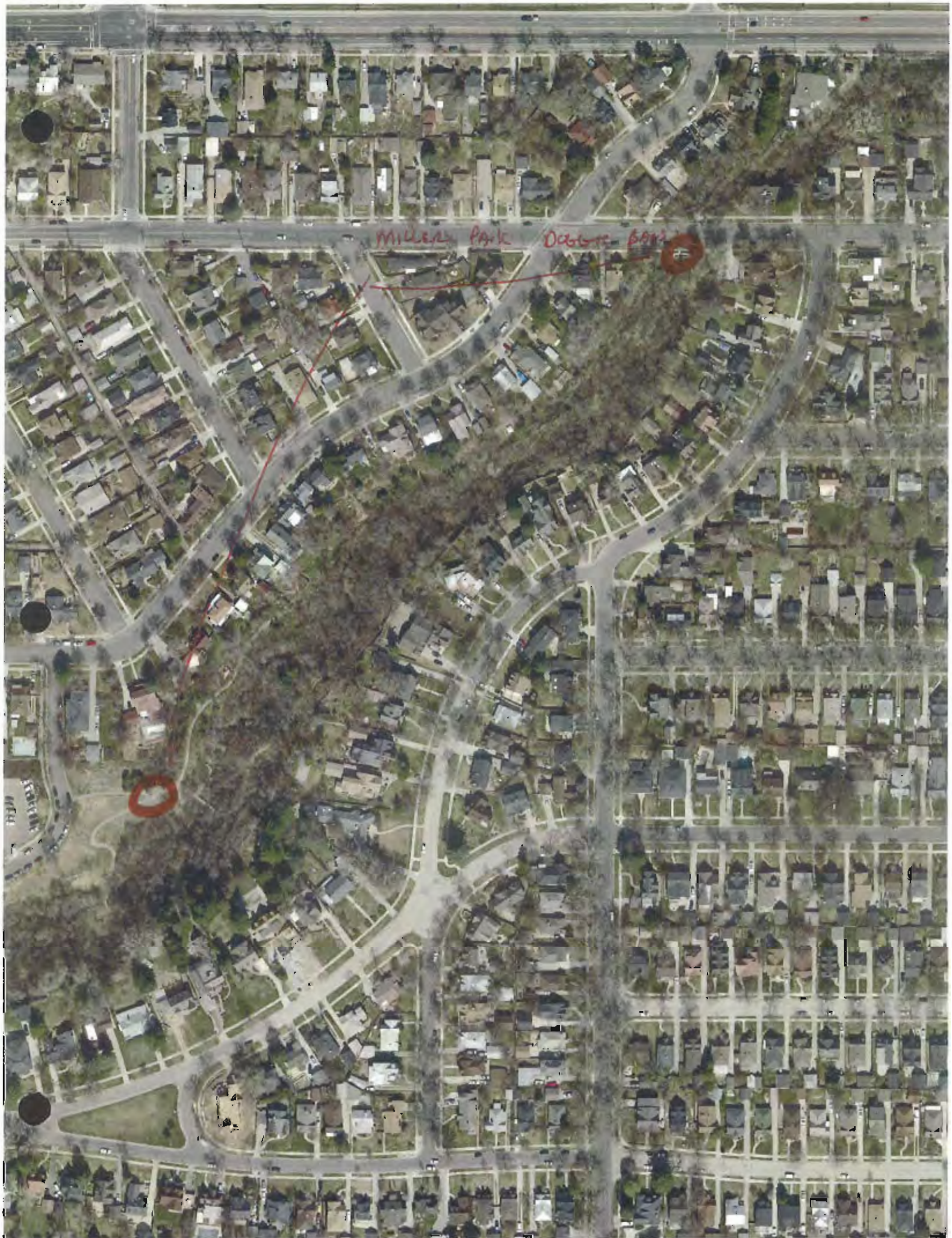


Bonniville
SALT Storage
winter only

STEINER

SALT STORAGE
winter only







~~T~~ Victory Park
Darryl B...



ROTARY
PARK DOGGIE
BAGS









Reservoir

Park

Doggie Bags







Memory
Lane
Middle
Doggie
Bags



Memory Grove
Upper
Dogie
Bays

District 3 Maps



0
50
100
200
Feet

D-3
LOCK
UP

WASHOOT
CHEMICAL
TANKS
↓
Equipment

Dist-3
Room



PARKS SHOP - DISTRICT 3 BACKROOM + LOCKUP

BackRoom.

Lockup.



Legend

Parcels

Addresses

1 - TOM ALIRES

2 - KYLE SHIELDS

3 - JUSTIN POTTER

4 - JAY GITTINS

5 - LESLIE CHAN



0 25 50 100 Feet

Curtis PARK

Drainage Basin



Legend

Parcels
Addresses



- 1 - TOM ALIRES
- 2 - KYLE SHIELDS
- 3 - JUSTIN POTTER
- 4 - JAY GITTINS
- 5 - LESLIE CHAN



I-80 WESTBOUND FWY

I-80 EASTBOUND FWY

900 E

1100 E

SIMPSON AVE

SUGARBLOOM DR

SIMPSON AVE

Red room

Red room

Garage

Res room

FAIRMONT PARK

Restroom

Garage



HEIZMAN FRANKS PARK

Restroom

Dog Bag Dispensers





LIBERTY PARK

Restroom

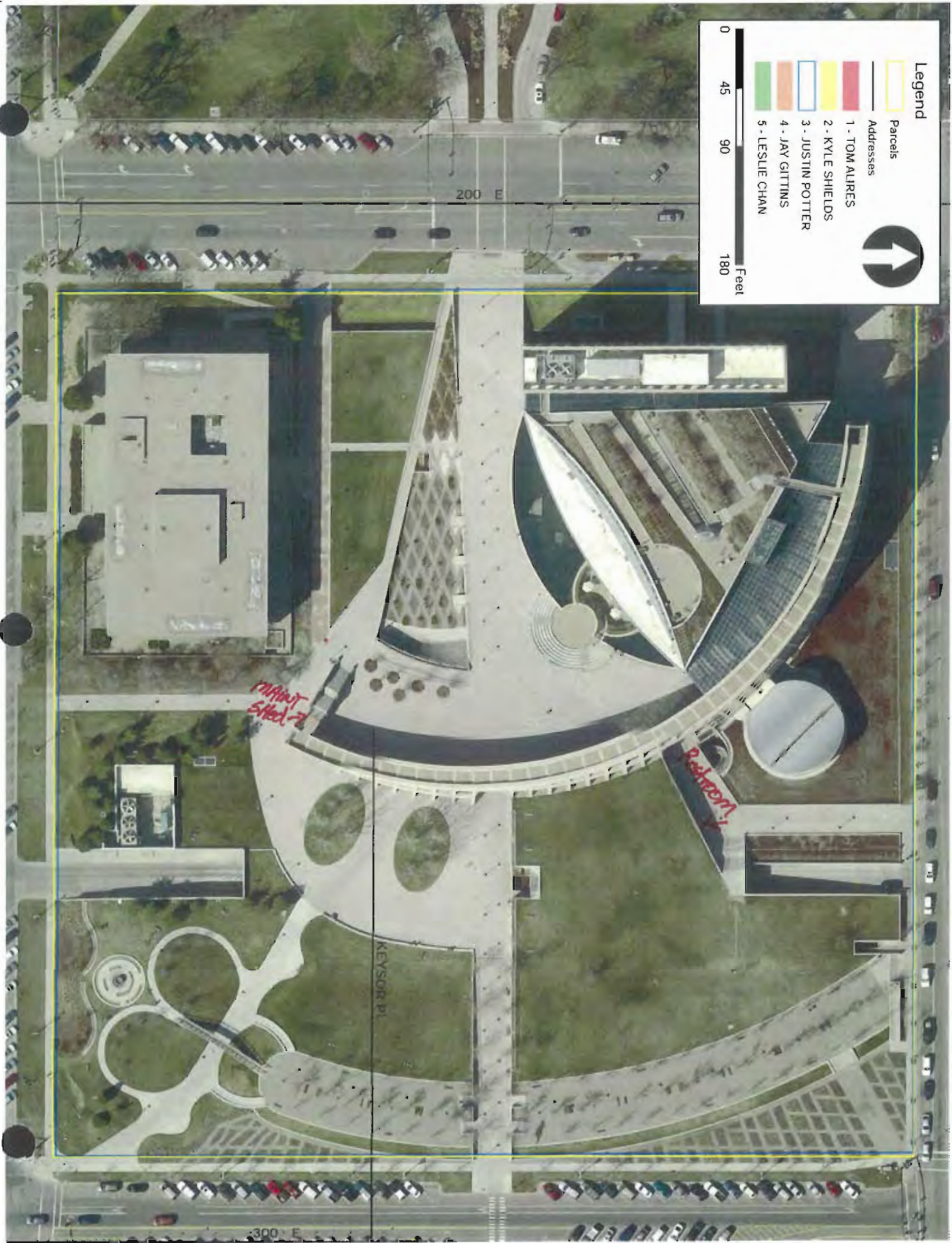
GARAGE

MAINTANCE BUILDING

Green House

Fuel Island





Legend

Parcels

Addresses

1 - TOM ALPES

2 - KYLE SHIELDS

3 - JUSTIN POTTER

4 - JAY GITTINS

5 - LESLIE CHAN

0 45 90 180 Feet

MAY 2017

KEYSOP PL

Redmond

LIBRARY SQUARE

Maintenance shed

Restroom



Legend

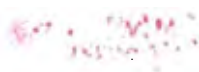
- Parcels
- Addresses
- 1 - TOM ALIRES
- 2 - KYLE SHIELDS
- 3 - JUSTIN POTTER
- 4 - JAY GITTINS
- 5 - LESLIE CHAN

Feet 0 25 50 100

WASATCH Hollow PARK

Dog Bag Dispenser

Restroom





Legend

Parcels

Addresses

1 - TOM ALIRES

2 - KYLE SHIELDS

3 - JUSTIN POTTER

4 - JAY GITTINS

5 - LESLIE CHAN



0 115 230 460 Feet

Washington PARK upper

Restroom



Legend

— Addresses

1 - TOM ALIRES

2 - KYLE SHIELDS

3 - JUSTIN POTTER

4 - JAY GITTINS

5 - LESLIE CHAN

0 25 50 100 Feet

WASHINGTON PARK Lower

Restroom

District 4 Maps



JORDAN PARK
BATH ROOMS
GREENHOUSE



SHERWOOD PARK

BATHROOMS



POPLAR GROVE

BATHROOMS



9TH S. River

BATHROOMS



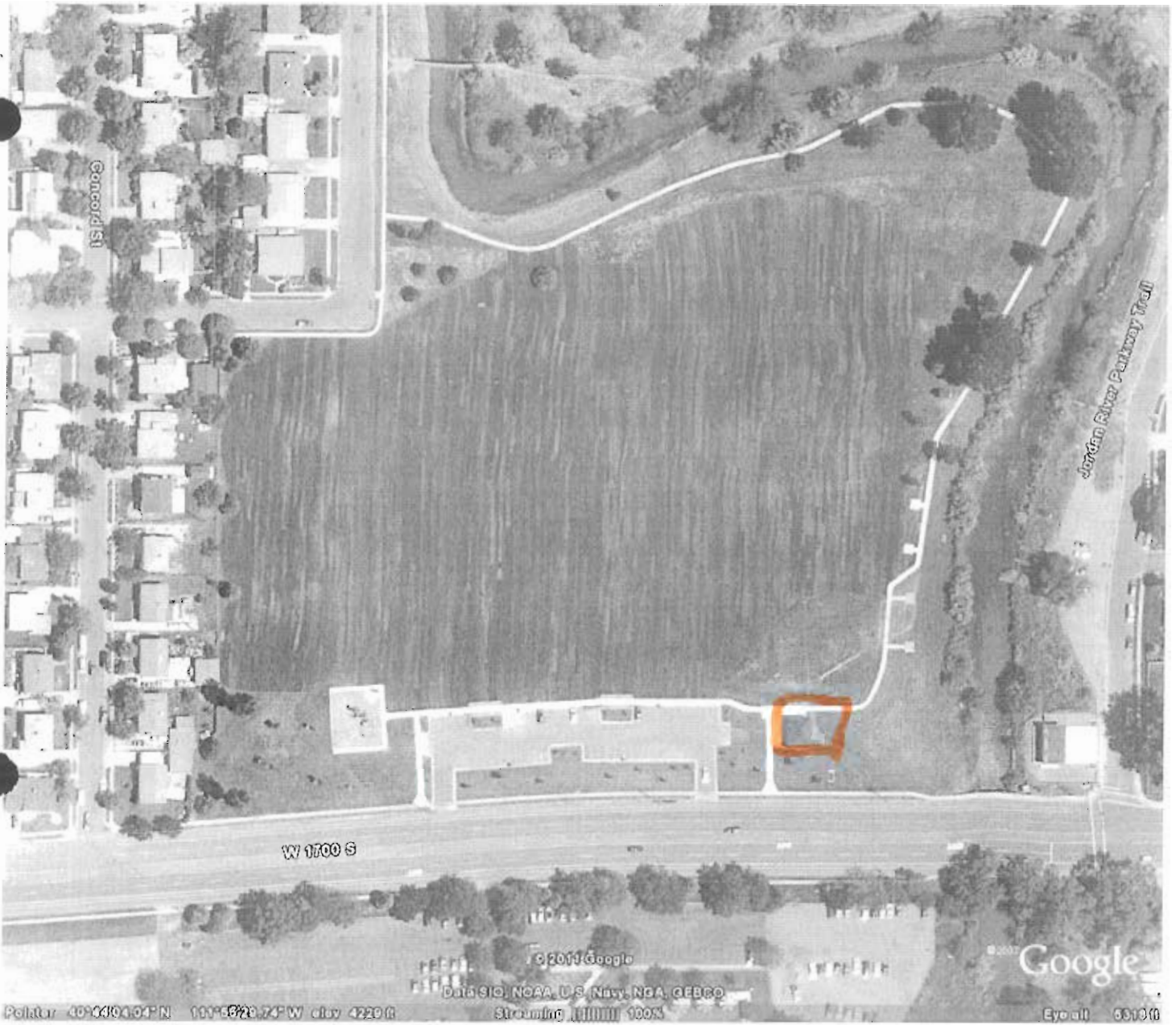
JEFFERSON CIRCLE
DRAINAGE BASIN



JEFFERSON PARK
DRAINAGE BASIN



17th S. RETENTION
DRAINAGE BASIN



17th S. RIVER PARK

BATHROOMS



GLENVALE PARK

BATHROOMS

SALT LAKE CITY STORM WATER MANAGEMENT
PLAN MS4 UPDES PERMIT NO. UTS000002

Page intentionally left blank



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Cleaning Storm Drain Main Lines

Effective Date: 8/19/2016
Revision Dates:

Prepared By:
Approved By:

Work Preparation:

<u>Labor:</u>	<u>Equipment:</u>	<u>Material/Tools:</u>
2 employee per vector truck.	<ul style="list-style-type: none">• 2500 gallon Vector truck or	<ul style="list-style-type: none">• Proper PPE• Assortment of cleaning nozzles• Digging bar• Bucket• Cones• Pipe wrenches• Hook rope

Pre-job Preparation and Safety:

- Employee shall perform all pre trip requirements to meet state and federal law for CDL vehicles and bring any potential problems to their supervisor before leaving the yard.
- They will check their assigned truck to make sure they have all tools before leaving the yard to help prevent any unnecessary trips back to the yard.
- Have a clear understanding of where they are going to clean in the city.

Work Steps:

1. Each worker and vehicle arrives at the map and line location and the individual lines are then given to each worker to clean.
2. The Vector should carry all safety signs and cones and protective equipment for each vector truck as it is set up in the street.
3. The truck goes to the manhole assigned and removes the lid and does the initial inspection of the manhole which consists of looking at the ring and cover for cracks or breaks then down into the invert to see if any blockage of the flow of the water is present and if there is another intersecting line check the radius to make sure that the water flows around properly.
4. The worker then starts to shoot the rodder hose up the line once the tiger tail is secured to prevent from damaging the pressure hose. Worker shall continuously monitoring the water to look for evidence of grease, roots, grit or any debris that might be present in the line, after the worker has shot the hose out to the desired distance which is to the next upstream manhole he then starts to retrieve the hose from the line and again watching to see what material might be present in the line.



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Cleaning Storm Drain Main Lines

Effective Date: 8/19/2016
Revision Dates:

Prepared By:
Approved By:

5. After the hose has been retrieved from the line they will remove the material from the manhole by either going into the manhole, or shoveling the debris out or they will vacuum the material out by the use of the vacuum.
6. After the debris has been removed the manhole cover is then put back into place after cleaning the rim of the ring to allow the cover to sit flush with the ring
7. The worker then goes to the next manhole and the same process is repeated.

Related Documents:

In the event of a spill of any kind refer to the Spill Response SOI



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Mixing concrete

Effective Date: 1/22/2011
Revision Dates: 8/19/2016

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

Work Preparation:

<u>Labor:</u>	<u>Equipment:</u>	<u>Material (as required):</u>
2 workers	Sand and gravel bobtail unit #36930 with trailer mixer	<ul style="list-style-type: none">• Masonry Sand 2.5yds• Gravel ¾" washed 2.5yds• Cement bags• Container full of water• Rinse Buckets for Tools• Proper PPE

Pre-job Preparation and Safety:

- Vehicles will be pre tripped by the driver of the vehicle that day
- Sand, gravel and cement bags will be loaded first thing in the morning and water be topped off in the container.
- Trucks will have all required tools to complete for the task

Work Steps:

1. The worker will put 40 heaping shovels full of gravel in the mixer and 2 five gallon buckets of water and one bag of cement powder, letting the concrete mix thoroughly.
2. Then the worker will put in 30 heaping shovels full of sand let it mix in. Monitoring to making sure it is mixing thoroughly.
3. The worker will put in a second bag of concrete and adding water to the correct consistency.
4. Then put in 20 more shovels full of gravel letting it mix in.
5. Then put in 10 shovels full of sand letting it mix to an even consistency adjusting the amount of water as needed.
6. If the cement needs to be at a stiffer consistency then the worker will add more of the cement powder and monitor it.
7. The worker will continue to add the sand and gravel as needed to fill the barrel of the mixer.
8. This will complete the mixing for the 1/3 yard mixer.

Related Documents:

In the event of a spill see Spill Response SOI.



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Installing a deck section

Effective Date: 1/22/2011
Revision Dates: 8/19/2016

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

Work Preparation:

Labor:

There shall be a minimum of 2 employees. 1 shall be the crew leader.

Equipment:

Bobtail for sand and gravel
Bobtail for debris and compressor
Backhoe
Truck with barricades and fall prevention
Mixer truck or trailer for cement.

Material (as required):

- Portland cement 6 bag min.
- Rebar 3 full sticks
- 2 yds. washed ¾" gravel
- 2 yds. masonry sand
- Full container of water
- Precast deck if necessary
- Proper PPE

Pre-job Preparation and Safety:

The supervisor will meet with the crew and discuss the manhole that requires the deck to be installed on. The crew will prepare all equipment and supplies needed to complete the job which will include the following: Shovels "round, square, invert and Kodiak" brooms "street, shop hand whisk" jack hammer "90 lbs and 35 lbs" with extra bits for both hammers, masonry string, lumber crayon, digging bar, measuring tape, exhaust fan, mixed fuel, gas chop saw, blades, tools to change blades, invert covers, 5gallon buckets, hook rope, ladder, skill saw, generator, fuel and proper PPE.

Work Steps:

1. Upon arrival at the job site the crew will have a tail gate safety meeting and discuss the tasks to be performed.
2. The crew will setup all Traffic controls and barricading for a safe work zone.
3. If needed crews will setup Storm drain protection BMPs
4. There are two different types of decks the first is a pour in place deck the other is a precast deck section that is installed on top of the manhole section. The type should be decided if possible before leaving the yard in the morning.
5. When needed, the crew will install a plug to protect the storm drain main from getting any debris inside of it during construction. Any debris that falls in pipe will be vactored out.



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Installing a deck section

Effective Date: 1/22/2011
Revision Dates: 8/19/2016

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

6. To install a pour in place deck the crew will cut a circle in the asphalt approximately 2 feet in diameter larger than the outside diameter of the manhole section.
7. The crew will then remove the old ring and cover and jack hammer around the circle in the asphalt to allow the removal of the rest of the debris.
8. A cut will be made into the cone section at the desired depth where the deck is to be installed and all of the debris also removed to that level.
9. All of the debris that had fallen into the manhole should be removed at this time and excavate down 12" below cut new elevation of the deck to allow for 6" of gravel.
10. A form will be placed on the top of the remaining manhole section made with ¾ inch plywood that will be approx. 1 inch larger than the inside diameter of the manhole.
11. The crew will install ¾ minus gravel around the outside of the cone in the area that had been dug down below the cut in the cone. This will allow for a solid base for the concrete to rest on.
12. The crew will then install a 30 inch diameter 12 inch tall form over the center of the manhole on top of the plywood.
13. The crew will then cut rebar building a lathe for reinforcement.
14. The crew will then mix and pour the concrete around the outside of the form to create the new deck top making sure as they pour it that the lathe gets installed about half way through the concrete. They will finish the top of the concrete and tap the inside of the form to remove all air bubbles.
15. The crew will allow the deck to cure for one day then cut and remove the circular form and the plywood form.
16. The ring and cover can then be installed on the new deck opening and the proper back fill material can be put into place.
17. If the manhole is located in a street either asphalt or concrete is installed for the top surface.
18. If the deck is going to be a precast deck the opening in the road surface will be 80 inches to allow the precast deck to be installed.
19. The same process for the pour in place deck will be followed except we will dig and remove all material to the desired depth. Make the cut in the cone remove all material. Mix concrete/grout and place between the precast deck and the manhole section then place the deck on the manhole section, then install a concrete "diaper" around the outside of the deck at the joint to form a water tight joint. May also use mastic sealant to adhere the deck section and manhole.
20. The ring and cover will then be installed onto the new deck section and the cut can be prepared for asphalt or as needed. We will then raise the ring and cover as per our manhole SOI once the surrounding surface has been prepared.



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Installing a deck section

Effective Date: 1/22/2011
Revision Dates: 8/19/2016

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

Related Documents:

In the Event of a Spill refer to the Spill response SOI.



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Main Storm drain line repair

Effective Date: 1/22/2015
Revision Dates: 8/19/2016

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

Work Preparation:

<u>Labor:</u>	<u>Equipment:</u>	<u>Material (as required):</u>
3 worker minimum	<ul style="list-style-type: none">• Excavator• Dump Truck• Equipment Trailer• Vactor	<ul style="list-style-type: none">• ADS or Driscoll pipe• Gravel• Road base• Temporary traffic control• Storm Drain Inlet BMPs• Proper PPE

Pre-job Preparation and Safety:

- The Supervisor will determine where the repair is to be made.
- The Supervisor or Lead will go to the location of the repair and mark the surface area so that LRA (blue stakes) can be done.
- The Supervisor will determine if the repair needs to take place immediately if so then emergency LRA's are started, if the repair is not an emergency we will schedule through normal LRA's.
- The Supervisor or Lead will get a work order from the work order office.
- The Supervisor will assign a crew and the equipment needed to complete the main repair
- Temporary traffic control will be called or be installed by in house certified installers to accommodate a safe work area

Work Steps:

- The crew will take an excavator. The crew will also have a truck with all the tools and supplies to complete the repair. The drivers of the vehicles will make sure that pre trip inspections are done before leaving the yard and the vehicles are full of fuel.
- Upon arrival the workers will hold a short tail gate safety meeting discussing the roles that each worker will have for that project.
- The workers will make sure that all the other utilities have been marked and cleared,
- The workers will setup their traffic safety including early warning signs, barricading.
- The workers will setup storm drain inlet BMPs.
- The workers will stay in contact with the supervisor throughout the project and keep him informed of their progress.
- The workers will then mark out the area for the repair with paint and then make a saw cut.



Public Utilities Operation & Maintenance Operations and Training Manual Standard Operating Instructions

ACTIVITY: Main Storm drain line repair

Effective Date: 1/22/2015
Revision Dates: 8/19/2016

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

- After the saw cut has been made the excavator operator will remove the asphalt or concrete from the area. If a wet saw is used a vactor will be used to suck up residual slurry.
- When the crew can determine if a trench box is needed per Public Utilities Safety Ordinance they will inform the supervisor what size and style is needed and the supervisor or lead will call Public Utilities Dispatch and have them order the trench box or use in house trench box.
- The workers will install the trench box before entry in the trench. When the workers enter the trench a proper sized ladder is installed for safe entry.
- The operator will locate and expose the mainline and prepare it for removal.
- When all of the old material is removed the ends of the existing pipe will need to be cut to ensure a straight tight fit with the new pipe.
- The worker will check the grade of the pipe verifying it has the proper grade to allow the water to flow. The operator will then cover the pipe about half way up the side of the pipe. When the grade has been verified for the pipe the worker will haunch the pipe.
- The worker will check the grade on the pipe once again to insure that the pipe still has consistent grade.
- The operator will cover the pipe with about 2 feet of gravel making sure that the layer of gravel is level.
- The workers will then start the backfill process by installing road base in 1 foot lifts that are level, and tamping each layer to insure proper compaction.
- The workers will saw cut around the asphalt or concrete surface if needed to straighten up the edges of asphalt or concrete in preparation for the new material to be installed.
- The workers will contact the supervisor to have the trench box picked up.
- The worker will measure the area for the proper size and material needed for the surface restoration and inform the supervisor of that information.
- The workers will clean up the area of any construction debris and sweep up.
- The workers will safely barricade the area and install blankets over area needed to be patched if the weather requires it.

Related Documents:

In the event of a spill refer to spill response SOI.



Public Utilities Operation & Maintenance Operations and Training Manual Standard Operating Instructions

ACTIVITY: Manhole install

Effective Date: 1/22/2011
Revision Dates: 8/19/2016

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

Work Preparation:

<u>Labor:</u>	<u>Equipment:</u>	<u>Material</u>
<ul style="list-style-type: none">• 3 worker minimum• 1 being a crew leader	<ul style="list-style-type: none">• Excavator• Dump Truck• Equipment trailer• Vector Truck	<ul style="list-style-type: none">• Gravel• Road base• Precast manhole sections• Mastic sealant• 24" x 48" ring and cover• Storm Drain Inlet Protection• Proper PPE

Pre-job Preparation and Safety:

- The Supervisor will verify the need to have a manhole installed.
- The supervisor or lead will also go to the location and mark the area on the surface in white paint to verify the location for the Storm drain line.
- The supervisor or lead will get a work order made for installing the new manhole. The supervisor or lead will make contact with the public utilities dispatch and have them start the project.
- The supervisor will assign a crew and the equipment needed to complete the manhole install.
- The drivers of the vehicles will verify that the pre-trip inspections are done before leaving the yard and the vehicles are fueled.
- Upon arrival at the work site the workers will hold a short tail gate safety meeting to discuss the roles that each worker will have.
- Construction truck shall have all required tools to finish the job.

Work Steps:

- The workers will verify that all of the utilities are marked and cleared.
- The workers will set up all traffic control safety and early warning signs or determine if it need to be set-up by the traffic control contractor. The workers will keep in contact with the supervisor throughout the project.
- The workers will set-up Storm drain protection inlet BMPs, as needed.
- The workers will saw cut the asphalt around the area and start the excavation.
- . The operator will not dig any closer than the 24" safety zone of any other utilities. They will be located with use of hand shovels or other safe means.



Public Utilities Operation & Maintenance Operations and Training Manual Standard Operating Instructions

ACTIVITY: Manhole install

Effective Date: 1/22/2011
Revision Dates: 8/19/2016

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

- When the crew can determine if a trench box is needed they will inform the supervisor what size and type that is needed, the supervisor or lead will call Public Utilities Dispatch and have them call and order the trench box.
- The workers shall not enter into the trench, if a trench box is not on site and not installed properly, a ladder is also required for entry into the box.
- The workers will remove the old pipe that is going through the manhole and install a new piece of ADS or Driscoll pipe that the manhole section will go over.
- The workers will install 3/4" gravel as a base for the pipe and manhole section.
- The workers will mix and install concrete as a base for the pipe and manhole section if not using a precast base.
- The crew will install the bottom manhole section over the pipe making sure it is setting level.
- The crew will pour a collar of cement around the outside of the manhole section at the base to make it water tight.
- After the concrete has set up finish installing the remaining manhole sections to the ground surface making sure that mastic is used on each manhole section making it water tight.
- The crew will back fill the excavation with about 2 feet of gravel at the bottom then back fill the remaining area with road base in 1 foot level lifts and compact to insure no settling.
- The crew will then grout the bottom of the manhole to allow for the proper flow.
- When the back fill material has been installed the workers will saw cut the existing concrete or asphalt to allow a clean tie in with the new surface restoration.
- The worker will measure the area to be restored and give that information to the supervisor.
- The workers will clean-up the area of any construction debris.
- The workers will place safety barricade in the area to protect the trench.
- Concrete thermal blankets will be used if the weather requires it.
- The workers will remove all tools and equipment and allow the contractor to finish the surface restoration.

Related Documents:

In the event of a spill refer to spill response SOI



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Mixing Grout

Effective Date: 1/22/2011
Revision Dates: 8/19/2016

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

Work Preparation:

<u>Labor:</u> 1 Worker	<u>Equipment:</u> Square mouth shovel 5 gallon bucket Water container Broom	<u>Material (as required):</u> 5 Gallons of masonry sand 5 Gallons of cement powder Water as needed 1 bag of Calcium Chloride <i>Proper PPE</i>
----------------------------------	--	---

Pre-job Preparation and Safety:

Fill up a 5 gallon bucket of sand, 5 gallon bucket of cement powder, 5 gallon water container and 1 bag of calcium chloride in the yard before leaving to the jobsite.

Work Steps:

1. The mix ratio for concrete grout is one 5 gallon bucket of sand and one five gallon bucket cement powder , calcium chloride as needed
2. The worker will dry mix the sand and the cement powder together adding water as needed the calcium chloride is added after all of the other materials are mixed together and as needed.
3. This can be done in two ways either in a small pile on the ground or in the cement mixer.
4. Then applied as needed to the area requiring repair.

Related Documents:

STREETS/STORM DRAIN – Catch Basin Cleaning

1. Preparation:
 - a. Clean sediment and trash off grate.
 - b. Do visual inspection on outside of grate.
 - c. Make sure nothing needs to be replaced.
 - d. Do inside visual inspection to see what needs to be cleaned.
 - e. Use Proper PPE
2. Process
 - a. Clean using a high powered vacuum truck to start sucking out standing water and sediment.
 - b. Use a high pressure washer to clean any remaining material out of catch basin, while capturing the slurry with the vacuum.
 - c. After catch basin is clean, send the rodder of the vacuum truck downstream to clean pipe and pull back sediment that might have gotten down stream of pipe.
 - d. Move truck downstream of pipe to next catch basin.
3. Clean-up
 - a. When vacuum truck is full of sediment take it to the designated location to dump all the sediment out of truck into a drying bed.
 - b. When it evaporates, clean it up with a backhoe, put it into a dump truck and take it to the landfill.
4. Documentation
 - a. Keep logs of number of catch basins cleaned.
 - b. Record the amount of waste collected.
 - c. Keep any notes or comments of any problems.



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Storm Route

Effective Date: 8/19/2016
Revision Dates:

Prepared By:
Approved By:

Work Preparation:

<u>Labor:</u>	<u>Equipment:</u>	<u>Material (as required):</u>
1 to 2 employee	1 ton truck Pitch fork Square Shovel	Proper PPE

Pre-job Preparation and Safety:

- Pre-trip safety inspection should be done before leaving yard by vehicle operator
- Check to make sure truck has all necessary tools before leaving yard
- Have a clear understanding of what the task that is needed to be done and where you are going.

Work Steps:

1. Employee will locate dirty storm drains or inlets with debris.
2. Clean debris with pitch fork or shovel to ensure inlets are in working condition and to minimize pollutants into the system.
3. If any IDDE's identified, refer to Spill Response SOI and/or spill response contact list.
4. Waste is taken to Water Reclamation plant.

Related Documents:

Spill response SOI



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Vactor Truck

Effective Date: 1/22/2014
Revision Dates: 8/19/2016

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

Work Preparation:

<u>Labor:</u>	<u>Equipment:</u>	<u>Material (as required):</u>
1 employee	Vactor Truck	Proper PPE

Pre-job Preparation and Safety:

- Pre-trip safety inspection should be done before leaving yard by vehicle operator
- Check to make sure truck has all necessary tools and nozzles for the project before leaving yard
- Have a clear understanding of what the task that is needed to be done and where you are going
- Check and clean all screens for pump and make sure the debris tank hatch is closed.

Work Steps:

1. Pull up to manhole or other structure that is needed to be vacuumed out.
2. Set up safety barricading around work zone to make sure employee and public are safe.
3. Engage PTO to truck for hydraulic needs
4. Assemble vacuum tubes to required length to get to bottom of structure.
5. Once the tube is assembled, lower tube into clean out box and begin cleaning.
6. Once finished with the job, reverse steps 1-6 and continue to next task making sure structure you vacuumed is once again secure to and safe to be released back to the public.
7. Always Decant debris tank at end of the day and before dumping it at the Reclamation plant.
8. Open debris tank hatch to allow ample room for the gasket to expand over the weekend. Debris tank must be emptied before weekends or an extended amount of time "2+days" if not going to be used.
9. If spills occur contain spill and refer Spill response SOI. Revision: April 5th Effective Date

Related Documents:

Spill response SOI



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Chip Seal

Effective Date: 1/22/2011
Revision Dates:

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

Work Preparation:

<u>Labor:</u>	<u>Equipment:</u>	<u>Material (as required):</u>
2 man crew	<ul style="list-style-type: none">• Pickup with air compressor• Clean up tools• I Pad• Metal detector	<ul style="list-style-type: none">• Proper PPE• Traffic Control devices• Inlet Protection

Pre-job Preparation and Safety:

- Supervisor will give the list of work orders to the crew who will be doing the work.
- The crew leader will organize and put in order the work orders to be most efficient.
- The crew will gather all tools needed to complete the job in a safe and productive manner, also make sure the vehicles are fueled up.
- The crew will load up all proper PPE, Temporary Traffic Controls and Storm Drain Inlet Protection.

Work Steps:

1. When employees arrive on jobsite they will need to set up traffic control and if Needed protect Storm drains that are nearby to allow for a safe work zone for themselves and the public
2. The workers will find the center of the ring and cover if it's completely covered with material and use the jackhammer to chip loose all material that doesn't allow access to inside of the manhole.
3. Once material has been hammered off, the area will be swept up and put into back of the pickup truck, barricading shall be taken down and the crew will move onto the next work order.
4. Pickup truck will be cleaned out at the end of the day.



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Chip Seal

Effective Date: 1/22/2011
Revision Dates:

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

Related Documents:



Public Utilities Operation & Maintenance Operations and Training Manual Standard Operating Instructions

ACTIVITY: Cleaning sewer main lines

Effective Date: 1/22/2011
Revision Dates:

Prepared By: Brandon Petersen
Approved By:

Work Preparation:

<u>Labor:</u>	<u>Equipment:</u>	<u>Material/Tools:</u>
1 employee per jetting vehicle Up to 2 employees for a combination vehicle if justified.	<ul style="list-style-type: none">• 2500 gallon Jetter or• Combination Vacuum truck• I Pad• 	<ul style="list-style-type: none">• Proper PPE• Assortment of cleaning nozzles• Digging bar• Bucket• Cones• 8" and 10" Trap/ grit catcher• Pipe wrenches• Hook rope

Pre-job Preparation and Safety:

- Employee shall perform all pre trip requirements to meet state and federal law for CDL vehicles and bring any potential problems to their supervisor before leaving the yard.
- They will check their assigned truck to make sure they have all tools before leaving the yard to help prevent any unnecessary trips back to the yard.
- Have a clear understanding of where they are going to clean in the city.

Work Steps:

1. Each worker and vehicle arrives at the map and line location and the individual lines are then given to each worker to clean.
2. A follow truck also assists the Jetter trucks and helps each vehicle get set up at the assigned manhole, this vehicle should carry all safety signs and cones and protective equipment for each vehicle as it is set up in the street.
3. These Jetter trucks are considered to be emergency equipment and are to be fueled at night to be prepared for emergency situations or extended stay at the job site.
4. The truck goes to the manhole assigned and removes the lid and does the initial inspection of the manhole which consists of looking at the ring and cover for cracks or breaks then down into the invert to see if any blockage of the flow of the water is present and if there is another intersecting line check the radius to make sure that the water flows around properly.
5. The worker then starts to shoot the Jetter hose up the line once the tiger tail is secured to prevent from damaging the pressure hose. Worker shall continuously monitoring the water to look for evidence of grease, roots, grit or any debris that might be present in the line, after the worker has shot the hose out to the desired distance which is to the next



Public Utilities Operation & Maintenance Operations and Training Manual Standard Operating Instructions

ACTIVITY: Cleaning sewer main lines

Effective Date: 1/22/2011
Revision Dates:

Prepared By: Brandon Petersen
Approved By:

upstream manhole he then starts to retrieve the hose from the line and again watching to see what material might be present in the line.

6. After the hose has been retrieved from the line they will remove the material from the manhole by either going into the manhole, or shoveling the debris out or they will vacuum the material out by the use of the vacuum combo unit.
7. After the debris has been removed the manhole cover is then put back into place after cleaning the rim of the ring to allow the cover to sit flush with the ring
8. The worker then goes to the next manhole and the same process is repeated.

Related Documents:

In the event of a spill of any kind refer to the Spill Response SOI



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Mixing concrete

Effective Date: 1/22/2011
Revision Dates:

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

Work Preparation:

<u>Labor:</u>	<u>Equipment:</u>	<u>Material (as required):</u>
2 workers max	Sand and gravel bobtail unit #33081 or trailer mixer	<ul style="list-style-type: none">• Masonry Sand 2.5yds• Gravel ¾" washed 2.5yds• Cement bags• Container full of water• Rinse Buckets for Tools• Proper PPE

Pre-job Preparation and Safety:

- Vehicles will be pre tripped by the driver of the vehicle that day
- Sand, gravel and cement bags will be loaded first thing in the morning and water be topped off in the container.
- Trucks will have all required tools to complete for the task

Work Steps:

1. The worker will put 40 heaping shovels full of gravel in the mixer and 2 five gallon buckets of water and one bag of cement powder, letting the concrete mix thoroughly.
2. Then the worker will put in 30 heaping shovels full of sand let it mix in. Monitoring to making sure it is mixing thoroughly.
3. The worker will put in a second bag of concrete and adding water to the correct consistency.
4. Then put in 20 more shovels full of gravel letting it mix in.
5. Then put in 10 shovels full of sand letting it mix to an even consistency adjusting the amount of water as needed.
6. If the cement needs to be at a stiffer consistency then the worker will add more of the cement powder and monitor it.
7. The worker will continue to add the sand and gravel as needed to fill the barrel of the mixer.
8. This will complete the mixing for the 1/3 yard mixer.

Related Documents:

In the event of a spill see Spill Response SOI.



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Installing a deck section

Effective Date: 1/22/2011
Revision Dates:

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

Work Preparation:

Labor:

There shall be a minimum of 3 employees. 1 shall be the crew leader.

Equipment:

Bobtail for sand and gravel
Bobtail for debris and compressor
Backhoe
Truck with barricades and fall prevention
Mixer truck or trailer for cement.

Material (as required):

- Portland cement 6 bag min.
- Rebar 3 full sticks
- 2 yds. washed ¾" gravel
- 2 yds. masonry sand
- Full container of water
- Precast deck if necessary
- Proper PPE

Pre-job Preparation and Safety:

The supervisor will meet with the crew and discuss the manhole that requires the deck to be installed on. The crew will prepare all equipment and supplies needed to complete the job which will include the following: Shovels "round, square, invert and Kodiak" brooms "street, shop hand whisk" jack hammer "90 lbs and 35 lbs" with extra bits for both hammers, masonry string, lumber crayon, digging bar, measuring tape, exhaust fan, mixed fuel, gas chop saw, blades, tools to change blades, invert covers, 5gallon buckets, hook rope, ladder, skill saw, generator, fuel and proper PPE.

Work Steps:

1. Upon arrival at the job site the crew will have a tail gate safety meeting and discuss the tasks to be performed.
2. The crew will setup all Traffic controls and barricading for a safe work zone.
3. If needed crews will setup Storm drain protection BMPs?
4. There are two different types of decks the first is a pour in place deck the other is a precast deck section that is installed on top of the manhole section. The type should be decided if possible before leaving the yard in the morning.
5. The crew will install invert covers and a parachute to protect the sewer main from getting any debris inside of it during construction.



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Installing a deck section

Effective Date: 1/22/2011
Revision Dates:

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

6. To install a pour in place deck the crew will cut a circle in the asphalt approximately 2 feet in diameter larger than the outside diameter of the manhole section.
7. The crew will then remove the old ring and cover and jack hammer around the circle in the asphalt to allow the removal of the rest of the debris.
8. A fresh air blower will be set up to continually blow air into the manhole area while the cut in the cone is made.
9. A cut will be made into the cone section at the desired depth where the deck is to be installed and all of the debris also removed to that level.
10. All of the debris that had fallen into the manhole should be removed at this time and excavate down 12" below cut new elevation of the deck to allow for 6" of gravel.
11. A form will be placed on the top of the remaining manhole section made with ¾ inch plywood that will be approx. 1 inch larger than the inside diameter of the manhole.
12. The crew will install ¾ minus gravel around the outside of the cone in the area that had been dug down below the cut in the cone. This will allow for a solid base for the concrete to rest on.
13. The crew will then install a 30 inch diameter 12 inch tall form over the center of the manhole on top of the plywood.
14. The crew will then cut rebar building a lathe for reinforcement.
15. The crew will then mix and pour the concrete around the outside of the form to create the new deck top making sure as they pour it that the lathe gets installed about half way through the concrete. They will finish the top of the concrete and tap the inside of the form to remove all air bubbles.
16. The crew will allow the deck to cure for one day then cut and remove the circular form and the plywood form.
17. The ring and cover can then be installed on the new deck opening and the proper back fill material can be put into place.
18. If the manhole is located in a street either asphalt or concrete is installed for the top surface.
19. If the deck is going to be a precast deck the opening in the road surface will be 80 inches to allow the precast deck to be installed.
20. The same process for the pour in place deck will be followed except we will dig and remove all material to the desired depth. Make the cut in the cone remove all material. Mix concrete/grout and place between the precast deck and the manhole section then place the deck on the manhole section, then install a concrete "diaper" around the outside of the deck at the joint to form a water tight joint. May also use mastic sealant to adhere the deck section and manhole.



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Installing a deck section

Effective Date: 1/22/2011
Revision Dates:

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

21. The ring and cover will then be installed onto the new deck section and the cut can be prepared for asphalt or as needed. We will then raise the ring and cover as per our manhole SOI once the surrounding surface has been prepared.

Related Documents:

In the Event of a Spill refer to the Spill response SOI.



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Main line repair

Effective Date: 1/22/2015
Revision Dates:

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

Work Preparation:

<u>Labor:</u>	<u>Equipment:</u>	<u>Material (as required):</u>
3 worker minimum	<ul style="list-style-type: none">• Excavator• Dump Truck• Mainline Truck• Equipment Trailer	<ul style="list-style-type: none">• SDR sewer pipe• Sheerbands• Gravel• Road base• Temporary traffic control• Storm Drain Inlet BMPs• Proper PPE

Pre-job Preparation and Safety:

- The Supervisor will determine where the repair is to be made by viewing CCTV videos of areas that have been reported from our CCTV crew.
- The Supervisor or Lead will go to the location of the repair and mark the surface area so that LRA (blue stakes) can be done.
- The Supervisor will determine if the repair needs to take place immediately if so then emergency LRA's are started, if the repair is not an emergency we will schedule through normal LRA's.
- The Supervisor or Lead will get a work order from the work order office.
- The Supervisor will assign a crew and the equipment needed to complete the main repair
- Temporary traffic control will be called or be installed by in house certified installers to accommodate a safe work area

Work Steps:

- The crew will take an excavator. The crew will also have a truck with all the tools and supplies to complete the repair. The drivers of the vehicles will make sure that pre trip inspections are done before leaving the yard and the vehicles are full of fuel.
- Upon arrival the workers will hold a short tail gate safety meeting discussing the roles that each worker will have for that project.
- The workers will make sure that all the other utilities have been marked and cleared,
- The workers will setup their traffic safety including early warning signs, barricading.
- The workers will setup storm drain inlet BMPs.
- The workers will stay in contact with the supervisor throughout the project and keep him informed of their progress.
- The workers will then mark out the area for the repair with paint and then make a saw cut.



Public Utilities Operation & Maintenance Operations and Training Manual Standard Operating Instructions

ACTIVITY: Main line repair

Effective Date: 1/22/2015
Revision Dates:

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

- After the saw cut has been made the excavator operator will remove the asphalt or concrete from the area.
- When the crew can determine if a trench box is needed per Public Utilities Safety Ordinance they will inform the supervisor what size and style is needed and the supervisor or lead will call Public Utilities Dispatch and have them order the trench box or use in house trench box.
- The workers will install the trench box before entry in the trench. When the workers enter the trench a proper sized ladder is installed for safe entry.
- The operator will locate and expose the mainline and prepare it for removal.
- When all of the old material is removed the ends of the existing pipe will need to be cut to ensure a straight tight fit with the new pipe.
- The worker will check the grade of the pipe verifying it has the proper grade to allow the water to flow. The operator will then cover the pipe about half way up the side of the pipe. When the grade has been verified for the pipe the worker will haunch the pipe.
- The worker will then tighten the stainless steel bands at the desired tension.
- The worker will check the grade on the pipe once again to insure that the pipe still has consistent grade.
- The operator will cover the pipe with about 2 feet of gravel making sure that the layer of gravel is level.
- The workers will then start the backfill process by installing road base in 1 foot lifts that are level, and tamping each layer to insure proper compaction.
- The workers will saw cut around the asphalt or concrete surface if needed to straighten up the edges of asphalt or concrete in preparation for the new material to be installed.
- The workers will contact the supervisor to have the trench box picked up.
- The worker will measure the area for the proper size and material needed for the surface restoration and inform the supervisor of that information.
- The workers will clean up the area of any construction debris and sweep up.
- The workers will safely barricade the area and install blankets over area needed to be patched if the weather requires it.

Related Documents:

In the event of a spill refer to spill response SOI.



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Manhole install

Effective Date: 1/22/2011
Revision Dates:

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

Work Preparation:

<u>Labor:</u>	<u>Equipment:</u>	<u>Material</u>
<ul style="list-style-type: none">• 4 worker minimum• 1 being a crew leader	<ul style="list-style-type: none">• Excavator• Dump Truck• Equipment trailer• Mainline repair truck	<ul style="list-style-type: none">• Gravel• Road base• Precast manhole sections• Mastic sealant• 24 ¾" ring and cover• Storm Drain Inlet• Proper PPE

Pre-job Preparation and Safety:

- The Supervisor will verify the need to have a manhole installed.
- The supervisor or lead will also go to the location and mark the area on the surface in white paint to verify the location for the LRAs.
- The supervisor or lead will get a work order made for installing the new manhole. The supervisor or lead will make contact with the public utilities dispatch and have them start the LRAs.
- The supervisor will assign a crew and the equipment needed to complete the manhole install.
- The drivers of the vehicles will verify that the pre-trip inspections are done before leaving the yard and the vehicles are fueled.
- Upon arrival at the work site the workers will hold a short tail gate safety meeting to discuss the roles that each worker will have.
- Mainline repair truck shall have all required tools to finish the job.

Work Steps:

- The workers will verify that all of the utilities are marked and cleared.
- The workers will set up all traffic control safety and early warning signs or determine if it need to be set-up by the traffic control contractor. The workers will keep in contact with the supervisor throughout the project.
- The workers will set-up Storm drain protection inlet BMPs
- The workers will saw cut the asphalt around the area and start the excavation.
- . The operator will not dig any closer than the 24" safety zone of any other utilities. They will be located with use of hand shovels or other safe means.



Public Utilities Operation & Maintenance Operations and Training Manual Standard Operating Instructions

ACTIVITY: Manhole install

Effective Date: 1/22/2011
Revision Dates:

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

- When the crew can determine if a trench box is needed they will inform the supervisor what size and type that is needed, the supervisor or lead will call Public Utilities Dispatch and have them call and order the trench box.
- The workers shall not enter into the trench, if a trench box is not on site and not installed properly, a ladder is also required for entry into the box.
- The workers will remove the old pipe that is going through the manhole and install a new piece of PVC pipe that the manhole section will go over.
- The workers will install 3/4" gravel as a base for the pipe and manhole section.
- The workers will mix and install concrete as a base for the pipe and manhole section if not using a precast base.
- The crew will install the bottom manhole section over the pipe making sure it is setting level.
- The crew will pour a collar of cement around the outside of the manhole section at the base to make it water tight.
- After the concrete has set up finish installing the remaining manhole sections to the ground surface making sure that mastic is used on each manhole section making it water tight.
- The crew will back fill the excavation with about 2 feet of gravel at the bottom then back fill the remaining area with road base in 1 foot level lifts and compact to insure no settling.
- The crew will then grout the bottom of the manhole to allow for the proper flow.
- When the back fill material has been installed the workers will saw cut the existing concrete or asphalt to allow a clean tie in with the new surface restoration.
- The worker will measure the area to be restored and give that information to the supervisor.
- The workers will clean-up the area of any construction debris.
- The workers will place safety barricade in the area to protect the trench.
- Concrete thermal blankets will be used if the weather requires it.
- The workers will remove all tools and equipment and allow the contractor to finish the surface restoration.

Related Documents:

In the event of a spill refer to spill response SOI



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Mixing Grout

Effective Date: 1/22/2011
Revision Dates:

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

Work Preparation:

<u>Labor:</u> 1 Worker	<u>Equipment:</u> Square mouth shovel 5 gallon bucket Water container Broom	<u>Material (as required):</u> 5 Gallons of masonry sand 5 Gallons of cement powder Water as needed 1 bag of Calcium Chloride <i>Proper PPE</i>
----------------------------------	--	---

Pre-job Preparation and Safety:

Fill up a 5 gallon bucket of sand, 5 gallon bucket of cement powder, 5 gallon water container and 1 bag of calcium chloride in the yard before leaving to the jobsite.

Work Steps:

1. The mix ratio for concrete grout is one 5 gallon bucket of sand and one five gallon bucket cement powder , calcium chloride as needed
2. The worker will dry mix the sand and the cement powder together adding water as needed the calcium chloride is added after all of the other materials are mixed together and as needed.
3. This can be done in two ways either in a small pile on the ground or in the cement mixer.
4. Then applied as needed to the area requiring repair.

Related Documents:



Public Utilities Operation & Maintenance Operations and Training Manual Standard Operating Instructions

ACTIVITY: Perma-liner

Effective Date: 1-28-15
Revision Dates:

Prepared By: Steven Terry
Approved By: Ryan Broadhead

Work Preparation: Talk with supervisor about lines that need to be done and check the weather for available days that will accommodate the installation of a liner.

<u>Labor:</u> <i>Three Employees</i>	<u>Equipment:</u> <i>Pickup truck with liner trailers TV Van Pressure truck Compressor</i>	<u>Material (as required):</u> <i>Liner kit Proper PPE</i>
--	--	--

Pre-job Preparation and Safety:

Check the length and location of needed repair. Determine that the flow and location of services will allow for the installation of the liner.

Work Steps:

1. Video the line down to the needed repair. Mark the cable with the location of the repair.
2. Determine from the line if it needs to be cleaned.
3. While this process is taking place other crew members start setting up the equipment needed.
4. If line needs to be cleaned do so now.
5. Transfer the mark from the camera line to the rope line.
6. String line with either pressure truck or camera depending on the previous steps.
7. With rope line in place begin getting the bladder lubed up and prepped for wetting out.
8. Before wetting out make sure the air tank is full and the hose is holding air.
9. Mix up the epoxy and wet out the liner material.
10. Install the zip ties at appropriate locations
11. Have one person head to the other manhole to pull the line while the other two pick it up and set it into the manhole.
12. Pull the line until the mark and the rope is in place then inflate the bladder while listening for the zip ties to pop.
13. Lower the epoxy bucket into the manhole for curing.
14. Two employees leave to CCTV other lines while one stays to watch it cure.
15. When the epoxy in the bucket is hard the other two will return to help deflate the bladder and inspect the rope and hoses while cleaning them up and putting them away.
16. Post inspection will be done with the camera and a picture including any other pertinent information will be sent to the supervisor.

Related Documents:

In the event of a spill refer to the Spill Response SOI



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Root Foam

Effective Date: 1-28-15
Revision Dates:

Prepared By: Steven Terry
Approved By: Ryan Broadhead

Work Preparation: Meet with Supervisor to receive assigned work orders.

<u>Labor:</u>	<u>Equipment:</u>	<u>Material (as required):</u>
<i>Two employees one of them certified in pesticide application</i>	<i>Vapo-rooter system attached to pressure truck, and pickup truck</i>	<i>Metam-sodium and Dichlobenil chemical Proper PPE</i>

Pre-job Preparation and Safety:

Check out root foam chemical for the day and organize a route from the assigned work orders.

Work Steps:

- 1. Arrive to manhole and remove cover.*
- 2. Load root foam chemical into truck foaming system.*
- 3. Use root foaming nozzle to shoot up the line.*
- 4. Change valve over to foam and use touch screen to premix then foam the line.*
- 5. Second work has upstream manhole cover removed to verify the start of the foam.*
- 6. Using the chart inside the foam control unit lid, start pulling back at the appropriate rate of speed for the line being foamed using a stopwatch.*
- 7. Rinse hose as pulling back then head to the next location.*
- 8. Follow all regulations on the label for the use including the PPE, use, and disposable of the foam.*

Related Documents:

In the event of a spill refer to the Spill Response SOI



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Vacuum Combination Truck

Effective Date: 1/22/2014
Revision Dates:

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

Work Preparation:

<u>Labor:</u>	<u>Equipment:</u>	<u>Material (as required):</u>
1 employee	Sewer vacuum combination truck	Absorbent Material Proper PPE

Pre-job Preparation and Safety:

- Pre-trip safety inspection should be done before leaving yard by vehicle operator
- Check to make sure truck has all necessary tools and nozzles for the project before leaving yard
- Have a clear understanding of what the task that is needed to be done and where you are going
- Check and clean all screens for pump and make sure the debris tank hatch is closed.

Work Steps:

1. Pull up to manhole or other structure that is needed to be vacuumed out.
2. Set up safety barricading around work zone to make sure employee and public are safe.
3. Engage PTO to truck for hydraulic needs
4. Assemble vacuum tubes to required length to get to bottom of structure
5. Make sure the vacuum relief is on before engaging blower to create a vacuum.
6. If cleaning a sewer line, engage blower just before you have debris at your tubes to prevent prematurely filling up debris tank with liquid.
7. Once finished with the job, reverse steps 1-6 and continue to next task making sure structure you vacuumed is once again secure to and safe to be released back to the public.
8. Always Decant debris tank at end of the day and before dumping it at the Reclamation plant.
9. Open debris tank hatch to allow ample room for the gasket to expand over the weekend. Debris tank must be emptied before weekends or an extended amount of time "2+days" if not going to be used.
10. If spills occur contain spill and refer Spill response SOI. Revision: April 5th Effective Date

Related Documents:

If spills occur contain spill and refer Spill response SOI



SSO

Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Sanitary Sewer Overflow (SSO) Spill Response

Effective Date: 1/22/2008
Revision Dates:

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

Work Preparation:

<u>Labor:</u>	<u>Equipment:</u>	<u>Material (as required):</u>
2 man crew minimum	<ul style="list-style-type: none">• Pick up• Combination unit	<ul style="list-style-type: none">• Booms• Sand bags• Clear Visqueen (plastic)• Disinfectant• Proper PPE

Pre-job Preparation and Safety:

- Make sure vehicles have PPE and traffic control devices.

Work Steps:

1. Identify location and cause of the break or spill isolate and take off line the discharge line or broken pipe to control water flow.
2. Shut off the pumps at the station or clear the pipe, and bypass pump around the determined location
3. Inform Safety Program Manager of the event and scope of the affected area.
4. Protect storm drain inlets (see step 4)
5. Install containment devises in the area such as booms, dikes, sand bags, visqueen (plastic), etc. to keep sewage in a controlled area.
6. Recovery of the sewage from the containment area by vacuum trucks, shovels, pressure water hoses, pumping.
7. Disposal of sewage if possible pump back into the sanitary sewer system or use of vacuum truck to vacuum up material and remove all containment devises take out to the water reclamation plant.
8. Sanitizing the area by use of chlorine solution with $\frac{1}{4}$ cup of chlorine bleach for each gallon of water, pressure wash affected area vacuum up water into vacuum truck and dispose.



SSO

Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

ACTIVITY: Sanitary Sewer Overflow (SSO) Spill Response

Effective Date: 1/22/2008
Revision Dates:

Prepared By: Brandon Petersen Wastewater Supervisor
Approved By:

9. If storm drains are effected use repeat steps 5, 6 ,7, & 8
10. Document event to City works on work orders system all photos and notes to central location
11. Notification of event to Public Utilities Director, Storm Water Quality, County Health,Dept, and State of Utah DEQ.

Related Documents:



STANDARD OPERATING INSTRUCTIONS
ILLICIT DISCHARGE DETECTION AND ELIMINATION – SPILL RESPONSE

1.0 Purpose: To minimize pollution introduced to the Municipal Separate Storm Sewer System from Illicit discharges.

2.0 Scope: This document will detail the response, investigation, and elimination process of spills/illicit discharges.

3.0 Responsibility:

Dispatch – Dispatcher who receives notification of spill or illicit discharge becomes responsible for delegating that request. The *Spill incident Response Contact List* shall be referenced whenever there is a report of an actual or potential water quality risk to the MS4.

Storm Water Quality Program Manager – Responsible for the oversight and coordination of Storm Water Quality personnel response and follow up; as well as, any required reporting and notifications to State, County Health, and any other stakeholders.

Storm Water Quality Coordinator/Responding Personnel – Shall respond to notifications, tips, and/or reports of illicit discharges/spills, and coordinate efforts in containment and ensure clean up or remediation is done to the maximum extent practical. Responsible for documentation when applicable e.g. work orders, reports, follow and enforcement letters.

Salt Lake County Health Department – Through the Memorandum of Understanding may respond, report, and enforce on illicit discharges/spills in coordination with and/or on behalf of SLCDPU.

4.0 Procedure:

4.1 Notification

When a report or notification comes in regarding storm water quality, the dispatch or notified party shall take the following steps:

- a. In the event of an emergency call 911
- b. Gather information from caller/reporter including:
 - Location of incident
 - Pollutant associated with discharge and quantity
 - Responsible party if identifiable
 - Name and number of caller/reporter
- c. Refer to Spill Incident Response Contact List and make calls down the list until an available person can respond or address the report.



STANDARD OPERATING INSTRUCTIONS
ILLICIT DISCHARGE DETECTION AND ELIMINATION – SPILL RESPONSE

4.2 Response

Once an IDDE report has been assigned, the delegated department/personnel shall:

- a. Assess and characterize the nature of, and any potential public and environmental risks associated with discharge.
- b. Notify appropriate authorities i.e. State of Utah, Salt Lake County Health Dept.
- c. Contain spill or discharge to the maximum extent practical.
- d. Investigate incident and identify responsible party if possible. Follow SOP IDDE – Tracing Illicit Discharges.
- e. Coordinate and oversee clean up and any needed remediation or follow up. Follow IDDE – Removing Illicit Discharges

5.0 Documentation:

The responding personnel shall prepare, maintain and follow up with all appropriate documentation in accordance with applicable City policy, including:

- a. File all completed forms
- b. Document any further action or enforcement taken

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

STANDARD OPERATING PROCEDURE PUMPING OUT METER BOXES, TRENCHES, ETC.

July 2008

It is a violation of the Federal Clean Water Act to dispose of any materials in the storm drain, other than rainwater, runoff, or uncontaminated groundwater. The State Department of Environmental Quality and City ordinance provide for enforcement and fines on inappropriate discharges into the storm drain systems.

As public employees we need to set an example and follow all regulations. These storm water rules may be violated by pumping contaminated water from meter boxes or trenches into the storm drain system. To help avoid any issues please be aware of the following procedures when pumping liquids from these facilities.

The following are types of discharges to be aware of.

1. Clean Water is clear or stagnated ground water with out foul smelling odors. Clear water may be discharged onto pervious areas such as grass, soil, and impervious areas that lead to the storm drain system.
2. Water that has a light sheen of oil, (rainbow surface) chemical smell or turbidity (dark, cloudy or muddy) may not be discharged into storm drain. Contact E.V. Holland @ 483-6710, the liquid will be need to be removed by a Vactor Truck.
3. If the liquid has a sewer smell, floating fecal matter, indications of sewerage. Contact Ryan Brodhead @ 483-6759, the material will need to be removed by a Vactor Truck.
4. If the liquid is a heavy oil, has an oily or petroleum fuel smell, or a strong chemical odor indicating a potential hazardous waste. Contact Greg Archuletta @ 483-6821, so a company can be notified to pump it out.
5. Chlorinated water may not be discharged into the storm drain system near a fresh water stream. If you are pumping or flushing out a location that contains chlorinated water near a stream or river, it will need to be treated to remove the chlorine. Contact Florence Reynolds @ 483-6864 for further information.



Public Utilities Operation & Maintenance Operations and Training Manual Standard Operating Instructions

	Revision: March 14 th 2011 Effective Date:	Prepared By: B. Shelley Approved By:
--	--	---

Activity: *Planned water excavation /Storm drain protection*
No:

Section:
Subsection:

Purpose:

- To assure a safe uniform means of allowing water into a storm drain line without causing unwanted earthen materials to enter during a planned culinary water line repair or replacement.

Scope:

- This Activity provides the guidelines for proper and safe means of allowing water into a storm sewer during a planned water repair or replacement

Responsibility & authority:

Supervisor- *to prepare and preauthorize the initial work to be done at the excavation site, as well as keep in communication with the onsite lead man and surrounding residents.*

Lead man- *to keep charge of onsite crew, equipment, vehicals and work to be done as well as keeping in communication with supervisor and surrounding residents.*

Helper & Truck driver- *duties as assigned by aforementioned*

Work Preparation: Make sure service trucks have wattles, gravel bags or other materials for inlet protection.

<u>Labor:</u>	<u>Equipment:</u>	<u>Material (as required):</u>
<i>Senior water system maintenance operator</i> <i>Water system maintenance operator II</i> <i>Water system maintenance operator I</i>	<i>Valve and hydrant service truck</i> <i>Backhoe</i> <i>Dump truck</i> <i>Two or three inch trash water pump</i> <i>Two square mouth shovels</i>	<i>Storm Drain Inlet Protection</i> <i>Six gravel filled bags (minimum) or Straw wattle</i>



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

Revision: March 14th 2011
Effective Date:

Prepared By: B. Shelley
Approved By:

Activity: *Planned water excavation /Storm drain protection*
No:

Section:
Subsection:

Preparation:

- 1) *The water maintenance Lead man determines where the discharge may travel to.*
- 2) *Lead man will appoint one or all maintenance crew members make sure gutters leading to inlet are free of debris, place inlet protection, (i.e. Wattle, Gravel bags Etc.) nearest to downstream inlet as possible.*
- 3) *Lead man will check valves needed for shut down prior to excavation, to isolate waterline to be worked on*

Work Steps:

- 1) *The Lead man will then make efforts to keep water from pipeline from entering the excavation.*
- 2) *When and if there is need for the use of a trash pump for dewatering the excavation, the lead man will make sure that the discharge will be directed toward the predetermined inlet.*
- 3) *The truck driver will do all that is possible to decant the water from the truck bed before driving to dumpsite.*

Work Completion:

After replacement is finished, and the excavation is in the process of being backfilled, One or more crew members will clean the area around the excavation, as well as the gutter, from the earthen material that was deposited by the pump, backhoe and or the dump truck.

The inlet protection will be removed once the excavation has been backfilled and completed.



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

Revision: March 14th 2011
Effective Date:

Prepared By: B. Shelley
Approved By:

Activity: *Planned water excavation /Storm drain protection*

No:

Section:

Subsection:

Related Documents:

The lead man will fill out the work order pertaining to the excavation, including man hours, vehicle running time, parts and supplemental work orders.



Public Utilities Operation & Maintenance Operations and Training Manual Standard Operating Instructions

	Revision: March 15 th 2011 Effective Date:	Prepared By: B Shelley Approved By:
--	--	--

Activity: *Transporting dry excavated materials & spoils*
No:

Section:
Subsection:

Purpose:

- *To provide guidance, steps and instructions in Transporting dry excavated materials & spoils*

Scope:

- *This activity provides guidance, maintenance and inspection of a vehicle before, during and after transporting dry materials and spoils*

Responsibility & Authority:

- ***Supervisor-*** *to ensure maintenance worker I has the proper type and size of truck that is needed.*
Lead man- *to be in constant communication with truck driver, while on site and when on the road to and from disposal site.*
Maintenance worker I- *to fill out daily maintenance log, to be a wear of amount of dirt and or spoil is being loaded on truck, as well as keeping the truck clean and making sure everything works appropriately, with truck*

Work Preparation:

- 1) Utilize truck with proper containment for material.*
- 2) Determine disposal site of excavated material.*
- 3) Determine best route to be taken to disposal site.*

<u>Labor:</u>	<u>Equipment:</u>	<u>Material (as required):</u>
<i>Water maintenance supervisor</i> <i>Senior water maintenance operator</i> <i>Water maintenance operator I</i>	<i>Backhoe/Loader</i> <i>Dump truck</i>	<i>Not applicable</i>
<p style="text-align: center;"><i>This is an "CONTROLLED DOCUMENT"</i></p>		



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

Revision: March 15th 2011
Effective Date:

Prepared By: B Shelley
Approved By:

Activity: *Transporting dry excavated materials & spoils*
No:

Section:
Subsection:

Pre-job Preparation and Safety:

- 1) *Truck driver will perform pre-trip inspection at start of the shift.*
- 2) *Truck driver will fill out appropriate maintenance log.*
- 3) *Lead man will give truck driver address to job site as well as any special instructions needed.*
- 4) *Truck driver will make sure the vehicle has the appropriate amount of fuel.*

Work Steps:

- 1) *Truck driver will make sure that the truck is not being over filled.*
- 2) *He will clean of all debris from side rails, tailgate and trailer hitch area.*
- 3) *He will transport the material in a manner to minimize spillage and tracking.*
- 4) *While driving he will check truck and road for spillage*
- 5) *He will utilize one route of transport going to and from disposal site, if possible.*

Work Completion:

If needed all maintenance crew members will back track route to clean of any spillage that may have occurred. When possible the truck driver will wash truck and any equipment that was used in a designated wash area.

Related Documents:

Truck driver will fill out any and all reports of damage if incident occurs due to spillage



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

		Revision: March 15 th 2011 Effective Date:	Prepared By: B Shelley Approved By:
Activity: <i>Transporting dry excavated materials & spoils</i> No:		Section: Subsection:	



Public Utilities Operation & Maintenance Operations and Training Manual Standard Operating Instructions

Revision: March 17th 2011
Effective Date:

Prepared By: B Shelley
Approved By:

Activity: *Transporting wet excavated materials & spoils*
No:

Section:
Subsection:

Purpose:

- *To provide guidance, steps and instructions in Transporting wet excavated materials & spoils*

Scope:

- *This activity provides guidance, maintenance and inspection of a vehicle before, during and after transporting wet materials and spoils*

Responsibility & Authority:

- **Supervisor-** *to ensure maintenance worker I has the proper type and size of truck that is needed.*
Lead man- *to be in constant communication with truck driver, while on site and when on the road to a dump site.*
Maintenance worker I- *to fill out daily maintenance log, to be a wear of amount of dirt and or spoil is being loaded on truck, as well as keeping the truck clean and making sure everything works appropriately, with truck.*

Work Preparation:

- 1) *Utilize truck with proper containment for material.*
- 2) *Determine disposal site of excavated material.*
- 3) *Determine best route to be taken to disposal site.*

Labor:

Water maintenance supervisor

Senior water maintenance operator

Water maintenance operator I

Equipment:

Dump truck

Backhoe/Loader

Material (as required):

Not applicable



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

Revision: March 17th 2011
Effective Date:

Prepared By: B Shelley
Approved By:

Activity: *Transporting wet excavated materials & spoils*
No:

Section:
Subsection:

Pre-job Preparation and Safety:

- 1) *Truck driver will perform pre-trip inspection at start of the shift.*
- 2) *Truck driver will fill out appropriate maintenance log.*
- 3) *Lead man will give truck driver address to job site as well as any special instructions needed.*
- 4) *Truck driver will make sure the vehicle has the appropriate amount of fuel.*

Work Steps:

- 1) *Truck driver will make sure that the truck is not being over filled.*
- 2) *He will decant truck bed to minimize water in load.*
- 3) *He will transport the material in a manner to minimize spillage and tracking.*
- 4) *While driving he will check truck and road for spillage*
- 5) *He will utilize one route of transport going to and from disposal site, if possible.*

Work Completion:

If needed all maintenance crew members will back track route to clean of any spillage that may have occurred. When possible the truck driver will wash truck and any equipment that was used in a designated wash area.

Related Documents:

Truck driver will fill out any and all reports of damage if incident occurs due to spillage



Public Utilities Operation & Maintenance Operations and Training Manual Standard Operating Instructions

Revision: April 5th
Effective Date:

Prepared By: Bret Shelley
Approved By:

**Activity: Main line repair / non emergency
No:**

**Section:
Subsection:**

Purpose:

- To provide guidance, steps and instructions on how to perform a non emergency main line repair.

Scope:

- This activity provides guidelines for the proper operation, maintenance and inspection of a non emergency main line repair.

Responsibility & Authority:

- **Supervisor**-To initiate and set up job site, and assign crew for daily work assignment as well as to keep in constant communication with crew and surrounding residents until the work is completed.
- **Lead man** – to oversee all aspects of job while on site as well as keeping in constant communication with supervisor and area residents until work is completed.
- **Helper** – to assist lead man and at times take over responsibility of lead man when needed.
- **Truck driver** – To assist helper and lead man in all aspects of work while on site as well as drive dump truck to and from site and to and from disposal site.

Work Preparation: 1) Supervisor paints location for Blue Stakes with White marking paint.
2) Supervisor leaves a door hanger with the property owner explaining the work to be done.
3) Supervisor then prepares a list of signs, barricades and storm drain protection needed.
4) Supervisor notifies dispatch to call for Blue Stakes 48 Hours before excavation begins.
5) Supervisor has dispatch order signs and barricades the day before starting the project.
6) Supervisor assigns the project to a crew

Labor:

- 1- Senior water maintenance operator (Lead person)
- 2- Water maintenance operator II (Helper)
- 3- Water maintenance operator I (Truck driver)

Equipment:

- 1- Valve & hydrant maintenance truck
- 1- Backhoe(may or may not be transported on a flatbed trailer)
- 1- 10 or 12 wheeled dump truck
- 2- Drop inlet bags
- 6- Gravel bags or equivalent (minimum)

Material (as required):

Stainless steel repair clamp that coincides with size and type of water main. If pipe is split there may be need for a new piece of pipe size and length of that which is split as well as two transition couplings.



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

Revision: April 5th
Effective Date:

Prepared By: Bret Shelley
Approved By:

Activity: Main line repair / non emergency
No:

Section:
Subsection:

Pre-job Preparation and Safety:

- 1) Crew researches the water shut down and the materials needed. Makes sure all materials are on the truck or obtain them from the store house prior to leaving the yard.
- 2) Crew arrives on site and holds a tailgate safety meeting.
- 3) Crew checks to make sure all utilities have been located and marked in the area of the excavation.
- 4) Crew makes sure all customers affected have been notified either in person or, if this is not possible, with a door hanger in advance of any shut down.
- 5) Crew makes sure all signs and guards are set up according to the standard barricade manual.
- 6) Crews put in place storm drain protection BMPs.

Work Steps:

- 1) Crew removes and sets aside any landscaping/ sod that can be saved.
- 2) If the main needs to be shut down, the crew leaves at least one valve slightly open to make certain there is positive pressure in the main and notifies dispatch as to which valves are closed and an approximate time the water will be off.
- 3) While excavating, the crew makes sure the excavation site is safe according to O.S.H.A. rules and regulations. The crew saves the soil if it is reusable.
Crew excavates below the main so standing water will not be back siphoned in to the water system gravel will also be placed in the bottom of the excavation at least 6" below the pipe. The crew installs a trash pump to assure that the water in the excavation does not rise over any opening in the water system.
- 4) Once the water has been pumped below the pipe the last valve is closed.
- 5) -Crew swaths or sprays repair parts with liquid chlorine (Bleach) that will come in contact with the water in the pipe
- 6) -Crew installs repair parts, making sure that no foreign material enters the pipe. Block and or stabilize pipe and repair parts were needed
- 7) Crew opens hydrant or wash-out valve, at the highest point of the shutdown as possible, Then open valve on the other side of the shutdown to remove any air trapped in the line. Check for leaks while this is taking place. After the air is removed, open a valve the rest of the way. Allow water to clear from fire hydrant or



Public Utilities Operation & Maintenance Operations and Training Manual Standard Operating Instructions

Revision: April 5th
Effective Date:

Prepared By: Bret Shelley
Approved By:

Activity: Main line repair / non emergency
No:

Section:
Subsection:

wash-out valve before shutting down. Allow system to pressurize (listen to key on valve till no more sound is heard). Open the rest of the valves that were closed check for leaks once more.

Work Completion:

1. If there are no leaks, the crew then informs dispatch as to which valves have been opened back up and the time that they were opened.
2. The crew greases the fittings and wraps with plastic to prevent corrosion.
3. The crew back fills with sand to six inches above the top of the pipe for proper bedding, the then backfills with imported fill or reuses the existing soil that was saved from excavation. Fill must be tamped in eight inch lifts to avoid excavation failure. If excavation is in asphalt the hole needs to be squared up and left down for blacktop. If it is in a high traffic area, and it is not possible to blacktop it immediately after the repair, the hole is to be covered with a traffic plate or filled to the top and a request to get it ready for blacktop will be necessary.
4. The crew restores the area with saved landscape materials or requests a work order for the landscape crew to make restoration and leaves the hole down for top soil and sod.
5. If concrete has been removed or damaged it is necessary to request a work order for the concrete crew to repair or replace the cement.
6. The crew calls barricade truck to pick up any unnecessary signs and barricades. The barricade truck driver checks with the area supervisor to make sure that the barricades will not be needed for another job in the area before he has them picked up.
7. The crew communicates with the property owner as to work still needing to be completed and leaves the department door hanger that tells the customer what to expect and when.
8. The lead person completes all areas of the work order along with the requests for supplemental work orders and delivers it to his supervisor as soon as possible.
9. The supervisor reviews the work order for completeness and adds the digging permit number and the cost of the permit to the work order.
10. Supervisor makes sure required supplemental work orders are requested. He/she then turns the work order in to the work order office for closure.

Related Documents:

Digging permit, Lane closure permit and Supplemental work orders which could include concrete, lawn care, sprinkler repair, backfill, welders, drainage & sewer



Public Utilities Operation & Maintenance
Operations and Training Manual
Standard Operating Instructions

Revision: April 5th
Effective Date:

Prepared By: Bret Shelley
Approved By:

Activity: *Main line repair / non emergency*
No:

Section:
Subsection:

DRAFT



BUILDINGS – Parking Lot Maintenance

1. Preparation.
 - a. Conduct regular employee training to reinforce proper housekeeping.
 - b. Restrict parking in areas to be swept prior to and during sweeping using regulations as necessary.
 - c. Perform regular maintenance and services in accordance with the recommended vehicle maintenance schedule on sweepers to increase and maintain efficiency.
2. Process.
 - a. Sweep parking areas, as needed, or as directed by the city's responsible official.
 - b. Hand sweep sections of gutter if soil and debris accumulate.
 - c. Pick-up litter as required to keep parking areas clean and orderly.
3. Clean-up.
 - a. Dispose of sweepings properly (appropriate solid waste facility).
 - b. Street sweepers to be cleaned out in a manner as instructed by the manufacturer and in a location that swept materials cannot be introduced into a stormdrain.
 - c. Swept materials will not be stored in locations where storm water could transport fines into the stormdrain system.
4. Documentation.
 - a. Keep accurate logs to track swept parking areas and approximate quantities.
 - b. Document training of employees.



BUILDINGS – Dumpsters/Garbage Storage

1. Preparation.
 - a. Train employees on proper trash disposal.
 - b. Locate dumpsters and trash cans in convenient, easily observable areas.
 - c. Provide properly-labeled recycling bins to reduce the amount of garbage disposed.
 - d. Install berms, curbing, or vegetation strips around storage areas to control water entering/leaving storage areas.
 - e. Whenever possible store garbage containers beneath a covered structure or inside to prevent contact with storm water.
2. Process.
 - a. Inspect garbage bins for leaks regularly, and have repairs made immediately by responsible party.
 - b. Request/use dumpsters, and trash cans with lids and without drain holes.
 - c. Locate dumpsters on a flat, hard surface that does not slope or drain directly into the storm drain system.
3. Clean-up.
 - a. Keep areas around dumpsters clean of all garbage.
 - b. Have garbage bins emptied regularly to keep from overfilling.
 - c. Wash out bins or dumpsters as needed to keep odors from becoming a problem.
4. Documentation
 - a. Document training of employees

WATER – Waterline Flushing for Routine Maintenance

1. Preparation
 - a. Determine flow path of discharge to inlet of waterway.
 - b. Determine chlorine residual
 - c. Neutralize chlorine residual
2. Process
 - a. Clean flow path.
 - b. Protect inlet structures.
 - c. Use diffuser to dissipate pressure to reduce erosion possibilities.
3. Clean-up
 - a. Clean flow path
 - b. Remove inlet protection.
4. Documentation



STANDARD OPERATING INSTRUCTIONS
ILLICIT DISCHARGE DETECTION AND ELIMINATION – SPILL RESPONSE

1.0 Purpose: To minimize pollution introduced to the Municipal Separate Storm Sewer System from Illicit discharges.

2.0 Scope: This document will detail the response, investigation, and elimination process of spills/illicit discharges.

3.0 Responsibility:

Dispatch – Dispatcher who receives notification of spill or illicit discharge becomes responsible for delegating that request. The *Spill incident Response Contact List* shall be referenced whenever there is a report of an actual or potential water quality risk to the MS4.

Storm Water Quality Program Manager – Responsible for the oversight and coordination of Storm Water Quality personnel response and follow up; as well as, any required reporting and notifications to State, County Health, and any other stakeholders.

Storm Water Quality Coordinator/Responding Personnel – Shall respond to notifications, tips, and/or reports of illicit discharges/spills, and coordinate efforts in containment and ensure clean up or remediation is done to the maximum extent practical. Responsible for documentation when applicable e.g. work orders, reports, follow and enforcement letters.

Salt Lake County Health Department – Through the Memorandum of Understanding may respond, report, and enforce on illicit discharges/spills in coordination with and/or on behalf of SLCDPU.

4.0 Procedure:

4.1 Notification

When a report or notification comes in regarding storm water quality, the dispatch or notified party shall take the following steps:

- a. In the event of an emergency call 911
- b. Gather information from caller/reporter including:
 - Location of incident
 - Pollutant associated with discharge and quantity
 - Responsible party if identifiable
 - Name and number of caller/reporter
- c. Refer to Spill Incident Response Contact List and make calls down the list until an available person can respond or address the report.



STANDARD OPERATING INSTRUCTIONS
ILLICIT DISCHARGE DETECTION AND ELIMINATION – SPILL RESPONSE

4.2 Response

Once an IDDE report has been assigned, the delegated department/personnel shall:

- a. Assess and characterize the nature of, and any potential public and environmental risks associated with discharge.
- b. Notify appropriate authorities i.e. State of Utah, Salt Lake County Health Dept.
- c. Contain spill or discharge to the maximum extent practical.
- d. Investigate incident and identify responsible party if possible. Follow SOP IDDE – Tracing Illicit Discharges.
- e. Coordinate and oversee clean up and any needed remediation or follow up. Follow IDDE – Removing Illicit Discharges

5.0 Documentation:

The responding personnel shall prepare, maintain and follow up with all appropriate documentation in accordance with applicable City policy, including:

- a. File all completed forms
- b. Document any further action or enforcement taken

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002



STANDARD OPERATING INSTRUCTIONS

ILLICIT DISCHARGE DETECTION AND ELIMINATION – OUTFALL INSPECTIONS

EFFECTIVE DATE: MONTH/DATE/YEAR

1. Preparation:
 - a. Know the past and present weather conditions. Conduct inspections during dry weather periods.
 - b. Gather all necessary equipment including: tape measure, clear container, clipboard with necessary forms, flashlight, and camera (optional).
 - c. Obtain maps showing outfall locations and identifiers.
 - d. Obtain outfall description and observations from previous inspections, so the outfall can be accurately identified and observations compared.
2. Process
 - a. Perform an inspection of each outfall at least once per year. Whenever, possible use the same personnel for consistency in observations.
 - b. Identify each outfall with a consistent and unique identifier. For example "Howard Slough-#13". Use maps and previous inspection reports to confirm the outfall identity and location.
 - c. If dry weather flow is present at the outfall, then document and evaluate the discharge by completing the following steps:
 1. Collect field samples for visual observations in a clean, clear container and in a manner that avoids stirring up sediment that might distort the observation.
 2. Characterize and record observations on basic sensory and physical indicators (e.g., outfall condition, flow, odor, color, oil sheen) on the Outfall Inspection Form.
 3. Compare observations to previous inspections.
 4. If the flow does not appear to be an obvious illicit discharge (e.g., flow is clear, odorless, etc.), attempt to identify the source of the flow (groundwater, intermittent stream, etc.)
 - d. If an illicit discharge (such as raw sewage, petroleum products, paint, etc.) is encountered or suspected, follow the procedure of SOP IDDE - Tracing Illicit Discharges.
3. Cleanup - as necessary
4. Documentation
 - a. File completed outfall inspection forms.
 - b. Update maps if new outfalls are observed and inspected



STANDARD OPERATING INSTRUCTIONS

ILLCIT DISCHARGE DETECTION AND ELIMINATION – REMOVING ILLICIT DISCHARGES

EFFECTIVE DATE: MONTH/DATE/YEAR

-
1. Preparation
 - a. Obtain available property ownership information for the source of the illicit discharge.
 2. Process
 - a. Determine who is financially responsible; and follow associated procedures as given below.

For Private Property Owner:
Contact Owner,
Issue any enforcement procedures in accordance with City ordinance, and
Determine schedule for removal.

For Municipal Facility:
Notify appropriate municipal authority or department head,
Schedule removal, and
Remove illicit connection.
 - b. Suspend access to storm drain if threats of serious physical harm to humans or the environment are possible.
 - c. Direct responsible party to initiate repairs/corrections/cleanup. Coordinate with enforcement official for escalating penalties in accordance with the City ordinance and Utah Water Quality Act Civil Penalty Determination.
 - d. Repair/correct cause of discharge if municipality is responsible. Schedule the work through the appropriate municipal authority or department head.
 - e. In accordance with the MOU, Seek technical assistance and/or enforcement action from the Salt Lake County Health Department, if needed.
 3. Clean up
 - a. Confirm illicit discharge is removed or eliminated by follow-up inspection.
 4. Documentation
 - a. Maintain records of any enforcement actions.
 - b. Document repairs, corrections, and any other actions required.



STANDARD OPERATING INSTRUCTIONS
ILLCIT DISCHARGE DETECTION AND ELIMINATION – TRACING ILLICIT DISCHARGES
EFFECTIVE DATE: MONTH/DATE/YEAR

1. Preparation
 - a. Review / consider information collected when illicit discharge was initially identified.
 - b. Obtain storm drain mapping for the area of the reported illicit discharge.
 - c. Gather all necessary equipment including: tape measure, clear container, clipboard with necessary forms, flashlight, and camera (optional).
2. Process
 - a. Survey the general area / surrounding properties to identify potential sources of the illicit discharge as a first step.
 - b. Trace illicit discharges using visual inspections of upstream points as a second step. Use available mapping to identify tributary pipes, catch basins, etc.
 - c. If the source of the illicit discharge cannot be determined by a survey of the area or observation of the storm drain system, then consider the following additional steps:
 1. Use weirs, sandbags, dams, or optical brightener monitoring traps to collect or pool intermittent discharges during dry weather.
 2. Smoke test or televise the storm drain system to trace high priority, difficult to detect illicit discharges.
 3. Dye test individual discharge points within suspected buildings.
 4. Consider collecting bacterial samples of flowing discharges to confirm/refute illicit discharge.
 - d. If the source is located, follow SOP IDDE - Removing Illicit Discharges.
 - e. If the source cannot be found, add the location to a future inspection program.
3. Clean up
 - a. Clean catch basin, clean storm drain, or initiate spill response, as applicable. Follow relevant SOPs.
4. Documentation
 - a. Document tracing results for future reference.



STANDARD OPERATING INSTRUCTIONS
ILLICIT DISCHARGE DETECTION AND ELIMINATION – SPILL RESPONSE

1.0 Purpose: To minimize pollution introduced to the Municipal Separate Storm Sewer System from Illicit discharges.

2.0 Scope: This document will detail the response, investigation, and elimination process of spills/illicit discharges.

3.0 Responsibility:

Dispatch – Dispatcher who receives notification of spill or illicit discharge becomes responsible for delegating that request. The *Spill incident Response Contact List* shall be referenced whenever there is a report of an actual or potential water quality risk to the MS4.

Storm Water Quality Program Manager – Responsible for the oversight and coordination of Storm Water Quality personnel response and follow up; as well as, any required reporting and notifications to State, County Health, and any other stakeholders.

Storm Water Quality Coordinator/Responding Personnel – Shall respond to notifications, tips, and/or reports of illicit discharges/spills, and coordinate efforts in containment and ensure clean up or remediation is done to the maximum extent practical. Responsible for documentation when applicable e.g. work orders, reports, follow and enforcement letters.

Salt Lake County Health Department – Through the Memorandum of Understanding may respond, report, and enforce on illicit discharges/spills in coordination with and/or on behalf of SLCDPU.

4.0 Procedure:

4.1 Notification

When a report or notification comes in regarding storm water quality, the dispatch or notified party shall take the following steps:

- a. In the event of an emergency call 911
- b. Gather information from caller/reporter including:
 - Location of incident
 - Pollutant associated with discharge and quantity
 - Responsible party if identifiable
 - Name and number of caller/reporter
- c. Refer to Spill Incident Response Contact List and make calls down the list until an available person can respond or address the report.



STANDARD OPERATING INSTRUCTIONS
ILLICIT DISCHARGE DETECTION AND ELIMINATION – SPILL RESPONSE

4.2 Response

Once an IDDE report has been assigned, the delegated department/personnel shall:

- a. Assess and characterize the nature of, and any potential public and environmental risks associated with discharge.
- b. Notify appropriate authorities i.e. State of Utah, Salt Lake County Health Dept.
- c. Contain spill or discharge to the maximum extent practical.
- d. Investigate incident and identify responsible party if possible. Follow SOP IDDE – Tracing Illicit Discharges.
- e. Coordinate and oversee clean up and any needed remediation or follow up. Follow IDDE – Removing Illicit Discharges

5.0 Documentation:

The responding personnel shall prepare, maintain and follow up with all appropriate documentation in accordance with applicable City policy, including:

- a. File all completed forms
- b. Document any further action or enforcement taken

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002



**STANDARD OPERATING INSTRUCTIONS
SWPPP CONSTRUCTION SITE & OVERSIGHT**

1.0 Purpose: To minimize storm water pollution associated with construction activities that disturb greater than or equal to 1 acre, including projects that are less than one acre that are part of a larger common plan of development.

2.0 Scope: This document will provide standardized instruction for conducting SWPPP inspections and the oversight of permitted construction sites to ensure compliance with State and City permit requirements.

3.0 Procedure:

Equipment

- a. Personal protection equipment i.e. Steel toe boots, safety vest, hard hat.
- b. Credentials i.e. employee identification badge.
- c. Camera or device to take pictures.
- d. Inspection form i.e. tablet, hard copy etc.
- e. Field test equipment.

Preparation

- a. Review construction site tracking workbook for inspections due.
- b. Schedule inspections with contractor/responsible party when necessary.

Site Inspection

- a. Meet with contractor/responsible party and provide credentials.
- b. Review SWPPP for compliance.
- c. Site Map – verify that BMPs on site map are consistent with site BMPs
- d. Inspect job site with Contractor/responsible party.

Post Inspection Review

- a. Review inspection form with responsible party.
- b. Discuss any corrective action items and timeframe for compliance.
- c. Provide copy of inspection to responsible party/parties.

**Meeting and inspection review with responsible party may be subject to availability.*

4.0 Documentation:

- a. Record inspection and send to responsible party
- b. Update files
- c. Document any follow up or enforcement action.

Salt Lake City Public Utilities Storm Water Utility Program Standard Operating Instructions

Pre-Construction

Purpose: *To assure that new construction sites will properly detain storm water runoff without adversely impacting the SLC storm drain system or adjacent properties.*

Scope: *To update the Storm Water GIS with new parcel, building footprint & pervious area information.*

Procedures:

- Review approved drainage plans & calculations for adequate detention/retention storage
- Identify all storm water quality & detention/retention devices for monitoring/inspection
- Locate project's property boundaries. This may include inquiries with the Salt Lake County Recorder's Office to get up-to-date information on parcel combinations/splits.
- Import an electronic drawing or manually scale the building footprints & landscaped/pervious areas for the new site into the GIS
- Calculate overall, total pervious, building and total impervious areas for the new site
- Identify the facility ID (service number) for the new site. All billing and work order information is tied to this ID.
- Add all pertinent information for new site into Public Utilities Billing System (PUBS) and open a "Storm Water New Construction Investigation"

Salt Lake City Public Utilities Storm Water Utility Program Standard Operating Instructions

Construction

Purpose: To monitor new construction sites for existing storm water quality and for proper installation of storm water quality & detention/retention devices.

Scope: Inspect new construction sites biweekly for storm water quality compliance, construction progress, installation of storm drain system and troubleshooting.

Procedures:

- Coordinate with contractor for initial site visit. Identify which storm water devices (if any) are crucial for detention or retention and that these items must be inspected before buried – specifically, underground chamber systems and storage vaults.
- Visit the site at least once every two weeks to evaluate construction progress, storm water device installation, storm water quality management and to troubleshoot problems
- Set up inspection times for specific device installations (underground detention systems)
- Perform a final inspection when construction is complete. All storm water quality & detention/retention devices must be installed and working properly in order to receive a Certificate of Occupancy from Salt Lake City Public Utilities.
- Calculate the monthly storm water charges and discounts (if applicable) for the site. Enter all pertinent information into Public Utilities Billing System (PUBS). Close the “Storm Water New Construction Investigation”
- Create a “Storm Water Utility Program Post-Construction Inspection” work order. This work order will automatically create a recurring post-construction inspection work order once every five years.

Salt Lake City Public Utilities Storm Water Utility Program Standard Operating Instructions

Post-Construction

Purpose: *To evaluate existing facilities for site conditions and proper maintenance of storm water quality & detention/retention devices.*

Scope: *Inspect existing sites at least once every five years for storm water quality & detention/retention compliance, performance/condition/maintenance of storm drain system and overall site changes (if any).*

Procedures:

- Visit site. Identify and inspect all storm water quality & detention/retention devices for proper maintenance and functions. These devices may include: oil/water separators, snouts, orifice plates, sumps, daylight pipes, detention/retention ponds, underground chamber systems and any other direct outlets to the Salt Lake City storm drain system.
- Notify property owners of any storm water quality violations or maintenance issues (if any). Give property owners a finite amount of time (30 days maximum) to address problems. Also enter this information in the “Comments” section on the work order.
- Revisit site to insure that all violations and /or maintenance issues have been properly addressed (if applicable). If not properly addressed, any storm water billing discounts will be suspended until the issue is resolved.
- Update Public Utilities Billing System (PUBS) and the storm water GIS with any changes in building, pervious or impervious areas (if applicable)
- Close the “Storm Water Utility Program Post-Construction Inspection” work order. This action will automatically generate another work order in five years.



**STANDARD OPERATING INSTRUCTIONS
SWPPP INDUSTRIAL INSPECTIONS & OVERSIGHT**

- 1.0 Purpose:** To minimize storm water pollution associated with industrial facilities.
- 2.0 Scope:** This document will provide standardized instruction for conducting SWPPP inspections and the oversight of permitted industrial facilities to ensure compliance with State and City permit requirements.
- 3.0 Procedure:**

Equipment

- a. Personal protection equipment i.e. Steel toe boots, hard hat, safety glasses.
- b. Credentials i.e. employee identification badge.
- c. Camera or device to take pictures.
- d. Inspection form i.e. tablet, hard copy etc.
- e. Field test equipment.

Preparation

- a. Schedule inspections with operator/responsible party.
- b. Request SWPPP digitally prior to inspection (if available).
- c. Review file and SWPPP (if available).

Site Inspection

- a. Meet with Operator/responsible party and provide credentials.
- b. Address any outstanding items from previous inspections.
- c. Review SWPPP for compliance.
- d. Review Site Map
- e. Inspect job site with Operator/responsible party.

Post Inspection Review

- a. Review inspection form with responsible party.
- b. Discuss any corrective action items and timeframe for compliance.
- c. Provide copy of inspection to responsible party/parties.
- d. Distribute any applicable educational material

4.0 Documentation:

- a. Record and send a copy of the inspection report to the responsible party.
- b. Update files, tracking spreadsheet, and GIS map.
- c. Document any follow up or enforcement action.

SAMPLING PROCEDURES

STORM EVENT REQUIREMENTS AND LOCATIONS

With regards to representative sampling, the UPDES Permit States, Part III B “Minimum monitoring expected to be accomplished each year shall be a planned monitoring frequency twice a year (spring and fall, subject to weather conditions)”. All samples shall be collected from a storm event that is greater than 0.2 inches of precipitation with a three hour period that occurs at least 72 hours from the previously measurable rainfall greater than 0.1 inch.

Salt Lake City has three sampling stations in its MS4 that represent light industrial, Mixed Use and low density residential. Lee Drain at 5500 West and California Avenue, Forest Dale at Forest Dale golf course at 2650 South and McClelland Street and Gale Street at 900 South and Gale Street.

Prior to forecasted storm event samplers will be taken out to the sampling stations rain gauges, velocity meters, batteries and sample hose will connected and tested for operation volume calibrations, distribution arm operations, color of desiccant beads and parameters will be checked. And the sampler will be set to trigger upon rain and level.

Representative Storm Sampling Check list

- ✓ Mobile Phone
- ✓ First aid Kit
- ✓ Marking pens
- ✓ Keys to sample stations and gates
- ✓ Grab Sample coolers
- ✓ Grab Sample pole and bottle cradle
- ✓ Glass quart bottle
- ✓ Extra tubing and clamps
- ✓ Tools including nut driver set, screw driver. Wrenches and knife
- ✓ Flash light
- ✓ Latex gloves
- ✓ Paper towels
- ✓ Traffic cones
- ✓ Reflective safety vest
- ✓ Sample bottles
- ✓ Rain gear including jacket, pants and boots
- ✓ **Grab Sample Bottle set:**
- ✓ VSS/TSS (1) Quart plastic no preservatives
- ✓ Oil and grease (1) Quart amber preserved with HCl from Lab.
- ✓ Cyanide (1) Quart plastic preserved with NaOH from Lab.
- ✓ DOC (1) glass 100 ml. minimum no preservative
- ✓ TOC (2) 40ml.viles preserved with H₃po₄
- ✓ **Composite bottle set:**
- ✓ (1) ½ Gallon plastic no preservative
- ✓ (1) Quart plastic no preservative
- ✓ (1) pint plastic H₂ SO₄
- ✓ (1) pint plastic HNO₃

Salt Lake City - Wet Weather Stormwater Sampling Plan

Point of Contact

Greg Archuleta

Stormwater Quality Program Manager

Current Program

Storm Sampling

Sampling is conducted at least twice per year, during the spring and fall. Parameters for sampling are determined by the UPDES permit. Sampling includes grab samples at the beginning of a representative storm, and a flowweighted composite sample collected throughout the duration of the storm.

In accordance with the UPDES permits, storms that are *representative* of typical storms in this area are selected for monitoring. Three sampling stations representing various land uses have been established to conduct this monitoring:

JOR – 8	Mixed Land Use located at 900 S and Gale Street.
MIL – 03	Residential Land Use located at 1040 E 2650 S
LED – 02	Light Industrial Land Use located at 5600 W on the Lee Drain (California Avenue)

Sampling is conducted at least twice per year, during the spring and fall. Parameters for sampling are determined by the UPDES permit. Sampling includes grab samples at the beginning of a representative storm, and a flowweighted composite sample collected throughout the duration of the storm.

The Event Mean concentration is used to provide a measure of water quality taking into account pollutant load, precipitation, land use, and area.

The following constituents are required by permit

- Biochemical Oxygen Demand (BOD5)
- Total Suspended Solids (TSS)
- Total Dissolved Solids (TDS)
- Total Nitrogen
- Dissolved Nitrogen
- Total Kjeldahl Nitrogen (TKN)
- Total Phosphorus
- Dissolved Phosphorus
- Cadmium
- Copper
- Lead
- Zinc
- Selenium
- Mercury
- total Hardness
- pH*
- Oil and Grease*
- Cyanide*
- flow

*identifies constituents measured in the Grab Sample.



STANDARD OPERATING INSTRUCTIONS
ILLICIT DISCHARGE DETECTION AND ELIMINATION – SPILL RESPONSE

1.0 Purpose: To minimize pollution introduced to the Municipal Separate Storm Sewer System from Illicit discharges.

2.0 Scope: This document will detail the response, investigation, and elimination process of spills/illicit discharges.

3.0 Responsibility:

Dispatch – Dispatcher who receives notification of spill or illicit discharge becomes responsible for delegating that request. The *Spill incident Response Contact List* shall be referenced whenever there is a report of an actual or potential water quality risk to the MS4.

Storm Water Quality Program Manager – Responsible for the oversight and coordination of Storm Water Quality personnel response and follow up; as well as, any required reporting and notifications to State, County Health, and any other stakeholders.

Storm Water Quality Coordinator/Responding Personnel – Shall respond to notifications, tips, and/or reports of illicit discharges/spills, and coordinate efforts in containment and ensure clean up or remediation is done to the maximum extent practical. Responsible for documentation when applicable e.g. work orders, reports, follow and enforcement letters.

Salt Lake County Health Department – Through the Memorandum of Understanding may respond, report, and enforce on illicit discharges/spills in coordination with and/or on behalf of SLCDPU.

4.0 Procedure:

4.1 Notification

When a report or notification comes in regarding storm water quality, the dispatch or notified party shall take the following steps:

- a. In the event of an emergency call 911
- b. Gather information from caller/reporter including:
 - Location of incident
 - Pollutant associated with discharge and quantity
 - Responsible party if identifiable
 - Name and number of caller/reporter
- c. Refer to Spill Incident Response Contact List and make calls down the list until an available person can respond or address the report.



STANDARD OPERATING INSTRUCTIONS
ILLICIT DISCHARGE DETECTION AND ELIMINATION – SPILL RESPONSE

4.2 Response

Once an IDDE report has been assigned, the delegated department/personnel shall:

- a. Assess and characterize the nature of, and any potential public and environmental risks associated with discharge.
- b. Notify appropriate authorities i.e. State of Utah, Salt Lake County Health Dept.
- c. Contain spill or discharge to the maximum extent practical.
- d. Investigate incident and identify responsible party if possible. Follow SOP IDDE – Tracing Illicit Discharges.
- e. Coordinate and oversee clean up and any needed remediation or follow up. Follow IDDE – Removing Illicit Discharges

5.0 Documentation:

The responding personnel shall prepare, maintain and follow up with all appropriate documentation in accordance with applicable City policy, including:

- a. File all completed forms
- b. Document any further action or enforcement taken

APPENDIX E – Salt Lake City Owned Facilities



Salt Lake City Corporation

Department of Public Utilities

1530 South West Temple

Salt Lake City, UT 84115

CITY OWNED/OPERATED FACILITIES

City owned & operated facilities					
	400 S. State Street				
Parks	Address	Acres	Amenities	Operations & Potential Pollutants	SW Controls
Parks Department	1965 West 500 South 84104 (Mon-Fri 8:00-5:00)	38.2	Offices, warehouse, shops, wash bay & conference room	Fuel, Turf & Tree chemicals, rubbish & Equipment Cleaning.	Good Housekeeping, SOPs, Infiltration
11th Ave Park	581 N Terrace Hills Dr (890 E)	25	Playground, Multi-purpose fields, Basketball, Tennis, Jogging/Walking Path, Drinking Fountain, Volleyball, Picnic Tables	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
17th South River Park	1150 W 1700 S	17	Playground, Restroom, Multi-purpose fields, Drinking Fountain	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
6th East	220 S 600 E	0.25	Playground	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
9th South River Park	1000 W Genesee (850 S)	4.5	Restroom, Picnic Tables	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
Arcadia Trailhead	1825 S Lakeline Dr (2950 E)	0.25	Jogging/Walking Path, Drinking Fountain		
Artesian Well	808 S 500 E	0.25	Drinking Fountain	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
Beatrice Evans Park	1224 E Gilmer Dr (905 S)	0.25	Sandbox	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
Bend-In-The-River Open Space	1054 W Fremont Drive	4.25	Natural Area		
Bonneville Shoreline Preserve Open Space		57.73	Natural Area		
Bonneville Shoreline Trail Open Space			Natural Area		
City Creek Open Space above Memory Grove	950 N City Creek Canyon	369.16	Natural Area		Sediment basins
City Creek Park	110 N State St	4	Drinking Fountain	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
Constitution Park (County)	1300 W 300 N	16.5	Click link to go to County site for information.		
Cotton Park	1815 S 300 E	0.25	Playground	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
Cottonwood Park	1580 W North Star Dr (300 N)	25	Playground, Restroom, Basketball, Jogging/Walking Path, Volleyball,	Maintenance activities: Tree & turf chemical applications,	



Salt Lake City Corporation

Department of Public Utilities

1530 South West Temple

Salt Lake City, UT 84115

CITY OWNED/OPERATED FACILITIES

			Pavilion, Off-leash area, Picnic Tables	Rubbish, equipment fluid leaks. & pet waste.	
Curtis Park	1421 S 2200 E	1.25	Playground	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
Davis Park	916 S 2000 E	0.5	Playground, Drinking Fountain	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
Dee Glen Smith Tennis	1130 S Wasatch Dr (2520 E)	2.75	Restroom, Tennis, Reservation	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	Trash containers housekeeping
Dilworth Park	1953 S 2100 E	4.5	Tennis, Softball	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
Donner Trail Park	2903 E Kennedy Dr (985 S)	17	Playground, Jogging/Walking Path, Drinking Fountain, Picnic Tables	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
Ensign Downs Park	125 E Dorchester Dr (880 N)	7	Playground, Tennis, Softball, Jogging/Walking Path, Drinking Fountain, Volleyball	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
Ensign Peak Nature Park	1002 N Ensign Vista Dr	0.25	Jogging/Walking Path		
Fairmont Park	1040 E Sugarmont Dr (2225 S)	30	Playground, Restroom, Multi-purpose fields, Basketball, Jogging/Walking Path, Drinking Fountain, Volleyball, Pavilion (reservations), Picnic Tables, Swimming Pool, Skate Park	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
Fault line Park	1041 E 400 S	1	Playground, Drinking Fountain, Picnic Tables	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
Fire Station Tennis	1015 West 300 N.	0.5	Tennis		
First Encampment Park	1704 S 500 E	0.75		Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
Gallagher Park	644 S Park St (540 E)	0.25	Playground	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
Gilgal Garden	749 E 500 S	3		Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
Glendale Park	1375 W 1700 S	6	Restroom, Tennis, Softball, Drinking Fountain, Picnic Tables	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
Guadalupe Park	619 W 500 N	1	Playground, Basketball, Picnic Tables	Maintenance activities: Tree & turf chemical applications, mowing,	



Salt Lake City Corporation

Department of Public Utilities

1530 South West Temple

Salt Lake City, UT 84115

CITY OWNED/OPERATED FACILITIES

Herman Franks Park	1371 S 700 E	10	Playground, Restroom, Baseball, Off-leash area	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
Hidden Hollow	1229 E Wilmington Ave (2195 S)	5	Jogging/Walking Path, Drinking Fountain, Natural Area	Maintenance activities: Tree & turf chemical applications, mowing, rubbish, equipment fluid leaks. & pet waste.	
Hillcrest Park	1927 E Hillcrest Ave	0.75			
H-Rock Open Space	1865 S Devonshire Drive	50.25	Natural Area		
Inglewood Park	1159 S McClelland St (1040 E)	0.5	Playground, Drinking Fountain		
International Peace Gardens	1060 S 900 W	12	Drinking Fountain		
Jackson Park	481 N Grant St (740 W)	1	Playground, Picnic Tables		
Jefferson Park	110 W Fremont Ave (1115 S)	3.25	Playground		
Jordan Meadows Park	1920 W 400 N	2.5	Playground, Jogging/Walking Path, Drinking Fountain, Picnic Tables		
Jordan Park	1060 S 900 W	33.5	Playground, Restroom, Tennis, Softball, Drinking Fountain, Volleyball, Pavilion (reservations), Off-leash area, Picnic Tables, Skate Park, Horseshoes		
Jordan River Parkway	2100 S 2400 N		Jogging/Walking Path		
Kay Rees Park	535 E 14th Ave (700 N)	0.75	Multi-purpose fields		
Kletting Park	164 N B St (250 E)	0.5	Playground		
Laird Park	1185 S 1800 E	1.75	Playground, Multi-purpose fields, Softball, Drinking Fountain, Picnic Tables, Sandbox		
Liberty Park	600 E 900 S	100	Playground, Restroom, Basketball, Tennis, Jogging/Walking Path, Drinking Fountain, Volleyball, Pavilion (reservations), Picnic Tables, Swimming Pool, Horseshoes		
Lindsey Gardens	426 N M ST (800 E)	15.25	Playground, Restroom, Baseball, Drinking Fountain, Pavilion (reservations), Off-leash area, Picnic Tables		
Madsen Park	9 N Chicago St (940 W)	2	Playground, Basketball, Softball, Picnic Tables		
Memory Grove	300 North Canyon Road	8.75	Restroom, Jogging/Walking Path, Drinking Fountain, Off-leash area, Picnic Tables		
Miami Park	1571 N Miami Rd (1780 W)	1	Playground		
Miller Park	1708 E 900 S	8.75	Jogging/Walking Path, Natural Area		
Modesto Park	1175 S 1000 W	5	Playground, Jogging/Walking Path		
North Gateway Park	910 N Beck St (300 W)	5	Restroom, Jogging/Walking Path, Drinking Fountain		
Oak Hills Ball Diamonds	1216 S Wasatch Dr (2520 E)	2.5	Restroom, Baseball, Drinking Fountain		



Salt Lake City Corporation
Department of Public Utilities
1530 South West Temple
Salt Lake City, UT 84115

CITY OWNED/OPERATED FACILITIES

Parley's Historic Nature Park	2740 S 2700 E	87	Jogging/Walking Path, Off-leash area		
Parley's Way	2848 E Wilshire Dr. (2565 S)	2.75	Playground		



Salt Lake City Corporation

Department of Public Utilities

1530 South West Temple

Salt Lake City, UT 84115

CITY OWNED/OPERATED FACILITIES

People's Freeway Park	1560 S West Temple St (100 W)	0.5	Playground
Pioneer Park	350 S 300 W	10	Playground, Restroom, Basketball, Tennis, Jogging/Walking Path, Drinking Fountain, Volleyball, Off-leash area
Poplar Grove Park	800 S Emery St (1170 W)	6.75	Playground, Restroom, Basketball, Tennis, Baseball, Drinking Fountain, Volleyball, Pavilion (reservations), Horseshoes
Popperton Park	1400 E Popperton Park Way (360 N)	8	Playground, Multi-purpose fields, Jogging/Walking Path, Picnic Tables
Post Street	487 S Post St (940 W)	0.5	Playground, Drinking Fountain
Pugsley Ouray Park	343 W 500 N	0.25	Playground
Redwood Meadows Park	1768 W 400 N	1.25	Playground
Regional Athletic Complex	2100 N Rose Park Lane	160	Multi-purpose fields and more amenities to come in the future
Reservoir Park	42 S University St (1345 E)	6.5	Playground, Multi-purpose fields, Tennis, Drinking Fountain, Picnic Tables
Richmond Park	444 E 600 S	2	Playground, Drinking Fountain, Volleyball
Riverside Park	1490 W 600 N	28.5	Playground, Restroom, Multi-purpose fields, Basketball, Tennis, Softball, Baseball, Drinking Fountain, Volleyball, Pavilion (reservations), Picnic Tables, Sandbox, Horseshoes
Rosewood Park	1400 N 1200 W	22.25	Playground, Restroom, Multi-purpose fields, Tennis, Softball, Baseball, Jogging/Walking Path, Drinking Fountain, Volleyball, Picnic Tables, Skate Park
Rotary Glen Park	2850 E Sunnyside (840 S)	24.5	Restroom, Drinking Fountain, Pavilion, Picnic Tables
Rotary Park	Up City Creek Canyon (2380 N 2500 E)		Picnic Tables, Natural Area
Sherwood Park	1450 W 400 S	12.75	Playground, Restroom, Baseball, Drinking Fountain, Volleyball, Pavilion (reservations), Picnic Tables
Shipp Park	579 E 4th Ave (200 N)	0.25	Playground
Silver Park	126 W 500 N	0.25	Playground, Drinking Fountain
Steenblik Park	1050 W 800 N	2	Playground, Drinking Fountain, Picnic Tables
Stratford Park	2635 S Preston St (1930 E)	2	Playground, Multi-purpose fields
Sunnyside Park	1735 E Sunnyside Ave (840 S)	25.5	Playground, Restroom, Multi-purpose fields, Basketball, Tennis, Softball, Baseball, Drinking Fountain, Volleyball, Pavilion (reservations), Picnic Tables
Swede Town Park	840 W 1500 N	0.75	Playground, Basketball, Sandbox
Taufer Park	680 S 300 E	1	Playground
Victory Park	237 S 1000 E	3	Playground, Tennis, Drinking Fountain
Warm Springs Park	840 N Beck St (300 W)	9	Playground, Restroom, Multi-purpose fields, Tennis, Drinking Fountain, Picnic Tables
Wasatch Hollow Open Space	1700 S 1650 E	10	Natural Area
Wasatch Hollow Park	1631 E 1700 S	20	Playground, Restroom, Drinking Fountain
Washington Park	Canyon. Exit 134 on I-80 East	20	Playground, Restroom, Softball, Volleyball, Pavilion (reservations), Picnic Tables, Horseshoes
Washington Square	451 S State Street		Benches



Salt Lake City Corporation

Department of Public Utilities

1530 South West Temple

Salt Lake City, UT 84115

CITY OWNED/OPERATED FACILITIES

Westminster Park	986 E 1700 S	0.5	Playground
WestPoint Park	1920 W Colonel Rd (1100 N)	23	Playground, Restroom, Multi-purpose fields, Basketball, Tennis, Softball, Baseball, Jogging/Walking Path, Drinking Fountain, Volleyball, Pavilion (reservations), Picnic Tables, Sandbox
Fire stations	Address	Hours of Operation	
Fire Department	315 East 200 South, 7th Floor	24/7	
Fire Station No. 1	211 South 500 East 84111	24/7	
Fire Station No. 2	270 West 300 North 84103	24/7	
Fire Station No. 3	1085 East Simpson Ave. 84106	24/7	
Fire Station No. 4	830 East 11th Ave, 84103	24/7	
Fire Station No. 5	1023 East 900 South 84105	24/7	
Fire Station No. 6	948 West 800 South 84104	24/7	
Fire Station No. 7	273 North 1000 West 84116	24/7	
Fire Station No. 8	15 West 1300 South 84115	24/7	
Fire Station No. 9	5822 West Amelia Earhart Drive 84116	24/7	
Fire Station No. 10	785 Arapeen Drive 84108	24/7	
Fire Station No. 11	581 North 2360 West 84116	24/7	At the Airport
Fire Station No. 12	4030 West 1085 North 84116	24/7	At the Airport
Fire Station No. 13	2360 East Parley's Way 84109	24/7	
Fire Station No. 14	1560 Industrial Road 84104	24/7	
Police Department	315 East 200 South	24/7	
Police Pioneer Precinct	1040 West 700 South	24/7	
Golf Courses	Maintenance & Operations 2375 South 900 East	Seasonal Operations	
Bonneville Golf Course	954 Connor Street		
Forest Dale Golf Course	2375 South 900 East		
Glendale Golf Course	1630 West 2100 South		
Mountain Dell Golf Course	Parley's Canyon		
Nibley Golf Course	2730 South 700 East		
Rose Park Golf Course	1386 North Redwood Road		
Wingpointe Golf Course	3602 West 100 North		
Airport Authority	776 North Terminal Drive	24/7	
Arts Council	54 Finch Lane (Reservoir Park)	Mon-Fri 8:00-5:00	
City Cemetery	200 "N" Street	Mon-Fri 8:00-5:00	
Emergency Management Division/Engineering Division	349 So. 200 East Suite 200	Mon-Fri 8:00-5:00	
Forestry (Urban Forester)	1965 West 500 South Second Floor	Mon-Fri 8:00-5:00	
Gallivan Center	239 South Main	Mon-Fri 8:00-5:00	
Impound Lot	2150 West 500 South	Closed	
Parking Enforcement	212 East 600 South	Mon-Fri 8:00-5:00	
Streets and Sanitation	1990 west 500 south	Mon-Fri 8:00-5:00	
PSMF Fueling Station	1995 West 500 South	Mon-Fri 8:00-5:00	
Traffic Control Center	260 East 600 South 84111	24/7	
Public Utilities	1530 South West Temple	Mon-Fri 8:00-5:00	
Public Utilities Shops/Dispatch	1530 South West Temple	24/7 Hot Line	



Salt Lake City Corporation

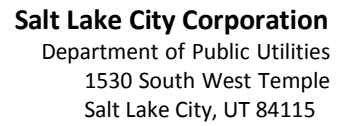
Department of Public Utilities

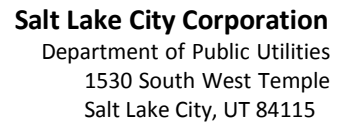
1530 South West Temple

Salt Lake City, UT 84115

CITY OWNED/OPERATED FACILITIES

Justice Courts	333 S. 200 East	Mon-Fri 8:00-5:00	
Emergency Mgmt.	650 Redwood Road	24/7	
New Hope Center (utilities off)	1102 W. 400 N.		
Brine Shrimp Warehouse (gas off)	955 S. West Temple		
Barnes Banks Building	431 S. 300 East		
IMS Transmitter	Ensign Peak		
Libraries	Address	Hours of Operation	
Main Library	210 East 400 South	Mon.-Thurs. 9 a.m.-9 p.m. Fri.-Sat. 9 a.m.-6 p.m. Sunday 1-5 p.m.	
Anderson Foothill Library	1135 south 2100 East	Mon.-Thurs. 9 a.m.-9 p.m. Fri.-Sat. 9 a.m.-6 p.m. Sunday closed	
Chapman Library	577 South 900 West	Mon.-Thurs. 9 a.m.-9 p.m. Fri.-Sat. 9 a.m.-6 p.m. Sunday closed	
Corrine and Jack Sweet	455 F Street (9 th Ave)	Mon.-Thurs. 9 a.m.-9 p.m. Fri.-Sat. 9 a.m.-6 p.m. Sunday closed	
Day- River side	1575 west 100 north	Mon.-Thurs. 9 a.m.-9 p.m. Fri.-Sat. 9 a.m.-6 p.m. Sunday 1-5 p.m.	
Streets	1990 West 500 South/700 So. Delong Street.	Mon-Fri 8:00-5:00	Parviz Rokhva (801) 535-6969
Salt piles (Guardsman way)	645 So. Guardsman way	Seasonal Operations	Joe Aguilar (801) 535-6946
Salt piles (Victory Road)	Approximately 600 N. Victory Rd.	Seasonal Operations	Joe Aguilar (801) 535-6946
Salt piles (Forest Dale)	2375 South 900 East	Seasonal Operations	Joe Aguilar (801) 535-6946
Salt piles (Bonneville)	783 N. Bonneville Blvd.	Seasonal Operations	Joe Aguilar (801) 535-6946
Salt piles (Delong Street)	700 So. Delong Street	Seasonal Operations	Joe Aguilar (801) 535-6946

[illegible]

[illegible]

SALT LAKE CITY STORM WATER MANAGEMENT PLAN
MS4 UPDES PERMIT NO. UTS000002

APPENDIX F – 2010 Public Survey

Study conducted for

Salt Lake County Stormwater Resident Survey

February 1–15, 2010

Study conducted by



Table of Contents

Introduction

Research Objectives	1
Methodology	2
Survey Instrument	2
Sample.....	2
Fieldwork	2
Limitations.....	3
Data Analysis.....	3

Executive Summary

Residents' Habits that May Affect Stormwater.....	4
Residents' Knowledge of Stormwater	4
Stormwater Pollution	5
Awareness of Stormwater Ads and Information.....	7
Conserving and Protecting the Water Supply	7

Salt Lake County Stormwater: At-a-Glance

Questions, Charts, and Significant Findings

1:	First, let me verify that you are a resident of Salt Lake County.....	11
2:	Do you generally wash your car at home or in a commercial car wash?	11
3:	IF AT HOME: Where do you most often wash your car at home?	12
4:	Do you generally mow your own lawn?	12
5:	IF NO: Who most often mows your lawn?	13
6:	IF HAVE A LAWN: Who applies lawn treatments?.....	13
7:	From what you know or have heard, does your city have a fall leaf pickup?	14
8:	Do you currently own a dog?	14
9:	IF YES: How do you generally dispose of your dog's waste at home?	15
10:	IF YES: What do you generally do with its waste in public?.....	15
11:	What does the term "stormwater" mean to you?	16
12-21:	Into which local creek/ river does stormwater in your neighborhood flow?	16
22:	IF NONE MENTIONED: Where do you think stormwater goes?.....	17
23:	How much of Salt Lake County's stormwater goes to a treatment plant?.....	17
24:	What other sources can enter the stormwater system?	18
25:	Do you happen to know where the nearest storm drain is in your neighborhood?	18
26:	How serious a problem do you feel stormwater pollution is in Salt Lake County?	19
27-41:	What are some ways that stormwater in Salt Lake County can be polluted?	20
42:	Who do you think is the largest contributor to stormwater pollution?	21
43:	Is it legal or okay to dispose of any materials like oil, etc. in storm drains/ gutters?	21
44:	Did you know it is illegal to have charity car washes in parking lots?.....	22
45:	Where do you dispose of your household chemicals?	22
46:	How likely would you be to change your own stormwater behavior?	23
47:	Have you heard or seen any promotions or ads about stormwater?	23
48:	IF YES: Where have you seen or heard the information about stormwater?	24
49-59:	IF YES: What can you remember about the promotions or ads?	24
60:	IF SLOGAN NOT MENTIONED: Do you recall "We all live downstream"?.....	25
61:	IF HAVE SEEN ADS: How informative are the ads?.....	25
62:	Are local governments are required to improve the quality of stormwater?	26
63:	Have you changed any of your own behavior in the past few years?	26
64:	IF DEFINITELY OR PROBABLY: What have you done differently?	27
65:	Is there a difference between "conserving" water and "protecting" water?	27
66:	How important do you feel it is to protect the local water supply?.....	28
67:	Is it more important to protect the local water supply or conserve water?	28

Copyright & Intellectual Property Notice

Questionnaire with Results

Respondent Comments.....

Computer Cross-tabulations.....

Introduction

Dan Jones & Associates, Inc., a full-service, independent, public opinion and market research firm located in Salt Lake City, Utah, was commissioned by Salt Lake County Stormwater Coalition to conduct and compile a research study of 500 Salt Lake County residents regarding stormwater.

Research Objectives

The overall objective is to assess residents' attitudes about stormwater, and more specifically to:

- Ascertain outdoor water, landscaping, and pet habits that may affect stormwater
- Establish familiarity with leaf pick-up programs
- Find out what "stormwater" means to residents
- Determine where residents think stormwater goes
- Explore residents' knowledge of stormwater treatment, sources, and nearest storm drain
- Investigate stormwater pollution, its sources and seriousness
- Research knowledge of local laws and regulations regarding stormwater
- Determine how likely residents are to change behaviors that may contribute to stormwater pollution
- Measure awareness of stormwater advertising, messages, and effectiveness, specifically, "We all live downstream"
- Evaluate the importance of protecting and conserving the local water supply.

Methodology

Dan Jones & Associates developed the questionnaire in conjunction with Lisa Hartman of Sausi Communications. To meet the research objectives, 509 residents of Salt Lake County were interviewed by telephone. Fieldwork was conducted February 1-15, 2010 weekdays, during evening hours (4:00 to 9:00 pm MT) and Saturdays during the day (10:00 am to 3:00 pm MT).

Survey Instrument

The questionnaire included structured questions to measure intensity of opinions and unstructured questions to assess the perceptions of respondents. Demographic questions were asked to provide opinions of subgroups.

Prior to implementation, the client approved the questionnaire. A pretest was conducted prior to any fieldwork to check the questionnaire for length, flow, clarity, and common language. The client approved any changes made to the questionnaire as a result of the pretest.

Sample

For the purpose of this research, Dan Jones & Associates utilized a random systematic sampling procedure giving each household within Salt Lake County an equal opportunity of being selected for an interview. Respondents were screened to ensure that participants were at least 18 years old and residents of Salt Lake County.

The margin of error for this survey is $\pm 4.5\%$ for total data. The margin of error increases for the responses of subgroups within the data. This study has a 95% confidence level, meaning that no more than one time in twenty should chance variations in the sample cause the results to vary by more than the margin of error ($\pm 4.5\%$) from the answers that would be obtained if all people in the survey universe were polled.

Fieldwork

Dan Jones & Associates employs professional, experienced interviewers who have worked on numerous surveys to date and proven to be reliable and thorough. To assure accuracy in reciting the questions and recording the responses, the project director carefully briefed interviewers. All interviews were conducted from the Dan Jones & Associates on-site Data Collection Center, where all interviewers are monitored and supervised.

Multiple callbacks were made to reach respondents. Telephone interviews were conducted primarily during weekday evening hours and on Saturdays; some interviews were attempted during weekday daytime hours when respondents could not be reached in the evening.

Limitations

Dan Jones & Associates recognizes that there are constraints to all survey research. Some of those limitations include: **Time**—fieldwork or data collection is usually conducted in a two-week window, therefore, people who may not be available during the data collection period will be excluded from the sample; **Budget**—it's simply too costly to reach everyone within the survey universe or to ask for opinions on every possible option or issue; and **Access**—not all potential respondents have access to landline telephones. Random sampling is used to get the best representation possible.

Data Analysis

Statistical results have been prepared by the staff of Dan Jones & Associates. Each question has a response distribution, as well as a series of cross-tabulations, which organize responses by various demographic groupings and allow for the detection of differences that may exist between opinions of subgroups. SPSS (Statistical Package for Social Science) was used to test the data and to determine if differences in relationships between various populations are real or merely due to chance. Checkmarks (✓) highlight statistically significant findings.

Because of rounding, the response distribution on individual questions may not always total 100%.

Executive Summary

Residents' Habits that May Affect Stormwater

Car washing: Seven out of ten Salt Lake County residents (71%) declare that they wash their car *at a car wash*, while 16% say they wash their car *at home*. While it is not a drastic increase, the percentage of county residents who wash their car at a car wash has increased 6 percentage points from 2003 when it was at 65%. Among the group who generally wash their car at home (n=80), just over half (55%) say they wash it *on the driveway* and 38% say *on the lawn*.

Lawn care: Increasingly, residents are saying that they *mow their own lawn* (2003: 76% and 2010: 81%). Likewise, fewer report that *someone else mows their lawn* (2003: 17% and 2010: 13%)—primarily *a professional lawn service/ landscaper* (2003 n=68: 68% and 2010 n=65: 66%). Among residents with a lawn, a plurality (2003 n=377: 49% and 2010 n=476: 46%) say that *they personally* are the one who applies lawn treatments like fertilizer. About one-quarter (2003: 23% and 2010: 24%) have it treated by a *professional lawn service* and about one in five (2003: 20% and 2010: 21%) have a *family member* take care of it.

Pet waste: Three out of seven Salt Lake County residents (2003: 41% and 2010: 43%) report that they *have a dog*. Four out of five dog owners in the county (2003 n=164: 77% and 2010 n=217: 79%) say they dispose of the dog's waste at home by *bagging it and throwing it in the trash*, while six percent (2003: 5% and 2010: 6%) say they *bury it*. At first glance, it appears that Salt Lake County dog owners are less responsible with their dog's waste in public places as the percentage saying they *bag it and throw it in the trash* is roughly 20 percentage points lower than at home (2003: 54% and 2010: 59%); however, exploring respondent's *other* comments reveals that many dog owners simply do not take their dogs to public places.

Residents' Knowledge of Stormwater

People in Salt Lake County seem to have a grasp of what the term *stormwater* means. Unaided, they offer a variety of definitions, nearly all of which could be considered at least partially correct. Runoff water (18%), gutter water (16%), rain/ snow water (16%), water from a storm (15%), and water that goes down the drain (15%) top the list.

When it comes to naming the body of water in their neighborhood that stormwater flows into, residents are a little unsure, with the largest percentage (37%) declaring they *don't*

know. One-third (35%) says it flows into the Jordan River. No other river, pond, or creek is mentioned by more than 5%.

Five out of eight residents think that *all* (9%) or *some* (53%) of Salt Lake County's stormwater goes to a treatment plant. Just 15% declare that *none* of the stormwater gets treated and the remaining residents (22%) admit they *don't know*.

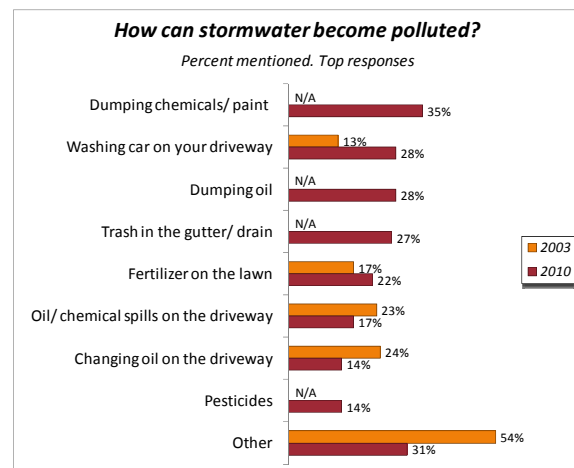
Considering other sources by which water may enter the stormwater system, *watering lawns* (26%) and *washing cars* (16%) are mentioned, unaided, by the largest percentage of county residents.

Two-thirds of county residents (67%) say they know where the nearest storm drain is in their neighborhood.

Stormwater Pollution

Consistent with residents' opinions in 2003, about one in six people (2003: 17% and 2010: 18%) feel that stormwater pollution in Salt Lake County is a *very serious* problem. Going back ten years earlier, about twice as many residents (1993: 32%) thought stormwater pollution in the county was a *very serious* problem.

Overall, residents appear to be more aware of ways that stormwater may become polluted than they were in 2003, with *dumping chemicals or paint* (2010: 35%), *washing a car in the driveway* (2003: 13% and 2010: 28%), *dumping oil* (2010: 28%), and *trash in the gutter or drain* (2010: 27%) being most mentioned. It should be noted that three of the four top responses were not quantified directly but may have been captured in the *other* category in 2003.

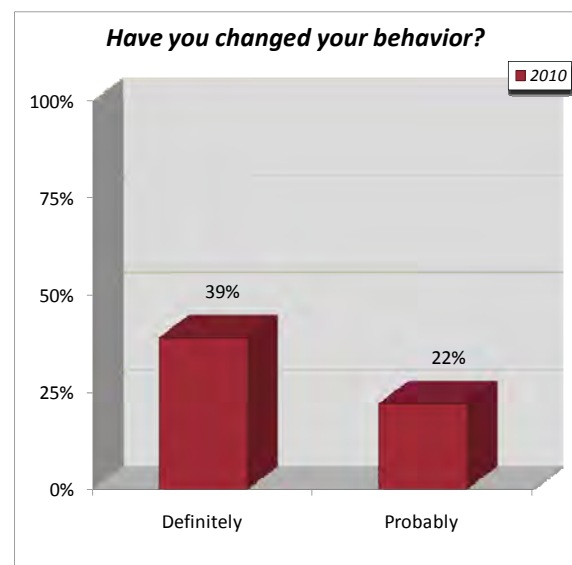
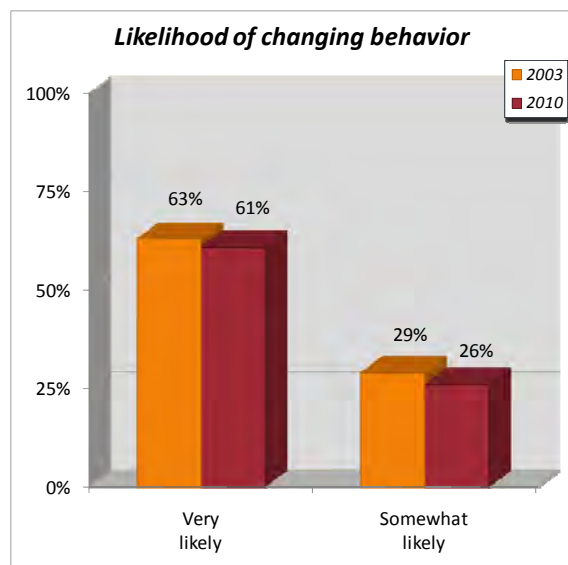


Residents do recognize that they collectively might be part of a stormwater pollution problem, with half (2003: 46% and 2010: 51%) stating that *residents or people* are the largest contributor to stormwater pollution. Residents see *industry and business* as less of a contributor than they did in 2003 (2003: 26% and 2010: 11%).

Half of the residents in this study (50%) say they dispose of household chemicals at a *disposal facility*, but one in six (16%) admit they put it directly in the *garbage*. One-quarter (26%) mention other ways of disposing of household chemicals, but upon further inspection of their comments, many of the *other* responses do mention a disposal facility in a roundabout way (see Appendix B for all respondent comments).

Three out of five people (2003: 63% and 2010: 61%) proclaim they are *very likely* to change their own behavior if they saw or heard new ideas about preventing stormwater pollution. Another one-quarter (2003: 29% and 2010: 26%) think they would be *somewhat likely*. It is notable that, overall, residents appear to be marginally less likely to change their behavior than they were in 2003.

When asked directly if they have changed any of their behaviors in the past few years regarding what goes into gutters and storm drains, there appears to be less buy-in. However, this study did not measure whether or not residents were already careful about behavior that might affect stormwater. Two out of five people (39%) say they *definitely* have changed behaviors and 22% say they *probably* have.



One in ten people (10%) says he or she is aware that it is illegal to conduct charity carwashes in parking lots if the water goes down the storm drain; that means the vast majority of Salt Lake County residents (89%) are unaware of this law. Three out of ten (30%) say they are *aware* that city and county governments are required by law to implement programs to improve the quality of stormwater according to federal mandates. The majority (69%), however, are *unaware*.

Awareness of Stormwater Ads and Information

Three-quarters of county residents (77%) say they have heard ads or promotions about stormwater. Most of these (n=393, 84%) mention television or television ads as the source. Most memorable things from the ads are *the guy coming out of the drain* (2003: N/A and 2010: 37%), *we all live downstream/ slogan* (2003: 26% and 2010: 36%), and *don't put things down the storm drain* (2003: 27% and 2010: 18%).

Residents who did not mention remembering the slogan *we all live downstream* (n=369) were queried about it directly; four out of five residents (2003: 84% and 2010: 82%) say they do remember it.

So, how do residents assess the ads in making them aware of stormwater issues? One-third (34%) feel they are *very informative* and 50% say they are *somewhat informative*. One in seven thinks they are *not very informative* (12%) or *not at all informative* (2%).

Conserving and Protecting the Water Supply

Seven out of eight Salt Lake County residents (88%) declare that *there is a difference* between conserving and protecting water. Moreover, 93% proclaim it is *very important* to protect their local water supply.

A higher percentage of citizens (34%) feels it is more important to *protect water* than to *conserve water* (14%). But an even higher percentage (51%) says it is more important to both protect and conserve our water supply.

Salt Lake County Stormwater: At-a-Glance

<u>Salt Lake County telephone survey</u>	<u>1993</u>	<u>2003</u>	<u>2010</u>
Sample size.....	433.....	400.....	509
Margin of error.....	±5.0%.....	±5.0%.....	±4.5%
Field dates.....	August.....	October.....	February

<u>(Q#)</u>	<u>Habits that may affect stormwater</u>	<u>1993</u>	<u>2003</u>	<u>2010</u>
(2)	Generally, where do you wash your car?			
	A car wash		65%.....	71%
	Home.....		21%.....	16%
(3)	If at home, where? (Unaided, top responses)			
	(Number responding)		(84).....	(80)
	On the driveway		52%.....	55%
	On the lawn		40%.....	38%
(4)	Generally, do you mow your own lawn?			
	Yes		76%.....	81%
	No (someone else mows it)		17%.....	13%
(5)	If someone else, who?			
	(Number responding)		(68).....	(65)
	Professional lawn service/ landscaper		68%.....	66%
	Family member.....		7%.....	20%
	Teenage neighbor		9%.....	8%
(6)	If have a lawn, who applies the fertilizer?			
	(Number responding)		(377).....	(476)
	Self		49%.....	46%
	Professional lawn service/ landscaper		23%.....	24%
	Family member.....		20%.....	21%
(7)	Does your city provide fall leaf pick-up?			
	Yes			44%
	No.....			36%
(8)	Do you have a dog?			
	Yes		41%.....	43%
	No.....		59%.....	57%
	If yes, how do you dispose of the dog's waste? (Unaided, top responses)			
	(Number responding)		(164).....	(217)
(9)	At home			
	Bag it/ throw it in trash		77%.....	79%
	Bury it.....		5%.....	6%
	Wash it away with hose		1%.....	0%
(10)	In public places			
	Bag it/ throw it in trash		54%.....	59%
	Leave it		2%.....	2%
	Bury it.....		1%.....	0%

<u>Stormwater knowledge</u>		<u>1993</u>	<u>2003</u>	<u>2010</u>
(11)	What does "stormwater" mean? (Unaided, top responses)			
	Runoff water			18%
	Gutter water			16%
	Rain/ snow water.....			16%
	Water from a storm			15%
	Water that goes down a drain (storm drain).....			15%
(12-21)	What local creek/ river does stormwater flow into? (Unaided, percent mentioned, top responses)			
	Don't know			37%
	Jordan River			35%
(22)	If no body of water mentioned, where does the stormwater go? (Unaided, top responses)			
	(Number responding)			(188)
	Treatment plant			21%
	Various other places.....			61%
(23)	How much of Salt Lake County's stormwater goes to a treatment plant?			
	All of it.....			9%
	Some of it			53%
	None of it			15%
	Don't know			22%
(24)	From what other sources can water enter the stormwater system? (Unaided, top responses)			
	Watering lawns/ using sprinklers			26%
	Don't know			19%
	Washing cars			16%
(25)	Do you happen to know where the nearest storm drain is in your neighborhood?			
	Yes (know where it is)			67%
<u>Stormwater pollution</u>		<u>1993</u>	<u>2003</u>	<u>2010</u>
(26)	How serious a problem do you feel stormwater pollution is in Salt Lake County?			
	Very serious	32%	17%	18%
	Somewhat serious.....	48%	51%	50%
(27-41)	What are ways that stormwater can be polluted? (Unaided, percent mentioned, top responses)			
	Dumping chemicals/ paint	--	--	35%
	Washing car on your driveway	13%	--	28%
	Dumping oil	--	--	28%
	Trash in the gutter/ drain	--	--	27%
	Fertilizer on the lawn	17%	--	22%
	Oil/ chemical spills on the driveway	23%	--	17%
	Changing oil on the driveway	24%	--	14%
	Pesticides	--	--	14%
	Pet waste left on grass or driveway	15%	--	11%
	Hosing sidewalk/ driveway into gutter	14%	--	10%
(42)	Who do you think is the largest contributor to stormwater pollution? (Aided, top responses)			
	Residents/ people/ Salt Lake County residents	46%	--	51%
	Don't know	--	11%	21%
	Industrial business	26%	--	11%
(43)	Is it legal to dispose of oil, paint, detergent, etc. in storm drains and gutters?			
	Definitely.....	--	3%	7%
	Definitely not	--	77%	84%
(44)	Are you aware that it is illegal to have carwash, parking-lot carwashes if water goes down storm drains?			
	Aware	--	--	10%
	Not aware	--	--	89%

<u>Stormwater pollution</u> (continued.)		<u>1993</u>	<u>2003</u>	<u>2010</u>
(45)	Where do you dispose of your household chemicals?			
	Disposal facility			50%
	Garbage			16%
	Somewhere else			26%
(46)	If you heard new ideas about preventing stormwater pollution, would you change your own behavior?			
	Very likely	63%		61%
	Somewhat likely	29%		26%
(62)	Are you aware that local governments are required to improve the quality of stormwater?			
	Aware			30%
	Not aware			69%
(63)	Have you changed your behavior in the past few years regarding what goes into storm drains?			
	Definitely.....			39%
	Definitely not			15%

<u>Stormwater awareness campaign</u>		<u>1993</u>	<u>2003</u>	<u>2010</u>
(47)	Have you heard any promotions or ads like "We all live downstream"?			
	Yes			77%
	No			22%
(48)	If yes, where did you hear it? (Unaided, top responses)			
	(Number responding)	(223)		(393)
	Television/ TV commercials	71%		84%
	Radio	7%		4%
	Newspaper	6%		3%
(49-59)	If yes, what can you remember about the ads? (Unaided, percent mentioned, top responses)			
	(Number responding)	(223)		(393)
	Guy coming out of drain	--		37%
	"We all live downstream"/ slogan	26%		36%
	Don't put things down the storm drain.....	27%		18%
	Wash your car at home	9%		11%
(60)	If have not mentioned slogan, do you recall hearing "We all live downstream"?			
	(Number responding)	(400)		(369)
	Yes	84%		82%
(61)	If aware of ads, how informative are the ads in making citizens aware of issues?			
	(Number responding)			(459)
	Very informative			34%
	Somewhat informative			50%

<u>Conserving and protecting the water supply</u>		<u>1993</u>	<u>2003</u>	<u>2010</u>
(65)	In your opinion, is there a difference between "conserving" water and "protecting" water?			
	Yes			88%
	No			11%
(66)	How important do you feel it is to protect the local water supply?			
	Very important.....			93%
	Not at all important.....			0%
(67)	In your opinion, is it more important to protect the local water supply or conserve water?			
	Definitely protect			21%
	Definitely conserve.....			7%
	Both			51%

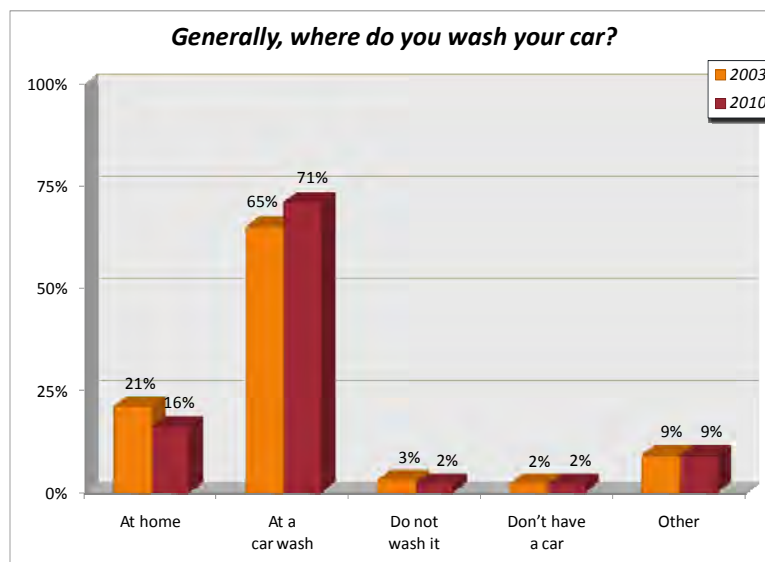
Questions, Charts, and Significant Findings

Question 1: First, let me verify that you are a resident of Salt Lake County.

	<u>2003</u>	<u>2010</u>
Yes	100%	100%
No (THANK AND TERMINATE)	--	--

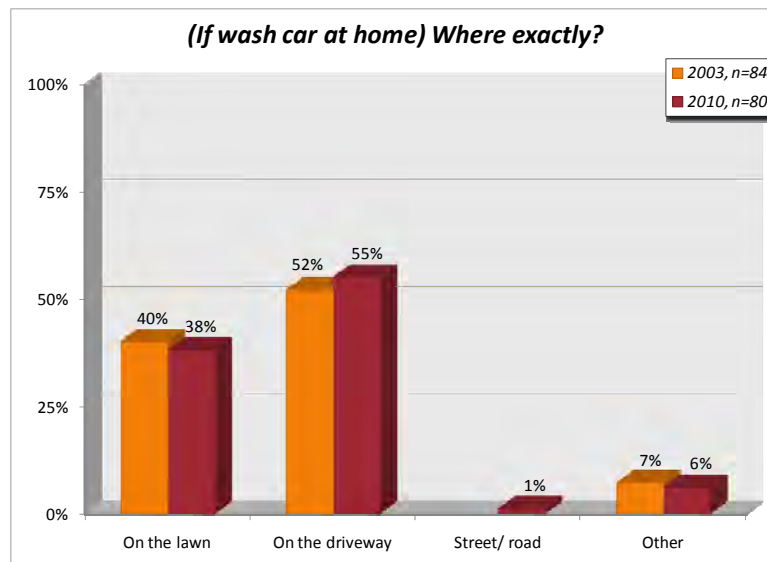
For these next several questions, we are measuring what most county residents do in the following situations. There are no right or wrong answers.

Question 2: Do you generally wash your car at home or in a commercial car wash?



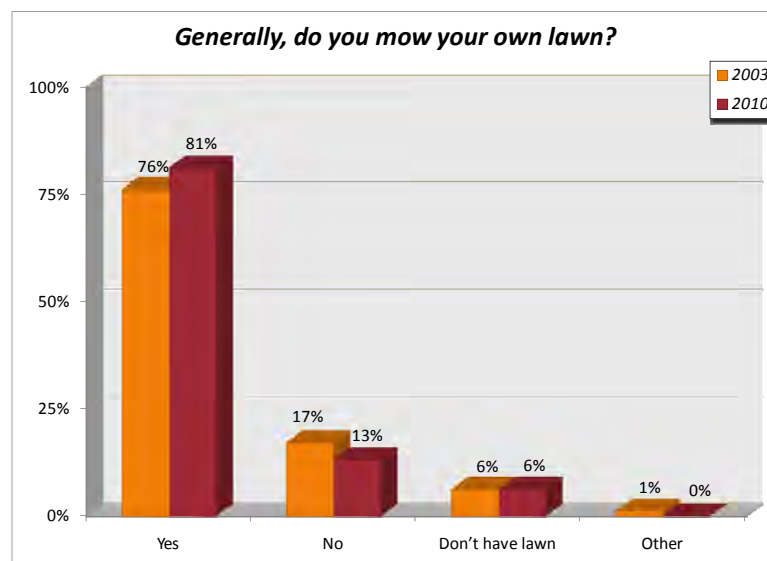
- ✓ As residents ideology becomes more liberal, so does the likelihood of saying they wash their car at a car wash.

Question 3: IF WASH CAR AT HOME: And where do you most often wash your car: on the lawn, or do you generally wash it on the driveway, or another place? (UNAIDED)

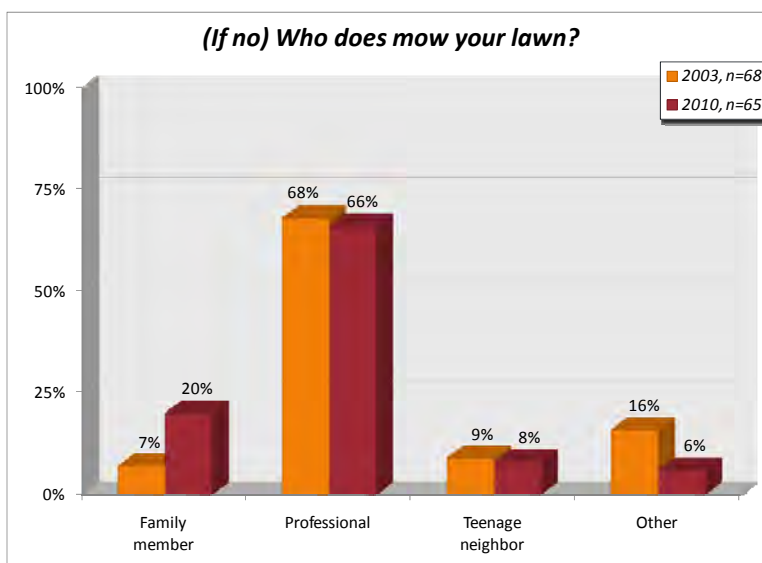
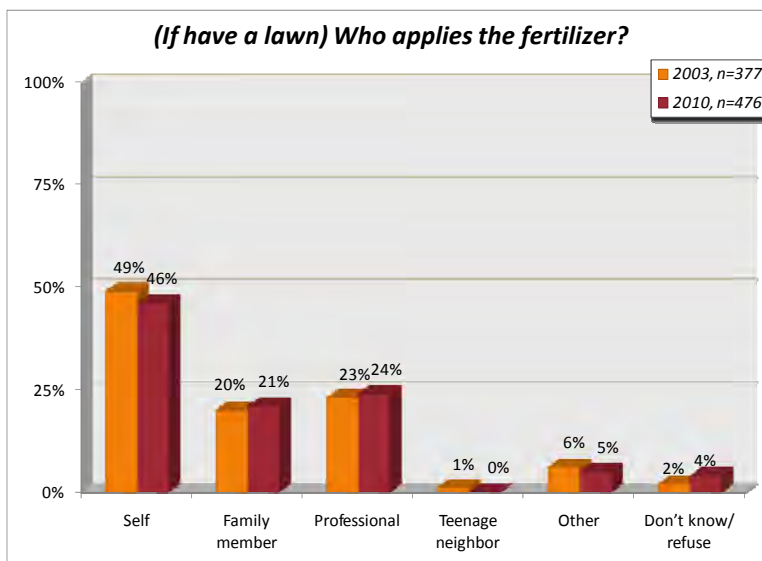


- ✓ The likelihood of saying one washes their car on the lawn increases as income level decreases.

Question 4: Do you generally mow your own lawn?

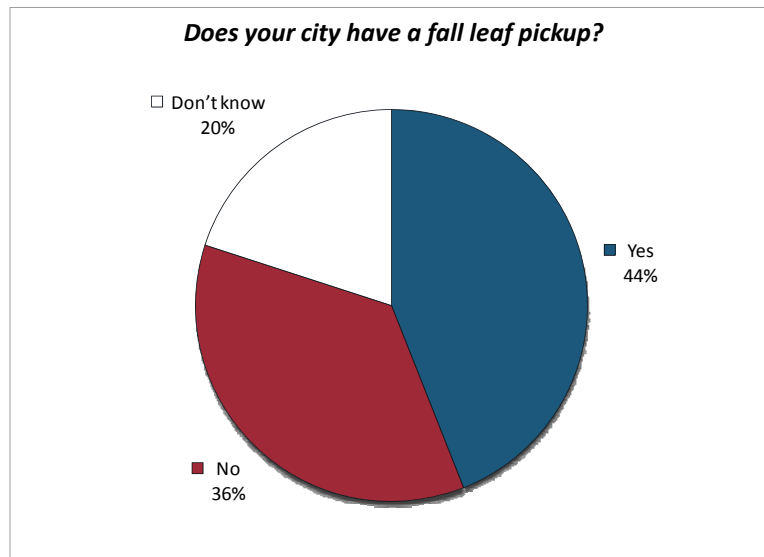


- ✓ Males and younger residents (likelihood increases as age decreases) are more likely to say they mow their own lawn.

Question 5: IF NO: Who most often mows your lawn? (UNAIDED)**Question 6: IF HAVE A LAWN: Who applies fertilizer, week killer, or products like Weed n' Feed to your lawn? (2003 wording: Who applies fertilizer, "Weed & Feed" or similar products to your lawn?)**

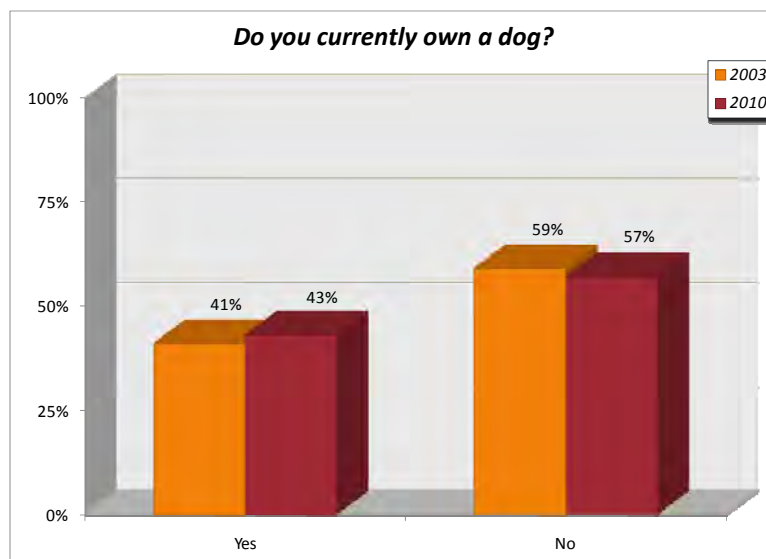
- ✓ Males are more likely to say they are the ones who apply products to their lawn.
- ✓ Renters are more likely to say their lawn products are applied by a professional lawn service.

Question 7: From what you know or have heard, does your city have a fall leaf pickup?



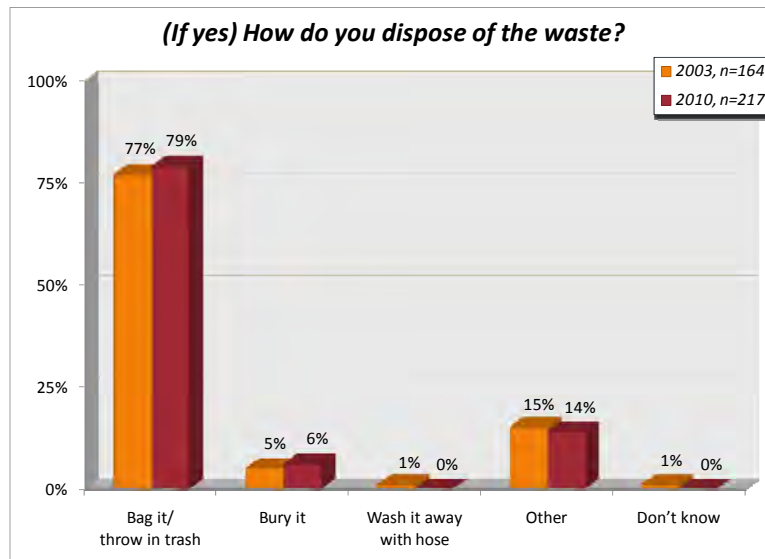
- ✓ Renters, people who live north of 4500 South, and those with lower annual household income (likelihood increases as income level decreases) are more likely to say their city has a fall leaf pickup.

Question 8: Do you currently own a dog?

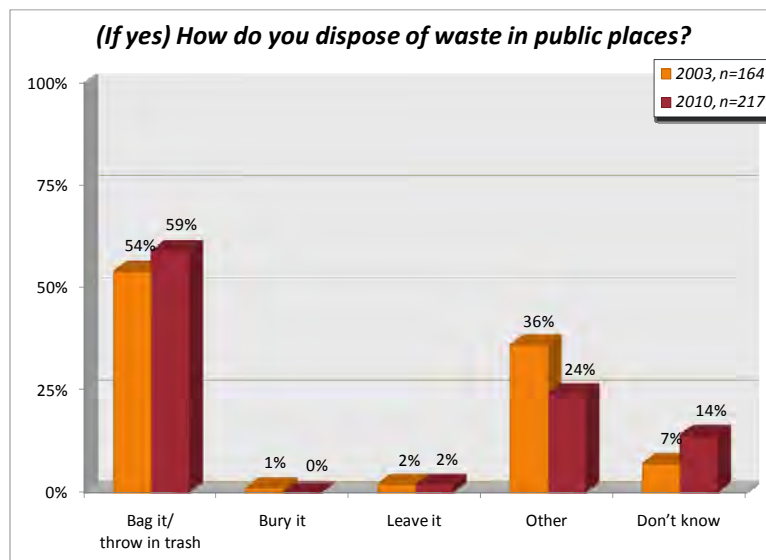


- ✓ Residents age 45 to 54, those with lower educational attainment (likelihood increases as education level decreases), those with moderate or liberal ideologies, and people who have lived in Salt Lake County more than 10 years are more likely to say that they own a dog.

Question 9: IF YES: How do you generally dispose of your dog's waste at home? (UNAIDED)

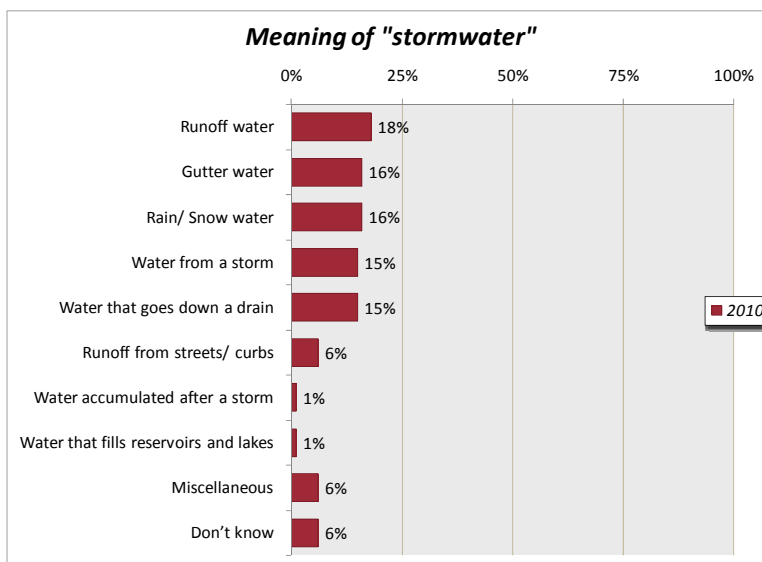


Question 10: IF YES: When you have your pet in public places, what do you generally do with its waste? (UNAIDED – IF “BAG IT” MENTIONED, ASK: What do you do with the bagged waste?)

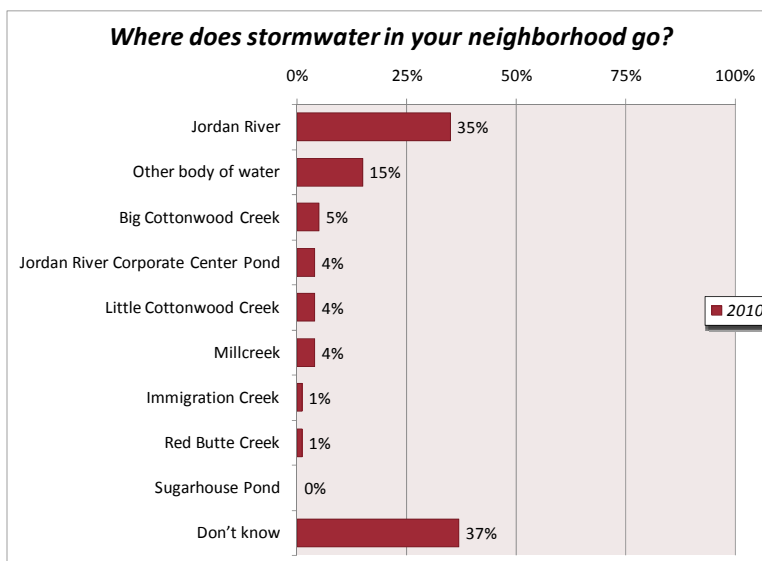


- ✓ Females and residents under age 55 are more likely to say they bag the waste and throw it in the trash when in public places.

Question 11: Now some questions specifically about water, what does the term “stormwater” mean to you? (UNAIDED – PROBE FOR DETAIL)

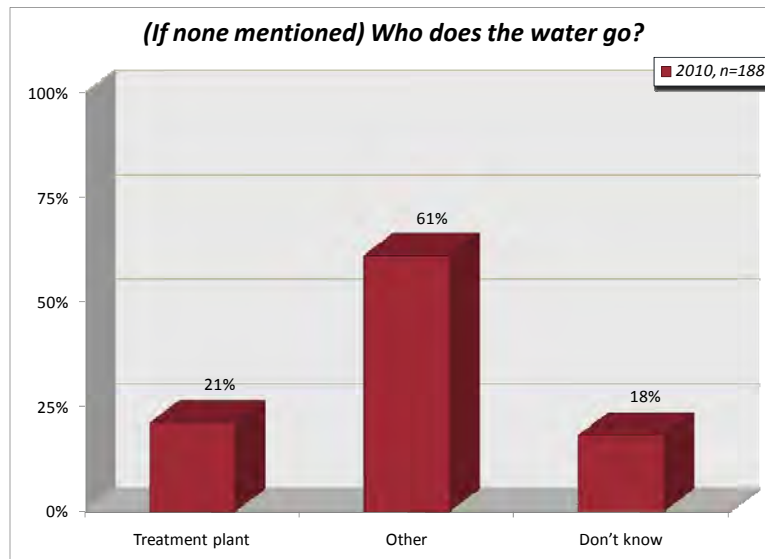


Questions 12-21: As you know, stormwater is the water from rain, melted snow, and sleet. Again from what you know or have heard, into which local creek or river does stormwater in your immediate neighborhood flow? (UNAIDED – MARK ALL MENTIONED)



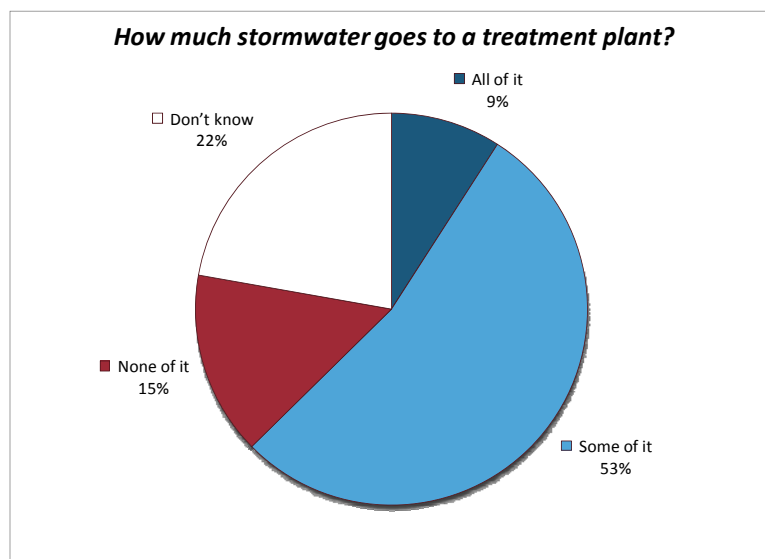
- ✓ Older residents (likelihood increases as age increases), those with higher annual household income (likelihood increases as income increases), homeowners, people who have lived in Salt Lake County for more than 5 years, and people who live west of I-15 are more likely to mention the Jordan River as a place where stormwater flows.

Question 22: IF NO BODY OF WATER MENTIONED (Q.12-21), ASK: Where do you think stormwater goes? (UNAIDED)



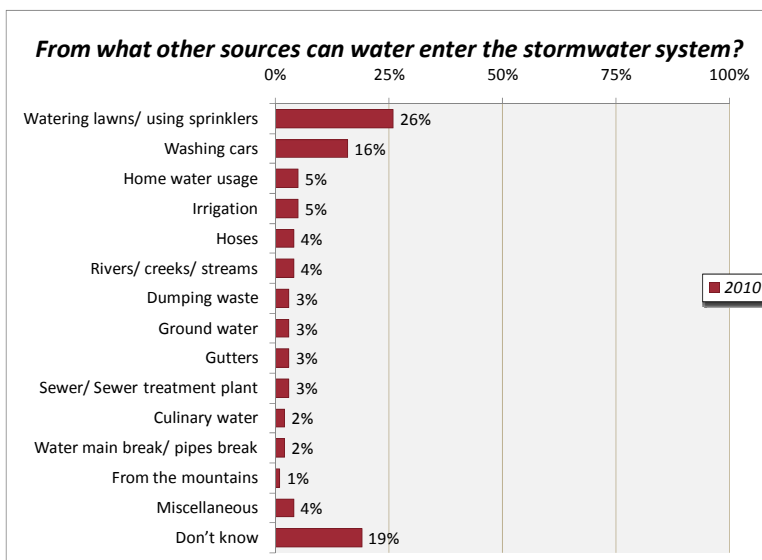
- ✓ Younger residents (likelihood increases as age decreases) are more likely to say they think the stormwater goes to a treatment plant.

Question 23: From what you know or have heard, how much of Salt Lake County's stormwater goes to a treatment plant?

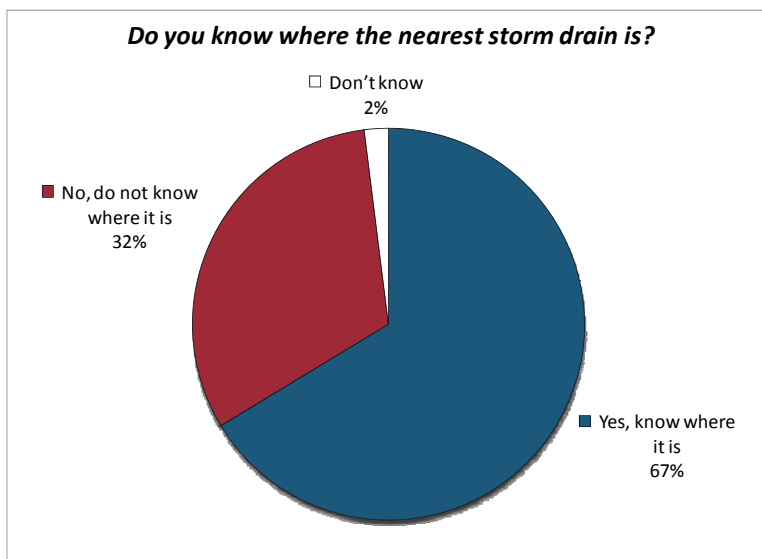


- ✓ Males and older residents (likelihood increases as age increases) are more likely to say that none of the stormwater goes to a treatment plant.

Question 24: As previously mentioned, natural stormwater is from rain, sleet, and melted snow. From what other sources do you think water can enter the stormwater system? (UNAIDED)

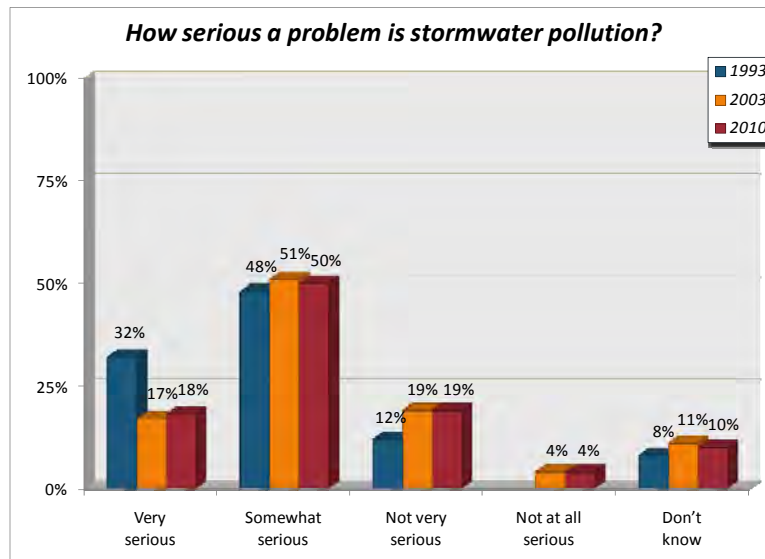


Question 25: Do you happen to know where the nearest storm drain is in your neighborhood?



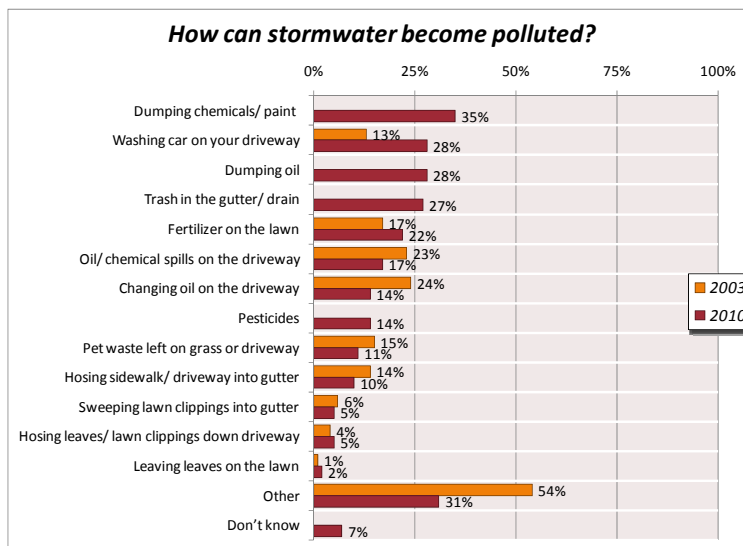
- ✓ Males, older residents (likelihood increases as age increases), people with a college or post-college degree, those with higher annual household income (likelihood increases as income increases), homeowners, and people who have lived in Salt Lake County more than 10 years are more likely to say they know where the nearest storm drain is.

Question 26: How serious a problem do you feel stormwater pollution is in Salt Lake County?

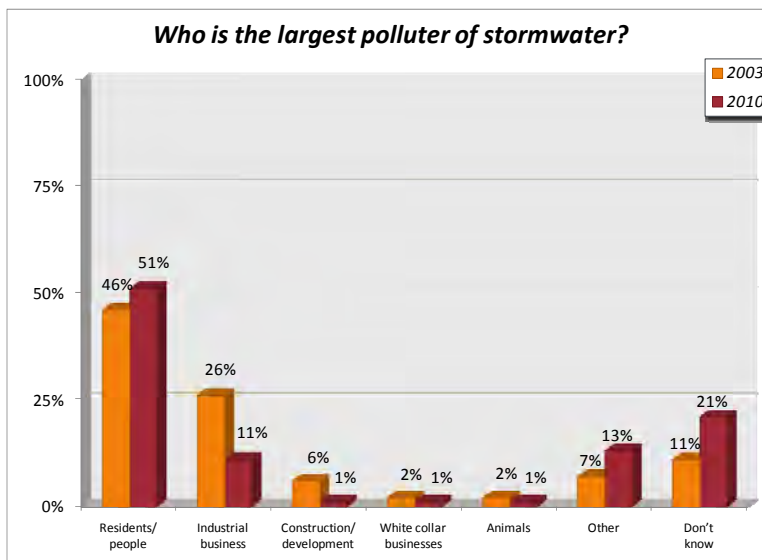


- ✓ Females, Democrats, independent voters, and people who are more liberal (likelihood increases as individuals become more liberal) are more likely to say stormwater pollution in Salt Lake County is a very serious problem.

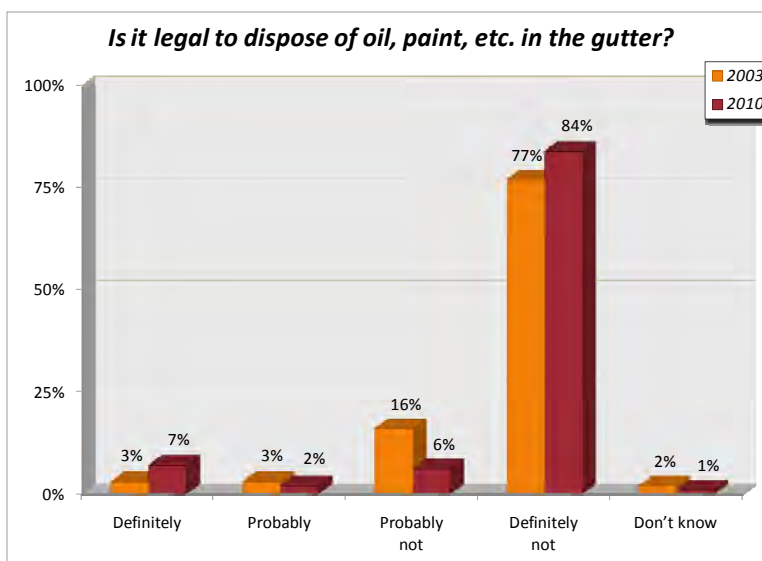
Questions 27-41: As you know, there are many ways water can be polluted. From what you know or have noticed, what are some ways that stormwater in Salt Lake County can be polluted? (UNAIDED – PERCENT MENTIONED)



- ✓ As ideology becomes more liberal, so does the likelihood of mentioning dumping chemicals or paint as a source of stormwater pollution.
- ✓ Females and residents age 35 to 44 or age 55 to 64 are more likely to mention washing a car on the driveway as a source of stormwater pollution.
- ✓ Males, residents with higher annual household income (likelihood increases as income level increases), and people who live south of 4500 South are more likely to mention dumping oil as a source of stormwater pollution.
- ✓ People who have lived in the county more than 5 years and those who live south of 4500 South are more likely to mention trash in the gutter or drain as a source of stormwater pollution.
- ✓ As educational attainment increases, so does the likelihood of mentioning fertilizer on the lawn as a source of stormwater pollution.
- ✓ Renters, residents with higher educational attainment (likelihood increases as education level increases), and those with more liberal ideology (likelihood increases as individuals become more liberal) are more likely to mention pesticides as a source of stormwater pollution.
- ✓ College and post-college graduates are more likely to mention pet waste left on the lawn or driveway as a source of stormwater pollution.
- ✓ As income levels increase, so does the likelihood of mentioning hosing down the sidewalk into the gutter as a source of stormwater pollution.

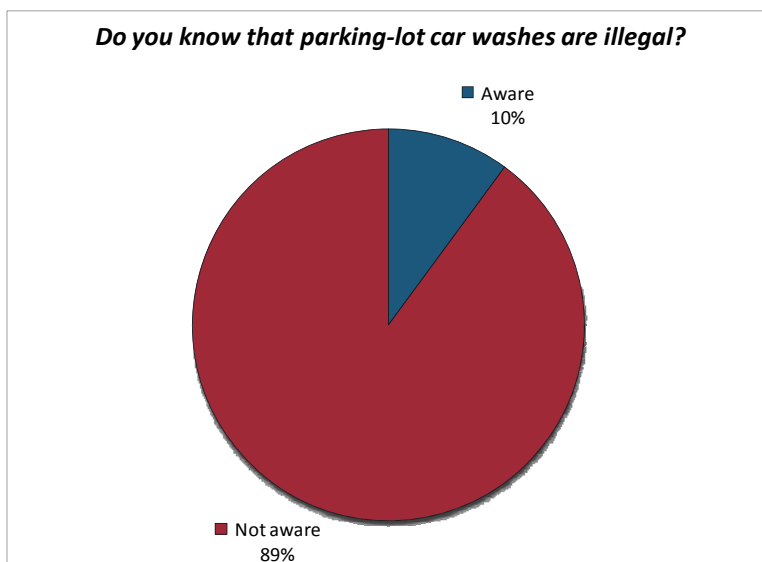
Question 42: Who do you think is the largest contributor to stormwater pollution?

- ✓ As income level increases and as education level increases, so does the likelihood of saying that residents are the greatest contributor to stormwater pollution.

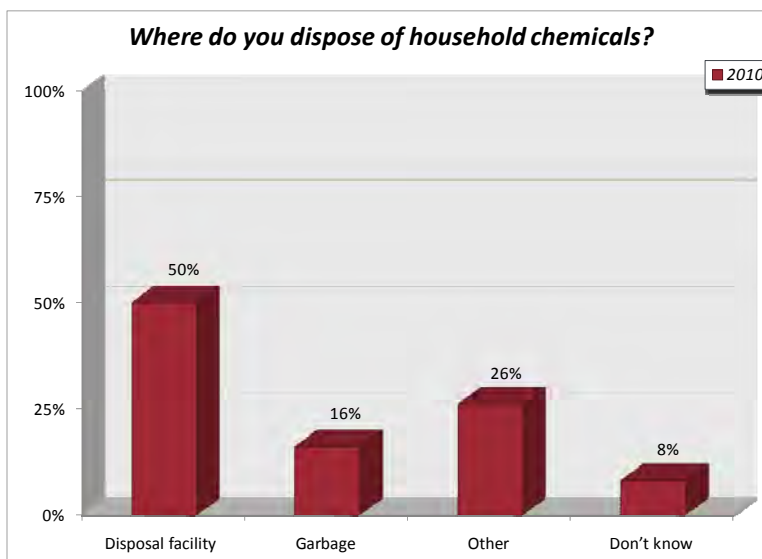
Question 43: From what you know or have heard, is it legal or okay to dispose of any material like oil, paint, fertilizer, and detergent in storm drains and gutters? (2003 wording: From what you know or have heard, is it legal or okay to dispose of any material in storm drains and gutters?)

- ✓ Residents with an educational attainment of high school or a college graduate degree are more likely to say it is definitely not legal to dispose of chemicals in storm drains.

Question 44: And, were you aware that it is illegal to have charity car washes in parking lots in Salt Lake County if the water used is allowed to run into the gutters and storm drains?

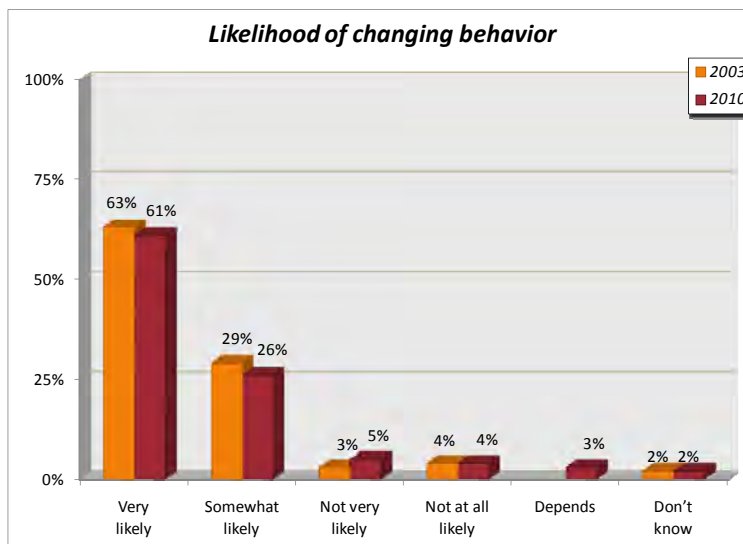


Question 45: Where do you dispose of your household chemicals like paint, antifreeze, pesticides, and household cleaners?



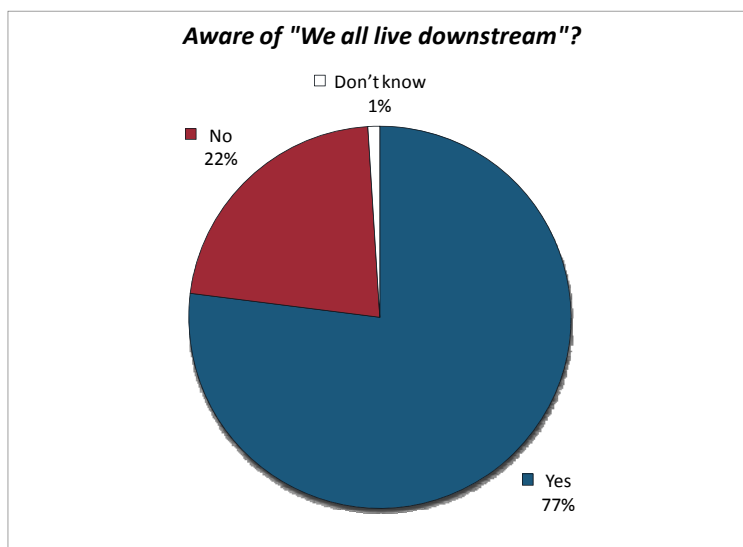
- ✓ Homeowners are more likely to say they take household chemicals to a disposal facility.

Question 46: If you saw or heard new ideas about preventing stormwater pollution, how likely would you be to change your own behavior?



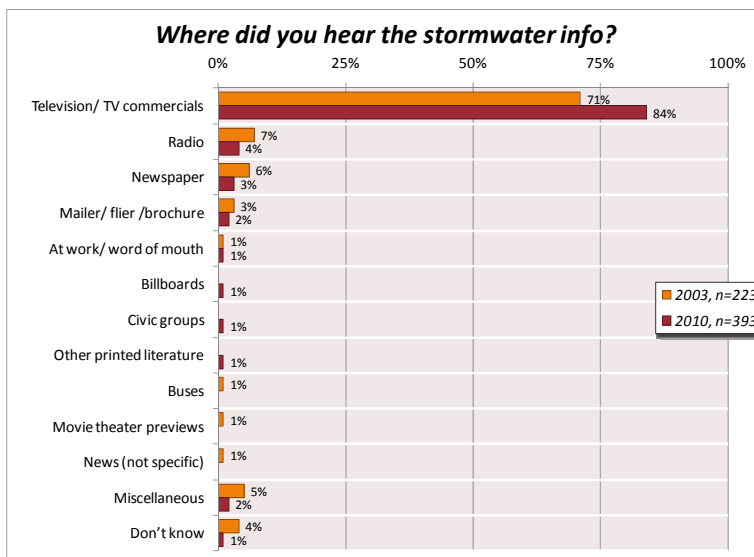
- ✓ Females are more likely to say they would be very likely to change their behavior if they heard new ideas about preventing stormwater pollution.

Question 47: Have you heard or seen any promotions or ads about stormwater, stormwater pollution or prevention like the “We all live downstream” ads?

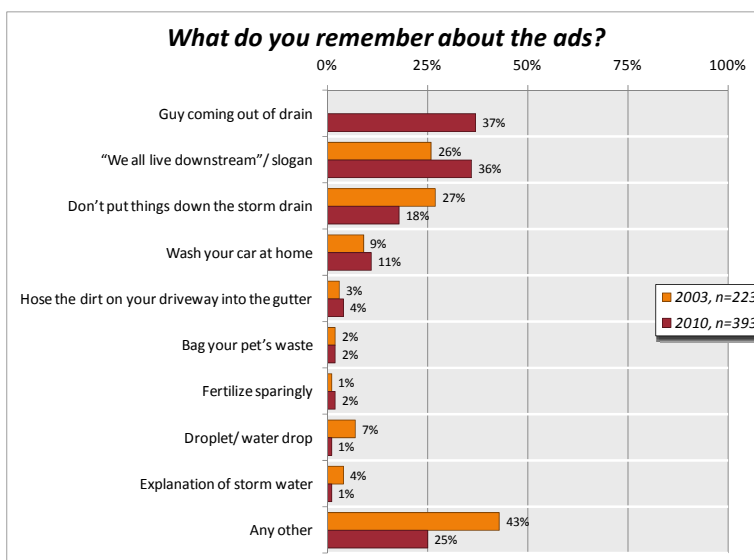


- ✓ Residents age 35 to 64, those with an educational attainment of some college/ technical school or post-college graduate, those with higher annual household income (likelihood increases as income increases), homeowners, and people who have lived in the county for a longer time (likelihood increases as length of residency increases) are more likely to say they recall ads about stormwater.

Question 48: IF YES: Where have you seen or heard the information about stormwater? (UNAIDED)

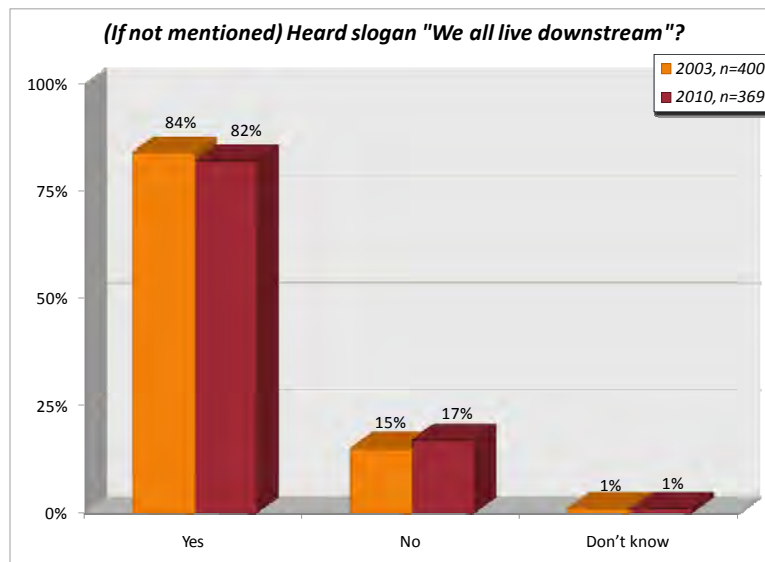


Questions 49-59: IF YES: What can you remember about the promotions or ads? (UNAIDED – PROBE – PERCENT MENTIONED)



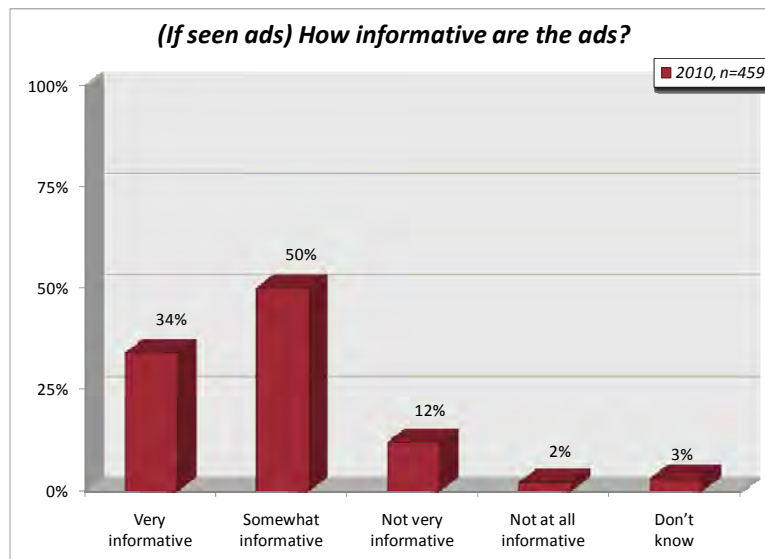
- ✓ Younger residents (likelihood increases as age decreases) and people with a somewhat liberal ideology are more likely to mention that they remember the slogan "We all live downstream."
- ✓ Residents with a conservative ideology are more likely to say they recall the man coming out of the drain ads.

Question 60: IF HAVE NOT MENTIONED SLOGAN (Q.47/ Q.49): Do you recall hearing the specific slogan mentioned earlier “We all live downstream”?



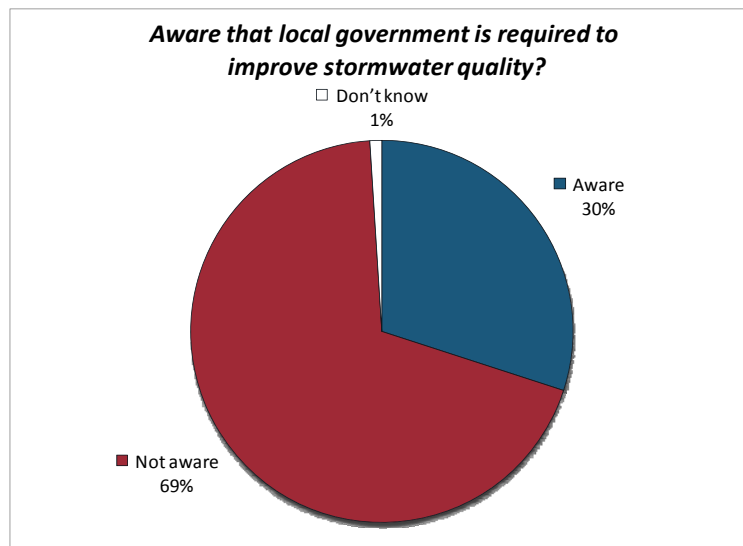
- ✓ Homeowners and people who have lived in the county for a longer time are more likely to say they recall hearing the “We all live downstream” slogan.

Question 61: IF HAVE SEEN ANY ADS: How informative do you feel the ads are in making citizens aware of stormwater issues?



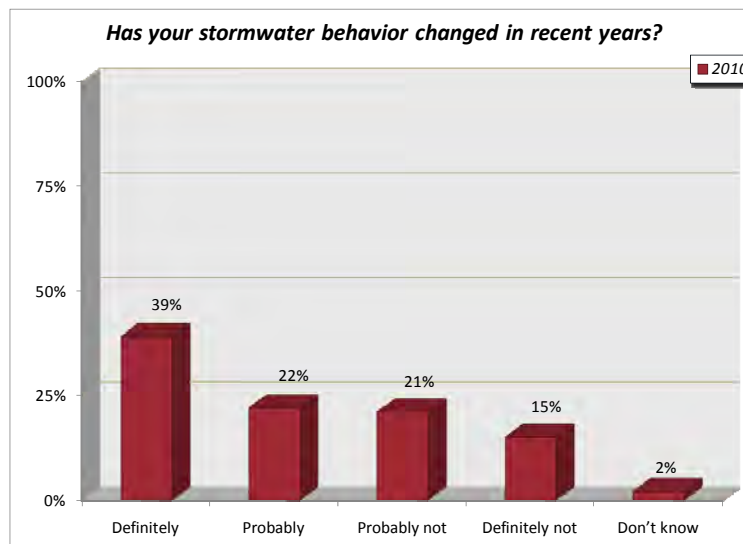
- ✓ Residents with a very conservative ideology and Republicans are more likely to say the ads were very informative.

Question 62: Were you aware that city and county governments are required to implement programs to improve the quality of stormwater according to state and federal mandates?



- ✓ Residents who are very liberal or very conservative are more likely to say they were aware of the local government requirements.

Question 63: Have you changed any of your own behavior in the past few years regarding your use of water and what goes into gutters and storm drains?

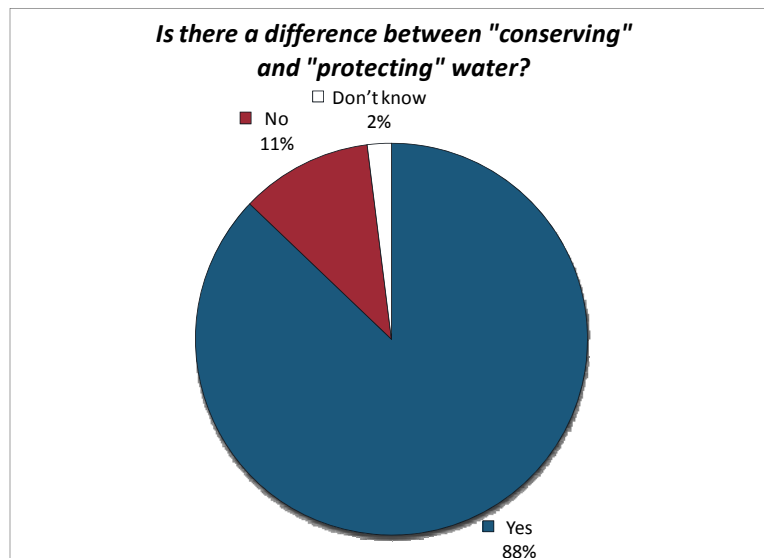


- ✓ Females, residents age 55 to 64, those with lower educational attainment (likelihood increases as education level decreases), and people who have lived in the county for a longer time (likelihood increases as length of residency increases) are more likely to say they have changed their stormwater behavior in the past few years.

Question 64: IF DEFINITELY OR PROBABLY: What have you done differently?

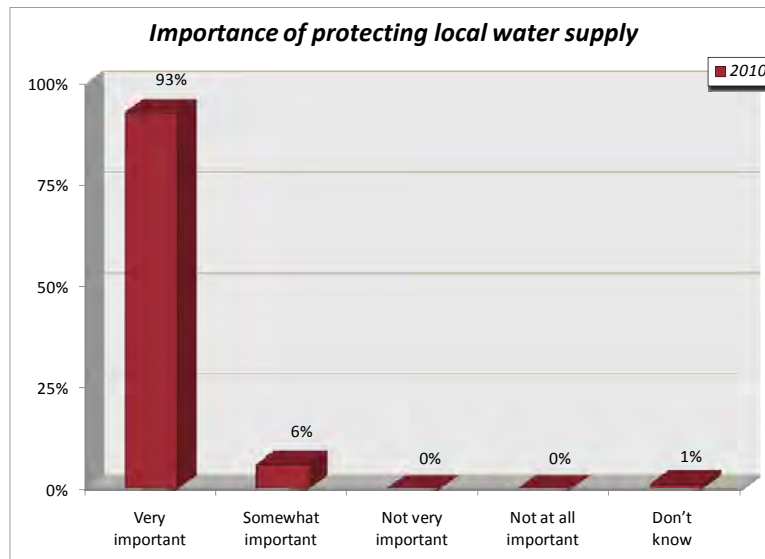
(ALL COMMENTS TYPED – SEE APPENDIX B)

Question 65: Some common terms you may have heard in reference to the water supply are “conserving” and “protecting.” In your opinion, is there a difference between “conserving” water and “protecting” water?



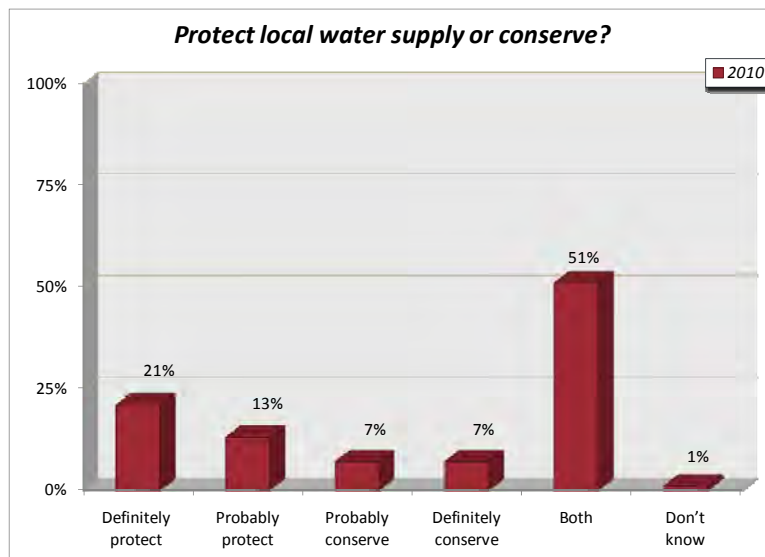
- ✓ Residents with higher educational attainment (likelihood increases as education level increases), people with higher annual household income (likelihood increases as income level increases), residents in the northeast quadrant, and those in the southwest quadrant are more likely to say there is a difference between conserving and protecting water.

Question 66: And how important do you feel it is to protect the local water supply?



- ✓ Residents in the northwest quadrant are more likely to say it is very important to protect the local water supply.

Question 67: In your opinion is it more important to protect the local water supply or conserve water?



- ✓ Females, residents over age 34, and homeowners are more likely to say it is important to do both, conserve and protect, the local water supply.
- ✓ Males and renters are more likely to say it is definitely more important to protect the local water supply.

Copyright & Intellectual Property Notice

This copyright is intended to protect both Dan Jones & Associates and their client who commissioned this study from third party plagiarism.

All materials (whether in hardcopy or electronic media) in this document including, but not limited to text, content, charts, graphs, and images are protected by copyright laws and are the property of the client who commission this study. A third party may not copy, reproduce, distribute, publish, transmit, display, modify, transfer, sell, create derivative works, or in any way exploit any part of these materials without prior written permission from Dan Jones & Associates and their client who commissioned this study. In addition, these files may not be used to construct any kind of database.

You may download or copy content in this study *for personal use only*, provided that you maintain all copyright and other notices contained therein. Copying or storing of any content for other than personal use is expressly prohibited.

To request permission to copy, please contact:

By mail: Dan Jones & Associates
515 South 700 East, Suite 3H
Salt Lake City, UT 84102

By phone: 801-322-5722

By fax: 801-322-5725

By e-mail: copyright@djasurvey.com