

STORM WATER MANAGEMENT PLAN

Permittee: City of Logan, Utah

Permit Number: UTR090000

Location of MS4: City of Logan, Cache County, Utah

Submitted with this permit are the following:

- A map of the City of Logan MS4 service area
- Information regarding the overall quality concerns, priorities, and measureable goals specific to the City of Logan that are considered in the development and revisions to the SWMP document.
- A description of the program elements that will be or have been implemented in each of the six minimum control measures
- A description of the ordinance development and long-term/ongoing processes implemented in the previous MS4 general permit and consolidated into the current MS4 general permit for each of the six minimum control measures.
- A detailed summary of each BMP implemented by the City of Logan to meet the requirements of current MS4 permit including all of the required details and information.

The City of Logan does not have a Co-Permittee and has sole responsibility for the implementation of this permit.

Certification:

“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.”



Craig Petersen, Mayor



Date

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INTRODUCTION

The City of Logan (Logan) has prepared this storm water management plan (SWMP) as required by UTR090000 published by the Utah Division of Water Quality, Department of Environmental Quality. This permit was issued to the MS4 cities in accordance with the Utah Water Quality Act, Title 19, Chapter 5, Utah Code Annotated 2004 as amended and the Federal Water Pollution Control Act (33 U.S.C. §§ 1251 et. Seq., as amended to date).

Logan is located in Cache County in Northern Utah. With a population of approximately 50,000 people, Logan is the economic and population heart of the County. With the ever increasing population, averaging between 1.5 and 3.0 percent growth annually, the boundaries of the City continue to expand and the density is rapidly increasing. As development continues, storm water issues are becoming more and more relevant. Increased development by default reduces the area for rainfall and snowmelt to infiltrate into the soils by building homes and businesses with impervious surfaces (surfaces that don't absorb water) like roofs, concrete, and asphalt. As a result, the amount of surface runoff is increasing annually both in volume and peak flows (flow rates). The increased storm water runoff has resulted from historical development with impermeable surfaces (concrete, asphalt, roofs, etc.) and insufficient control measures to minimize the flows. Until recently, best management practices (BMPs) to limit the runoff flow rates and volumes were not required as part of construction. As a result this increased runoff has started leading to canals overtopping and flooding homes, streets and intersections during large storm events. Additionally flows in sloughs and natural channels during large storm events are exceeding the historical bank elevations.

Currently, most of Logan's runoff discharges to irrigation canals which then discharge to sloughs and other natural water ways that eventually carry the water to Cutler Reservoir. The irrigation canals were designed and built to carry irrigation water from the Logan River to the farms. As the canals move away from the diversion point, they get progressively smaller as irrigation water is diverted. This is the exact opposite of storm water needs. As the canals move farther and farther away from the diversions, more storm water is collected and the storm water flows get much larger. This conflict in basic needs of irrigation use versus storm water use has been a constant battle in Logan for longer than our oldest residents can remember. It has led to an informal cooperative effort between Logan, North Logan, Hyde Park, Smithfield, and seven canal companies to develop operation agreements to help alleviate the conflict and find solutions that help mitigate the possible flooding that results in large rainstorm events.

Logan has a detailed storm water master plan to review our storm water needs and to develop a plan of action. Based on this study, and other investigations completed by the Logan's staff, the City has modified our SWMP to focus our efforts and resources to areas that will maximize the benefits to the City while meeting the requirements of the UTR090000 permit. This document has been organized to facilitate this effort.

This Storm Water Management Plan consists of the following information:

- A map and summary of the location of Logan.
- A summary of our target pollutants identified in our system.
- A discussion of impaired waters (as defined by UDEQ) and the requirements of the TMDL.
- Discussion of threatened or endangered species in the boundaries of the Logan City MS4.
- A summary of Logan's storm water organization chart and responsibilities.
- A status summary of the compliance with each MCM and a list of BMPs in each MCM.
- Best Management Practices in compliance with the requirements of UTR09000 in each of the six minimum control measures: construction, post construction, public information, public educations, illicit discharge, and general housekeeping.
- Our annual budgets for fiscal year 1 (2011) through year 5 (2016).

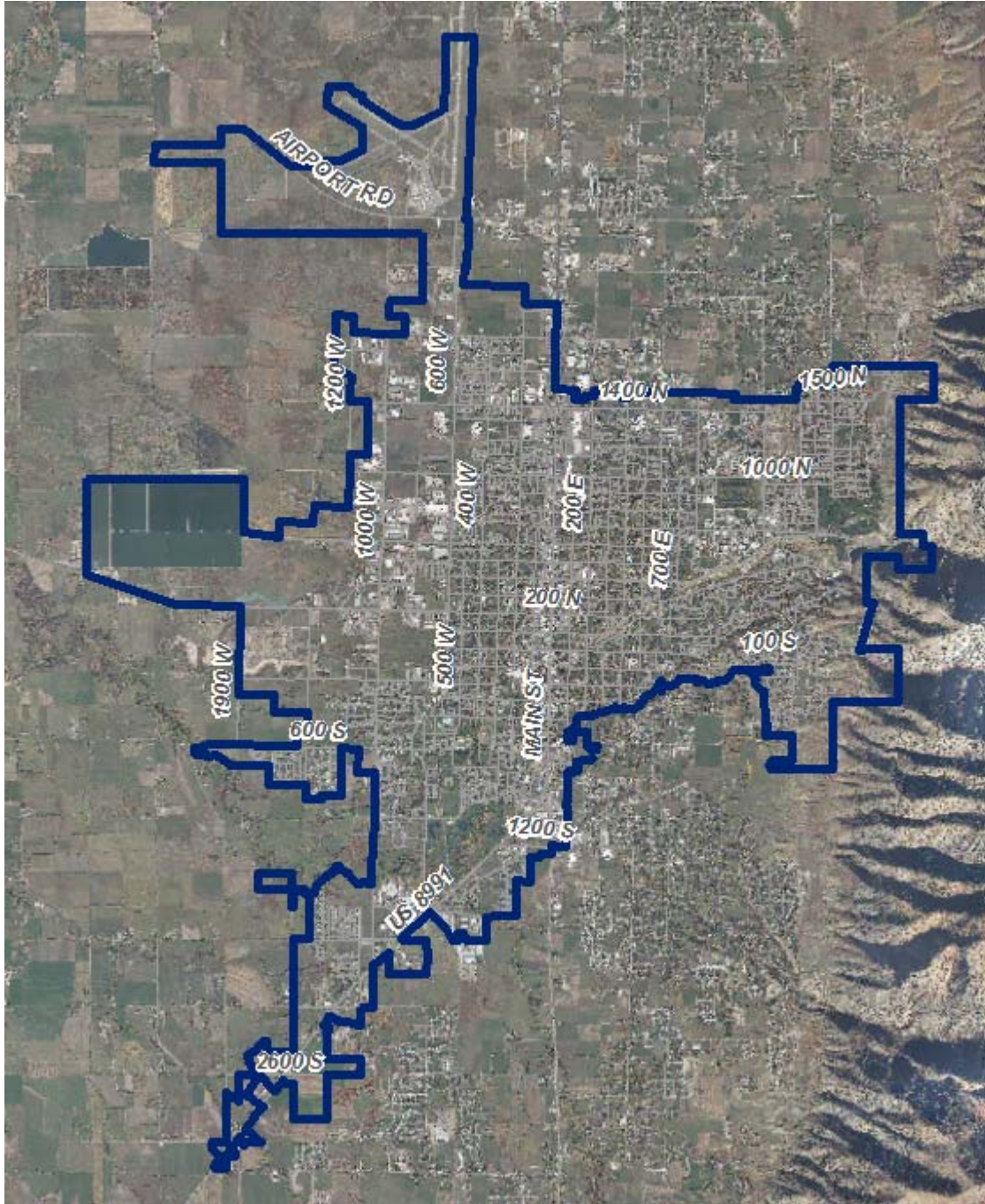
In addition to these primary documents, Logan has prepared several appendices to provide additional information and copies of all of the forms, checklists, and other required information necessary for the implementation of all of the programs associated with this SWMP and UTR090000 compliance. These appendices include:

- Appendix A-Contractor' Package: Information needed by contractors, developers, and residents regarding the design standards, construction and post construction BMP fact sheets, construction inspection form, post construction maintenance agreement, LID practices, and SWPPP review/preparation checklist.
- Appendix B-City Staff Package: Identification of all city facilities, standard and facility specific standard operating procedures to protect storm water quality, BMP fact sheets, design review checklists, inspection forms and checklists, evaluation of city facilities and definition of high priority facilities, floor drain maps, and construction inspection forms.
- Appendix C-Illicit Discharge Package: All forms, SOPs, and fact sheets necessary for the implementation of the illicit discharge program.
- Appendix D-Documentation of Implementation: copies of all completed inspection forms, enforcement actions, training schedule and logs, maintenance records, annual reports, budgets, and justifications for changes.
- Appendix E-City Ordinance: A copy of the city ordinance as submitted to legal counsel.
- Appendix F-Governing Permits and Agreements: Copies of UTR090000, UTR300000, and our Canal Agreements.

- Appendix G-Maps/Map Book: Maps of our storm water system, floor drains, facility inventories, post construction BMPs, active construction site locations, spills, enforcement actions log, and monitoring locations inventory.

Location of Logan City

Logan is located in the center of Cache County at the junction of US-89, US-165, and US-30 including the confluence of the Logan River and the Blacksmith Fork River just east of Cutler Reservoir on the Bear River.



TARGET POLLUTANTS

As part of the storm water master plan (2011) the City of Logan, water quality samples were collected at City boundaries at 10 sites during two storm events, one during the fall and one during the spring. The goals of these samples were to evaluate the possible contaminants in our storm water effluent leaving the City boundary and to develop a plan of action to better monitor and eliminate these pollutants if possible. The following table summarizes the results and the contaminants identified as possible concerns.

Table 1, Water Quality Samples Associated with Logan City Discharges (2010 Samples)

Location	BOD	Total Nitrogen	Total Phosphorus	pH	Total Dissolved Solids	E coli	Comments
Units	mg/L	mg/L	mg/L	Units	mg/L	count	
Limits	5	~6 mg/L	.07	6.5-9.0	1200 mg/L	126	
Crockett Canal Diversion	ND	0.1	0.01	8.28	210	57	
Discharge to Swift Slough (August 2008)	ND	0.1	0.02	8.31	236	370	Associated with animal feces from agricultural lands
Discharge to Swift Slough (April 2008)	8	1.2	0.11	8.05	552	9	No irrigation water in canals

Bold text identifies contaminants exceeding general limits established by the Utah Department of Environmental Quality and the TMDL. TSS and other contaminants were not sampled.

While not sampled, the discharge locations in the canals have historically demonstrated the accumulation of sediments associated with storm water discharge. The sediment and erosion factors that generate sediment are the contaminant most commonly targeted by the EPA and UDEQ. The predominant source of sediments is construction disturbed land without appropriate erosion and sediment BMPs.

Based on the data collected to date and requirements of the Storm Water Permits, the target pollutants selected by the City of Logan are:

- Total Suspended Solids (Required by permits)
- Total Phosphorus
- Total Nitrogen
- BOD
- Trash and Debris
- Dust
- Illicit discharges

IMPAIRED WATERS AND TMDL REQUIREMENTS

Utah Division of Water Quality has completed a total maximum daily load study (TMDL) on Cutler Reservoir and the Middle Bear River between Cutler Reservoir and the Idaho state line. This study has been published and accepted by the EPA and the Water Quality Board of the State of Utah. As a result, the recommendations of the study have been accepted by the Board as rule and are being implemented into this permit by indirect reference.

The Logan City MS4 has been specifically identified in the TMDL as a source of phosphorus. The TMDL split the contribution of phosphorus into two periods; May through October and November through April. It additionally split the reservoir into two segments; the Southern Segment consisting of Cutler Reservoir south of the Benson Marina and the Northern Segment north of the Benson Marina. The following table summarizes the phosphorus contributions attributed to Logan City, the quantity of phosphorus we are required to reduce from our discharge load, and the amount we are allowed to discharge by season. For further information, refer to *Middle Bear River and Cutler Reservoir Total Maximum Daily Load (TMDL)*, February 2010, Utah DWQ and SWCA.

Table 2. Phosphorus Requirements for Logan City MS4

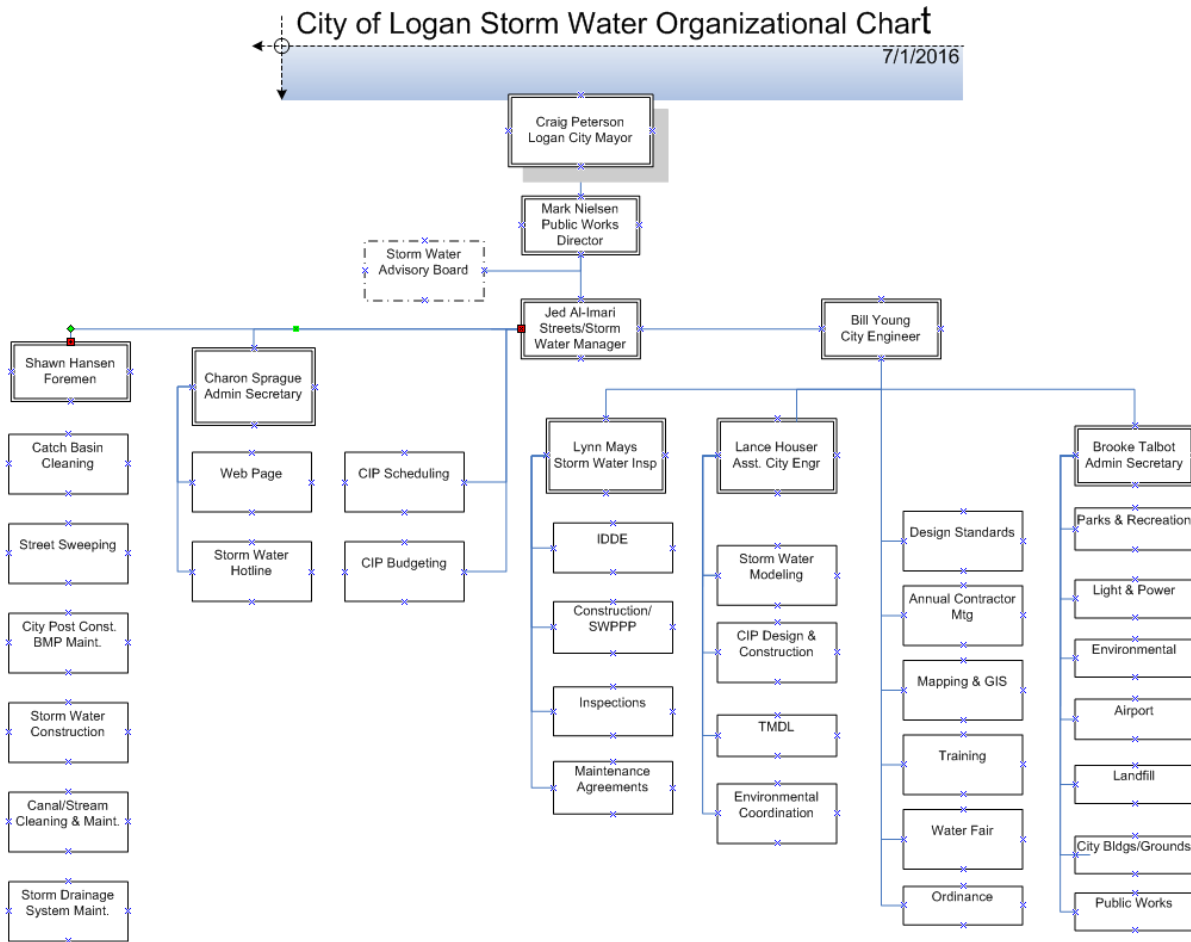
Reservoir Segment	Current Total Phosphorus Load (kg/season)		Allowable Total Phosphorus Discharge Limits (kg/season)		Reduction in Total Phosphorus Discharged (kg/season)	
	May-Oct	Nov-Apr	May-Oct	Nov-Apr	May-Oct	Nov-Apr
Southern	292	538	114	291	178	247
Middle Bear River	292	483	94	205	198	278

As a result of the TMDL, all of Logan City’s BMPs have been modified to make phosphorus a target pollutant, the design standards have been modified to focus on reducing phosphorus, and BMP ID 05 was created to improve our ability to monitor and quantify the amount of phosphorus we are discharging. This will allow us to target our allowable limits and to focus our efforts on those areas where phosphorus discharges appear high. The areas of higher than average phosphorus can then be addressed as illicit discharges or increased maintenance efforts.

SWMP IMPLEMENTATION ORGANIZATION

The following organization chart identifies those responsible for the implementation of the SWMP within Logan City.

Replace chart with current positions.



THREATENED AND ENDANGERED SPECIES

Cache County has been identified to be the possible habitat for several potential threatened and endangered species. Species identified by the USFWS on their website (http://ecos.fws.gov/tess_public/reports/species-by-current-range-county?fips=49005) include the following:

1. Yellow-billed Cuckoo (*Coccyzus americanus*)
2. Maguire Primrose (*Primula maguirei*)
3. Ute ladies' tresses (*Spiranthes diluvialis*)
4. Canada Lynx (*Lynx Canadensis*)
5. Gray Wolf (*Canis Lupus*)

Additional species identified by the Utah Division of Wildlife Resources include:

1. Brown (Grizzly) Bear (*Ursus arctos*)
2. Grey Wolf (*Canis Lupus*)
3. Bald Eagle (*Haliaeetus leucocephalus*)

Additional information has been made available through the links on our storm water website.

HISTORICAL MCM DOCUMENT STATUS AND PROCESS

As part of the process of re-writing this SWMP based on the new permit, it became necessary to evaluate the status of the MCMs established in 2011-. The following tables summarize the results of this evaluation and the actions taken as part of this process. The BMPs that were assessed are labeled with the identifiers CS (Construction sites), GH (general housekeeping), ID (illicit discharge), PC (post construction), PE (public education and outreach), and PI (public involvement).

To help follow the information provided below, the table headings were created based on the following questions that the permit required each MS4 to address. The questions include:

1. Has the BMP been implemented?
2. Has the objective of the BMP been achieved?
3. Has the objective of the BMP contributed toward attainment of the prescribed goals?
4. Could the BMP implementation be better achieved?
5. Should the BMP remain or be eliminated?
6. Should the BMP be modified to attain better compliance/implementation?
7. Should other BMPs be identified to better attain compliance/implementation of the Construction Site Storm Water Runoff Control?
8. Identify action taken with the BMP for the 2016 update.

Table 3, SWMP MCM – BMP Summary

BMP	1	2	3	4	5	6	7	8
CS 01	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP CS 01
CS 02	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP CS 02
CS 03	No	Ongoing	No	Yes	Remain	Yes	No	See BMP CS 03
GH 01	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP GH 01
GH 02	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP GH 02
GH 03	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP GH 03
GH 04	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP GH 04
GH 05	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP GH 05
ID 01	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP ID 01
ID 02	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP ID 02
ID 03	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP ID 03
ID 04	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP ID 04
ID 05	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP ID 05

Table 3, SWMP MCM – BMP Summary(Continued)

BMP	1	2	3	4	5	6	7	8
PC 01	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP PC01
PC 02	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP PC02
PC 03	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP PC03
PC 04	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP PC04
PC 05	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP PC05
PC 06	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP PC06
PC 07	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP PC07
PE01	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP PE 01
PE02	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP PE 02
PE03	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP PE 03
PE04	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP PE 04
PE05	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP PE 05
PI 01	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP PI 01
PI 02	Yes	Ongoing	Yes	Yes	Remain	Yes	No	See BMP PI 02

MINIMUM CONTROL MEASURES

The current MS4 permit requires that specific BMPS be developed for the following official MCMs. These include:

- Construction site storm water runoff control (CS),
- Pollution prevention and good housekeeping for municipal operations (GH),
- Illicit discharge detection and elimination (ID),
- Long-term storm water management in new development and redevelopment (Post-construction storm water management) (PC),
- Public education and outreach (PE), and
- Public involvement and participation (PI).

The complete BMPs are included in the remainder of this section.

BMP CS 01: Inspection of Construction Projects

Minimum Control Measure: Construction Site Storm Water Runoff Control

Target Pollutants: TSS, phosphorus, nitrogen, trash, dust and debris.

Audience: City, Contractors, Businesses, Developers, and Residential

Existing: X **New:** __

Desired Results: Continue to implement and enforce a program to reduce pollutants in storm water runoff to the Logan City MS4 from construction sites with a land disturbance greater than or equal to 1.0 acre, including projects less than one acre that are part of a larger common plan of development or sale.

Measurable Goal:

- 1) Inspect all construction sites with a land disturbance greater than or equal to 1.0 acre, including projects less than one acre that are part of a larger common plan of development or sale at least monthly by qualified personnel using the state approved inspection form.
- 2) Inspect all priority construction sites **at least** biweekly using approved inspection form. Priority construction sites are defined as a site that has the potential to threaten water quality when considering the following: soil erosion potential, site slope, project size and type, sensitivity of receiving water bodies, proximity to receiving water bodies, non-storm water discharges, and past record of non-compliance.
- 3) Inspect all phases of construction: prior to land disturbance, during active construction, and following active construction.
- 4) Update and maintain a procedure for being notified by construction operators/owners of their completion of active construction so that verification of final stabilization and removal of all temporary control measures may be conducted.
- 5) Document enforcement actions to ensure compliance in accordance with enforcement strategy defined in standard operating procedures.
- 6) Provide training to staff responsible for plan review, construction site inspections, and enforcement. The Permittee shall ensure that all new hires are trained upon hire and before commencing storm water related duties and annually thereafter, at a minimum.
- 7) Perform reviews and maintain a record of all projects covered by this BMP including at a minimum: site plan reviews, SWPPPs, NOIs, NOTs, inspection reports, documentation of enforcement action taken, and records of preconstruction meetings.

Justification: Construction sites without the proper BMPs implemented as part of their SWPPP are a major source of erosion and generate large amounts of trash and dust. As a result, significant improvements to the MS4 water quality result from the implementation of this BMP.

Measure of Success: Success will be defined as projects meeting the below measures:

- 1) Inspect construction sites with a land disturbance greater than or equal to 1.0 acre, including projects less than one acre that are part of a larger common plan of development or sale prior to land disturbance, during active construction, and following active construction Use approved inspection form and data bases to track when inspections are completed. Include copy of project inspection forms in individual project file.

- 2) Identify if a project is priority construction project during preconstruction inspection. If it is a priority project, track all inspections biweekly using approved inspection form.
- 3) Track all inspections of construction phases including: prior to land disturbance, during active construction, and following active construction.
- 4) Use end of project inspections, and warranty inspections to verify completion of active construction so that verification of final stabilization and removal of all temporary control measures may be conducted prior to the release of bonds for all commercial sites. Include site stabilization as requirement in Land Disturbance Permit for subdivisions and residential sites.
- 5) If enforcement is required, track enforcement in compliance with BMP CS-03, Storm Water Ordinance and in accordance with standard operating procedures.
- 6) Provide necessary training opportunities annually to City staff.
- 7) Maintain scans of project submittals in project files tracking site plan reviews, SWPPPs, NOIs, NOTs, inspection reports, documentation of enforcement action taken, and records of preconstruction meetings.

Responsible Agency in Logan City: City Engineer, Engineering Department

Milestones:

Year 1: Update SOPs.

Year 2: Continue program and update as necessary.

Year 3: Continue program and update as necessary.

Year 4: Continue program and update as necessary.

Year 5: Continue program and update as necessary.

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
Annual New Operating Costs	NA	NA	NA	NA	NA
Existing Annual Costs	\$123,500	\$125,000	\$126,500	\$128,000	\$129,500

Funding: General Fund (\$8500)
Storm Water Fund (Balance)

BMP CS 02: Standards and Specifications for Construction

Minimum Control Measure: Construction Site Storm Water Runoff Control

Pollutants: TSS, phosphorus, nitrogen, trash, pH, dust, and debris.

Audience: City, Contractors, Businesses, Developers, and Residential

Existing: X

New: _

Desired Results: Continue to implement and enforce a program to reduce pollutants in storm water runoff to the Logan City MS4 from construction sites with a land disturbance greater than 1.0 acre, including projects less than one acre that are part of a larger common plan of development or sale.

Measurable Goal: Implement standard requirements in design guidelines for preparation of SWPPP and post this on the Engineering website that includes the following:

- 1) Update storm water design standards and construction standards and specifications annually.
- 2) Enforce this BMP on all construction sites with a land disturbance greater than 1.0 acre, including projects less than one acre that are part of a larger common plan of development or sale.
- 3) Utilize a preconstruction SWPPP checklist for design review on all projects.
- 4) Incorporate water quality impacts and procedures as part of the SWPPP review checklist.
- 5) Include the evaluation of potential low impact design (LID) and green infrastructure alternatives in the checklist and design criteria.

Justification: Comprehensive standards and specifications defining acceptable BMPs for all aspects of construction are essential to reduce erosion and sedimentation problems associated with construction. Further utilization of a standard checklist will ensure that projects are not allowed to proceed to construction until compliance with the BMP has been accomplished.

Measures of Success: Compliance with these measures on all qualifying projects

- 1) Update storm water design standards and construction standards and specifications annually. Document amendment dates and participants on the first page of the standards.
- 2) Perform design review of all projects tracking compliance with this BMP. Do not issue building permits or notices to proceed until the project is compliant.
- 3) Update the SWPPP review checklist for design review. Include the checklist used during design review in the project file.
- 4) Include water quality impacts and procedures as part of the SWPPP review checklist.
- 5) Include the evaluation of potential low impact design (LID) and green infrastructure alternatives in the checklist and design criteria.
- 6) Include the Identification priority construction sites as defined in current MS4 permit, including the reason for the priority construction site classification on the checklist and copy this to the storm water inspector.

Responsible Agent in Logan City: City Engineer, Engineering Department

Milestones:

Year 1: Review and update standards, specifications, and checklist

Year 2: Review and update standards, specifications, and checklist

Year 3: Review and update standards, specifications, and checklist

Year 4: Review and update standards, specifications, and checklist

Year 5: Review and update standards, specifications, and checklist

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$31,000	\$31,000	\$31,000	\$31,000	\$31,000

Funding: General Fund

BMP CS 03: Storm Water Ordinance

Minimum Control Measure: Construction Site Storm Water Runoff Control

Pollutants: TSS, phosphorus, nitrogen, trash, dust and debris.

Audience: City, Contractors, Businesses, Developers, and Residential

Existing: X

New: _

Desired Results: Continue to implement and enforce a program to reduce pollutants in storm water runoff to the Logan City MS4 from construction sites with a land disturbance greater than 1.0 acre, including projects less than one acre that are part of a larger common plan of development or sale.

Measurable Goal:

- 1) Update as necessary and enforce an ordinance that requires the use of erosion and sediment control practices at construction sites with equivalent technical requirements per the current Utah General Permit for Discharges from Construction Activities, (UCGP) or the General Storm Water Permit for Construction Activity Connected with Single Lot Housing Projects Common Plan Permit (CPP)
- 2) Update ordinance to require construction operators to prepare a SWPPP in accordance with the current UCGP or CPP and Logan City design criteria.
- 3) Evaluate and update ordinance provisions for site access by authorized individuals to inspect construction storm water BMPs on private properties that discharge to the Logan City MS4.
- 4) Evaluate and update escalating enforcement procedures and actions that ensure rapid compliance.
- 5) Update standard procedures that include specific processes and sanctions to minimize the occurrence of violations, and obtain compliance from violators.

Justification: Update ordinance or other regulatory mechanism that requires the use of erosion and sediment control practices at construction sites. The ordinance or other regulatory mechanism shall, at a minimum, be equivalent with the technical requirements set forth in the UPDES Storm Water General Permit for Construction Activities, or the CPP. The ordinance or other regulatory mechanism shall include penalties or fines to facilitate compliance. The ordinance or other regulatory mechanism shall apply, at a minimum, to construction projects disturbing greater than or equal to one acre and to construction projects of less than one acre that are part of a common plan of development or sale. Existing local requirements to apply storm water controls at smaller sites shall be retained.

Measure of Success:

- 1) Approval of updated Ordinance by City Council and Administration.
- 2) Update standard procedures that ~~complies~~ comply with the measurable goals in this BMP.

Responsible Agent in Logan City: City Engineer, Engineering Department

Milestones:

Year 1: Obtain Approval of updated ordinance by City Council and Administration.
Update standard enforcement procedures.

Year 2: Enforce Ordinance and update procedures.

Year 3: Enforce Ordinance and update procedures.

Year 4: Enforce Ordinance and update procedures.

Year 5: Enforce Ordinance and update procedures.

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
Annual New Operating Costs	NA	NA	NA	NA	NA
Existing Annual Costs	\$2000	\$2000	\$2000	\$2000	\$2000

Funding: General Fund (40 hours per year)

BMP GH 01: Annual Facility Inventory

Minimum Control Measure: Pollution Prevention and Good Housekeeping for Municipal Operations

Target Pollutants: TSS, nutrients, metals, hydrocarbons (BTUX, GRO, DRO), pesticides, chlorides, phosphorus, nitrogen, and trash.

Audience: City

Existing: X

New: __

Desired Results: To develop and implement an operations and maintenance (O&M) program for Logan City MS4 owned and operated facilities, operations and structural storm water controls that include standard operating procedures (SOPs) and a training component that reduce pollutant runoff.

Measurable Goal:

1. Develop and maintain a current written inventory of all City-owned and operated facilities and storm water controls as listed in the current MS4 permit.
2. Assess the written inventory for their potential to discharge to the target pollutants into the storm drainage system
3. Identify facilities that discharge to the storm drainage systems and identify the “high priority” facilities
4. Develop a Storm Water Pollution Prevention Plan (or similar type document) for each “high priority” City-owned facility .

Justification: MS4 permit requires that all components of an O&M program be included in the SWMP document and must identify the department and specific staff responsible for performing each activity described in the permit. The annual inventory will identify those facilities that have the potential to discharge contaminants to the storm water system.

Measures of Success:

1. Completion of dye tests, camera inspections, or smoke tests showing the discharge points from all facilities. If flows are to the storm water system, the inventory will identify facility discharge points to the storm drain system.
2. Prepare a standard methodology for initially assessing if the facilities are a “high priority.”
3. Rank the City owned and operated facilities as high priority or low priority using standard methodology and include the results in the SWMP.
4. Develop High Priority facility SWPPP

Responsible Agent in Logan City: Engineering Department, City Engineer

Milestones:

Year 1: Re-Inventory all City owned facilities per measurable goals 1& 2. re-evaluate standard methodology to rank facilities. Rank the facilities. Develop High Priority SWPPP’s

Year 2: Re-inventory existing facilities. Adjust ranking if necessary. Update each SWPPP

Year 3: Re-inventory existing facilities. Adjust ranking if necessary. Update each SWPPP

Year 4: Re-inventory existing facilities. Adjust ranking if necessary. Update each SWPPP

Year 5: Re-inventory existing facilities. Adjust ranking if necessary. Update each SWPPP

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$3000	\$3000	\$3000	\$3000	\$3000

Funding: General Fund

BMP GH 02: High Priority Facilities SOPs

Minimum Control Measure: Pollution Prevention and Good Housekeeping for Municipal Operations

Target Pollutants: TSS, nutrients, metals, hydrocarbons (BTUX, GRO, DRO), pesticides, chlorides, phosphorus, nitrogen, and trash.

Audience: City

Existing: X

New: __

Desired Results: To develop and implement an operations and maintenance (O&M) program for Logan City MS4 owned and operated facilities, operations and structural storm water controls that include standard operating procedures (SOPs) and a training component that reduce pollutant runoff.

Measurable Goal:

- 1) Based on assessments completed in BMP GH 01, re-evaluate maintenance SOPs to prevent storm water contamination for high priority facilities in each category below as required by the current MS4 permit:
 - a. Buildings and Facilities
 - b. Materials storage areas, heavy equipment storage areas, and maintenance areas.
 - c. Parks and open space.
 - d. Vehicle and equipment.
 - e. Roads, highways, and parking lots.
 - f. Storm water collection and conveyance system.
 - g. Sanitary sewer facilities.
 - h. Other facilities and operations that may discharge contaminated runoff.
- 2) Develop standard agreements with any third party who conducts maintenance or operations using City owned facilities to comply with the City SOP.

Justification: the current MS4 permit requires that all components of an O&M program be included in the SWMP document and must identify the department and specific staff responsible for performing each activity described in the permit. The SOPs will provide the required safety to reduce or eliminate possible storm water contamination.

Measures of Success:

- 1) Completion of maintenance SOPs for all “high priority facilities.”
- 2) Inventory of any third parties who operate or maintain City facilities and amend their contracts for compliance with the City SOPs.
- 3) Evaluate current contracts with third parties operating City owned facilities.

Responsible Agent in Logan City: City Engineer, Engineering Department

Milestones:

Year 1: Re-evaluate SOPs and develop Third Party Inventory and evaluate agreements

Year 2: Update SOPs and Third Party Inventory and Agreements

Year 3: Update SOPs and Third Party Inventory and Agreements

Year 4: Update SOPs and Third Party Inventory and Agreements

Year 5: Update SOPs and Third Party Inventory and Agreements

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$2000	\$2000	\$2000	\$2000	\$2000

Funding: General Fund

BMP GH 03: City Owned and Operated Facility Inspections

Minimum Control Measure: Pollution Prevention and Good Housekeeping for Municipal Operations

Target Pollutants: TSS, nutrients, metals, hydrocarbons (BTUX, GRO, DRO), pesticides, chlorides, phosphorus, nitrogen, and trash, per current MS4 permit

Audience: City

Existing: X

New: __

Desired Results: Re-evaluate operations and maintenance (O&M) program for Logan City MS4 owned and operated facilities, operations and structural storm water controls that include standard operating procedures (SOPs) and a training component that reduce pollutant runoff.

Measurable Goal:

- 1) Departments owning facility shall complete a weekly inspection of “high priority” facilities in accordance with SOPs to minimize potential pollutant discharge. Departments must complete a weekly log and checklist of inspections with deficiencies and corrective actions. Completed logs must be included with the SWMP
- 2) Departments responsible parties identified in the SOPs shall complete, at least quarterly, a comprehensive inspection of all storm water controls in accordance with the SOPs. An inspection report and checklist, including any deficiencies and corrective actions must be completed and included with the SWMP document
- 3) Complete visual observations of storm water discharges at least quarterly (weather permitting, but in no case less than four times annually) documenting any observed problems including color, foam, sheen, turbidity, odor or other evidence of pollution that may be associated with the site. Visual observations must be documented, including deficiencies and any corrective actions, and included with the SWMP.

Justification: The current MS4 permit requires that all components of an O&M program be included in the SWMP document and must identify the department and specific staff responsible for performing each activity described in the permit. The inspection program will evaluate the effectiveness of the SOPs.

Measures of Success:

- 1) Maintain weekly inspection logs and quarterly inspection logs for high priority facilities. Maintain quarterly visual storm water discharge inspection forms for high priority facilities.
- 2) Maintain a tracking and reporting system to facilitate completion and inclusion of report logs in SWMP, both digital and hard copies.
- 3) Implement tracking and reporting SOPs for weekly and quarterly inspections.

Responsible Agent in Logan City: All departments in Logan City owning high priority facilities.

Milestones:

Year 1: Maintain logs and tracking system. Re-Implement program.

Year 2: Update as necessary and continue program.

Year 3: Update as necessary and continue program.

Year 4: Update as necessary and continue program

Year 5: Update as necessary and continue program

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$29,000	\$29,000	\$29,000	\$29,000	\$29,000

Funding: General Fund

Weekly inspections (\$26,000)

Quarterly Detailed Inspections (\$3,000)

BMP GH 04: Flood Control Structures

Minimum Control Measure: Pollution Prevention and Good Housekeeping for Municipal Operations

Target Pollutants: TSS, phosphorus, nitrogen, nitrogen and trash

Audience: City

Existing: X **New:** __

Desired Results: To continue the process to assess the water quality impacts in the design of all new and the management and maintenance of existing flood management structural controls that are associated with the Logan City MS4 to include considerations of controls that can be used to minimize the impacts to site water quality and hydrology.

Measurable Goal:

- 1) Annually update the map and inventory all existing flood management structural controls to monitor
 - a. Effects on water quality
 - b. If changes or additions to controls should be made, to reduce negative water quality impacts
- 2) Develop in our design standards criteria that require future flood management structural controls minimize the impacts to site water quality and hydrology.

Justification: The current MS4 permit requires that flood control structures do not negatively impact water quality.

Measures of Success:

- 1) Update inventory of flood control structures.
- 2) Update assessment of effects on water quality (qualitative for dry structures).
- 3) Identify any improvements needed for existing flood control structures and seek funding to assist with efforts to improve flood control structures.
- 4) Review storm water design criteria water quality requirements.

Responsible Agent in Logan City: Engineering Division, City Engineer.

Milestones:

Year 1: Convert inventory from a CAD maps to GIS maps and inventory. Continue working with the Logan River Task Force and the implementation of the Conservation Action Plan. Inspect all existing flood control structures and efforts to protect water quality.

Year 2: Continue working with the Logan River Task Force and the implementation of the Conservation Action Plan. Inspect all existing flood control structures and efforts to protect water quality.

Year 3: Continue working with the Logan River Task Force and the implementation of the Conservation Action Plan. Inspect all existing flood control structures and efforts to protect water quality.

Year 4: Continue working with the Logan River Task Force and the implementation of the Conservation Action Plan. Inspect all existing flood control structures and efforts to protect water quality.

Year 5: Continue working with the Logan River Task Force and the implementation of the Conservation Action Plan. Inspect all existing flood control structures and efforts to protect water quality.

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	\$100	\$100	\$100	\$100	\$100
Existing Annual Operating Costs	NA	NA	NA	NA	NA

Funding: General Fund

BMP GH 05: General Housekeeping Training

Minimum Control Measure: Pollution Prevention and Good Housekeeping for Municipal Operations

Target Pollutants: TSS, nutrients, metals, hydrocarbons (BTUX, GRO, DRO), pesticides, chlorides, phosphorus, nitrogen, and trash.

Audience: City employees and contracted staff

Existing: X

New: __

Desired Results: To provide training to appropriate city and contracted staff regarding the general and high priority facility specific SOPs and likely impacts to storm water quality.

Measurable Goal:

- 1) Train appropriate city and contracted staff in appropriate departments regarding general and facility specific SOPs. Focus on staff responsible for SOP implementation at “high priority” facilities indentified in BMP GH01.
- 2) Track training of existing staff and new hires to ensure all staff receives appropriate training in stormwater quality.

Justification: To provide training that will enable City staff that are likely to impact stormwater quality to know how to perform their job functions to prevent or minimize impacts to water quality, SOP’s and SWPPP for the various Permittee owned facilities.

Measures of Success:

- 1) Create log identifying training offered, trainer, each attendee, and date of training.
- 2) Provide annual refresher training for employees and training of new employees when they are hired and update logs regularly.
- 3) Maintain annual training logs with the SWMP.

Responsible Agent in Logan City: Engineering Division, City Engineer.

Milestones:

Year 1: Create training logs. Provide training to newly hired employees. Provide annual SOP training to appropriate employees. Provide training to newly hired employees. Report logs and training and place in SWMP.

Year 2: Provide annual SOP training to appropriate employees. Provide training to newly hired employees. Report logs and training and place in SWMP.

Year 3: Provide annual SOP training to appropriate employees. Provide training to newly hired employees. Report logs and training and place in SWMP.

Year 4: Provide annual SOP training to appropriate employees. Provide training to newly hired employees. Report logs and training and place in SWMP.

Year 5: Provide annual SOP training to appropriate employees. Provide training to newly hired employees. Report logs and training and place in SWMP.

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	5,000	NA	NA	NA	NA
Existing Annual Operating Costs	\$18,000	\$18,000	\$18,000	\$18,000	\$18,000

Funding: Distributed across Public Works Department, Environmental Department, Light and Power Department, and Parks and Recreation Department

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$29,000	\$29,000	\$29,000	\$29,000	\$29,000

Funding: General Fund

BMP ID 02: Illicit Discharge Ordinance and Enforcement

Minimum Control Measure: Illicit Discharge Detection and Elimination

Target Pollutants: Urban Pollution.

Audience: City, Residents, Businesses, Contractors, Development

Existing X **New** —

Desired Results: Provide authority for inspection, prohibit illicit discharge, develop an escalating enforcement mechanism, develop standard procedures for enforcement, and document enforcement activities to eliminate non-storm water discharges.

Measurable Goal:

- 1) Update storm water ordinance including section for the elimination of illicit discharges (allowable discharges include non-storm water, irrigation, groundwater, or UPDES permitted discharge) and submit to City Council for approval. Include prohibition of illicit discharges, spills, illicit connection, illegal dumping, and sanitary sewer overflows (SSOs) into the storm drainage system
 - a. Include in ordinance requirements for removal of illicit discharges
 - b. Include in ordinance definition of who has authority to issue enforcement.
 - c. Include in the ordinance adequate authority to detect, investigate, eliminate and enforce against illicit discharges.
- 2) Include a variety of enforcement options in order to apply escalating enforcement procedures as necessary for the severity of violation and/or the recalcitrance of the violator.)Review and update SOPs for ceasing illicit discharge including notifications of appropriate authorities, notification of property owner, technical assistance for removing the source of the discharge or otherwise eliminating the discharge, follow-up inspections, and escalating enforcement and legal actions if the discharge is not eliminated.
- 3) Update documentation process of all illicit discharge enforcement actions.

Justification: Illicit discharges are illegal and unauthorized discharges to the storm water sewer system. Implementation of an ordinance giving the authority and prohibitions by law is necessary before the Logan City MS4 can stop these discharges and the associated storm water contamination as required by the provisions of the Utah Water Quality Act, Title 19, Chapter 5, Utah Code Annotated 2004, as amended (the “Act”) and the Federal Water Pollution Control Act (33 U.S.C. §§ 1251 et. seq., as amended to date), and the Rules and Regulations made pursuant to those statutes.

Measures of Success:

- 1) Review existing ordinance, update, and submit to City attorney by December 31, 2016.
- 2) Update SOPs for ceasing illicit discharge including notifications of appropriate authorities, notification of property owner, technical assistance for removing the source of the discharge or otherwise eliminating the discharge, follow-up inspections, and escalating enforcement and legal actions if the discharge is not eliminated by December 31, 2016.
- 3) Update documentation process of all illicit discharge enforcement actions by December 31, 2016.

- 4) Update SOPs and program upon passing of ordinance by City Council.
- 5) Update documentation program upon passing of ordinance by City Council.

Responsible Agencies in Logan City: Streets and Storm Water Division, and Engineering Division.

Milestones:

Year 1: Update ordinance. Update program and procedures.

Year 2: Continue program.

Year 3: Continue program.

Year 4: Continue program.

Year 5: Continue program.

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$7,000	\$7,000	\$7,000	\$7,000	\$7,000

Funding: General Fund

BMP ID 03: Illicit Discharge Detection and Investigation

Minimum Control Measure: Illicit Discharge Detection and Elimination

Target Pollutants: Urban Pollution.

Audience: City, Residents, Businesses, Contractors, Development

Existing: X **New:** __

Desired Results: Provide standard procedures for the detection and investigation of illicit discharges into the Logan City MS4 including tracing and characterization of discharges.

Measurable Goal:

- 1) Develop and implement a written systematic procedure for locating and listing the priority areas likely to have illicit discharges based on:
 - a. Areas with older infrastructure
 - b. Industrial, commercial, or mixed use areas.
 - c. Areas with a history of illicit discharges
 - d. Areas with a history of illegal dumping
 - e. Areas with onsite sewage disposal systems
 - f. Areas with older sewer lines or with a history of sewer overflows or cross-connections
 - g. Areas upstream of sensitive water bodies
 - h. Other areas the Permittee determines
- 2) Develop and document basis for selection of priority areas and update annually.
- 3) Update, publically list, and publicize a local telephone number for public reporting of spills and other illicit discharge. Develop written record forms to track call information, follow-up actions taken, and feedback received.
- 4) Update a written spill/dumping response procedures and flow chart that show the procedures for responding to public referrals of illicit discharges including the various responsible agencies and their contact information.
- 5) Update and implement field assessment activities, including an inspection form, for verifying outfall locations and detecting illicit discharges, including dry weather screening of outfalls or facilities serving priority areas identified in item 1 of this BMP.
- 6) Update and implement an SOP for tracing sources of an illicit discharge including:
 - a. Visual inspections
 - b. Manhole inspections
 - c. Mobile cameras
 - d. Field tests (mobile monitoring equipment) for selected chemical parameters
 - e. Collection of water samples
- 7) Update and implement SOPs for characterizing the nature of, and potential public or environmental threat posed by any illicit discharge reported to or found by Logan City MS4. SOPs shall include instructions for evaluating how discharge shall be contained and steps taken to implement the containment instructions
- 8) Update the illicit discharge form and that contains:
 - a. Date of discovery or report of illicit discharge
 - b. Date discharge was observed
 - c. Date the Logan City MS4 initiated investigation

- d. Location of the discharge
 - e. Method of discovery
 - f. Date of removal or repair
 - g. Enforcement action taken
 - h. Date of removal or repair action follow-up inspection
 - i. Method of follow-up inspection
- 9) Update the decision process determining when to use analytical monitoring.
 - 10) Update database tracking system including mapping, tracking of the number and type of illicit discharges, and inspections completed

Justification: Illicit discharges are illegal and unauthorized discharges to the storm water sewer system. Implementation of a program to locate and eliminate these discharges to the Logan City MS4 can reduce storm water contamination as required by the provisions of the Utah Water Quality Act, Title 19, Chapter 5, Utah Code Annotated 2004, as amended (the “Act”) and the Federal Water Pollution Control Act (33 U.S.C. §§ 1251 et. seq., as amended to date), and the Rules and Regulations made pursuant to those statutes.

Measures of Success:

- 1) Review and update the development of a written systematic procedure for locating and listing the priority areas likely to have illicit discharges by December 31, 2016.
- 2) Continue to publically list, and publicize a local telephone number for public reporting of spills and other illicit discharge. .
- 3) Update written record forms to track call information, follow-up actions taken, and feedback received by December 31, 2016.
- 4) Update the written spill/dumping response procedures and flow chart that show the procedures for responding to public referrals of illicit discharges including the various responsible agencies and their contact information by December 31, 2016.
- 5) Update and implement field assessment activities, including an inspection form, for verifying outfall locations and detecting illicit discharges, including dry weather screening of outfalls or facilities serving priority areas identified in item 1 of this BMP by December 31, 2016.
- 6) , Update SOP for tracing sources of an illicit discharge per current MS4 permit.
- 7) Update and implement SOPs for characterizing the nature of, and potential public or environmental threat posed by any illicit discharge reported to or found by Logan City MS4 by December 31, 2016.
- 8) Update the illicit discharge form by December 31, 2016.
- 9) Update the decision process determining when to use analytical monitoring by December 31, 2016.
- 10) Update database tracking system by December 31, 2016.

Responsible Agencies in Logan City: Streets and Storm Water Division, Water, Wastewater, and Engineering Divisions.

Milestones:

- Year 1:** Update program and procedures.
- Year 2:** Continue program.

Year 3: Continue program.

Year 4: Continue program.

Year 5: Continue program.

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$23,000	\$23,000	\$23,000	\$23,000	\$23,000

Funding: General Fund

BMP ID 04: Illicit Discharge Training

Minimum Control Measure: Illicit Discharge Detection and Elimination

Target Pollutants: Urban Pollutants.

Audience: City

Existing: X

New: __

Desired Results: Train employees about the IDDE program including: identification, investigation, termination, cleanup, and reporting of illicit discharges including spills, improper disposal, and illicit connections.

Measurable Goal:

- 1) Train newly hired staff immediately and Public Works office staff at least annually who might receive initial reports of illicit discharge how to identify a spill or illicit discharge, improper disposal, or an illicit connection to the MS4 and proper procedures for reporting the discharge and issuing work orders.
- 2) Train newly hired staff immediately and field staff at least annually how to respond, safely identify, notify, eliminate and inspect an illicit discharge as it applies to their job function. Training will focus on utilization of tracing and characterization SOPs, notification procedures, reporting procedures, elimination and repair procedures, enforcement, and follow-up inspections.
- 3) Train all City staff, contracted staff, other responsible entities, and others that might receive reports of illicit discharges annually in the IDDE program, including identification, investigation, termination, cleanup, and reporting of illicit discharges.

Justification: Illicit discharges are illegal and unauthorized discharges to the storm water system or sewer system. Any illicit discharge program requires knowledge of where the storm water outfalls and collection system are located.

Measures of Success:

- 1) Create training packet and documentation of training for newly hired staff, contracted staff, and other responsible entities, and coordinate distribution and documentation with Human Resources by September 1, 2016.
- 2) Update training syllabus for each annual training class by December 31, 2016 and schedule training. Include syllabus and training schedule in the SWMP files.
- 3) Update a sign in log for each training class by December 31, 2016 including: Name of Class, Date of Class, Location of Class, Name and Title of Instructor, List of Attendees, and List of Attendees employing department or division.
- 4) Hold training classes before April 1 annually..

Responsible Agencies in Logan City: All City Departments

Milestones:

Year 1: Create training materials for newly hired staff, contracted staff, and other responsible entities. Update and hold training classes.

Year 2: Continue program.

Year 3: Continue program.

Year 4: Continue program.

Year 5: Continue program.

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$2,200	\$2,200	\$2,200	\$2,200	\$2,200

Funding: General Fund

BMP ID 05: Phosphorus and Nitrogen Monitoring Stations

Minimum Control Measure: Illicit Discharge Detection and Elimination

Target Pollutants: Phosphorus and Nitrogen

Audience(s): City, Utah Division of Water Quality

Existing: X **New:**

Desired Result: To quantify the amount of phosphorus and nitrogen actually being contributed by Logan City storm water annually with the implementation of new storm water BMPs and the storm water management program.

Measurable Goal:

- 1) Design and install additional monitoring stations and determine the number of water quality samples that should be collected during storm water events during the year to better understand our phosphorus and nitrogen contributions.
- 2) Collect further water quality samples on the Canals in Logan City to further quantify phosphorus and nitrogen contributions and possible locations of sources.

Justification: In the TMDL for Cutler Reservoir and the Middle Bear River, the Logan City MS4 is required to reduce phosphorus loads from 584 kg phosphorus during May through October and 1021 kg phosphorus during November through April to 208 kg and 496 kg respectively. In order to quantify the actual levels of phosphorus contribution and where the phosphorus is coming from, it will be necessary to install monitoring stations capable of collecting better information. These limits have been incorporated by the EPA and UDWQ into the current MS4 permits.

Currently, Logan City has incorporated design standards which limit the amount of phosphorus and nitrogen that can come off of new development. In recognizing that the lands being developed either discharge directly into tributaries to Cutler Reservoir or Canals which discharge directly to Cutler Reservoir, these criteria will significantly reduce any potential new MS4 contributions as well as eliminate existing agricultural phosphorus from manure land application, irrigation erosion, and over fertilization as lands are developed.

Incorporation of the monitoring plan into the illicit discharge program will allow us to target heavy phosphorus and nitrogen sources which may be identified.

Measure of Success:

- 1) Continue to work with USU (iUTAH) to install monitoring stations as funding allows..
- 2) The collection of water quality samples from the ten (10) sites identified in Logan City's storm water master plan annually from two storms, one with irrigation water in the canals and one without irrigation water in the canals.

Responsible Agency in Logan City: Streets and Storm Water Division, Engineering Division, Public Works Inspectors.

Milestones:

Year 1: Update the design of monitoring stations for both collecting real time data on EC, DO, NTU, pH, flow rate, and temperature. Collect grab samples at various phases of a storm runoff event to identify phosphorus and nitrogen contribution. Identify sampling protocol for illicit discharges to identify their phosphorus and nitrogen contributions.

Year 2: Install and maintain monitoring stations and the associated SCADA system to collect the necessary data.

Year 3: Install and maintain monitoring stations and the associated SCADA system to collect the necessary data. Evaluate data collected from the existing stations.

Year 4: Install and maintain monitoring stations and the associated SCADA system to collect the necessary data. Evaluate the data collected from the existing stations

Year 5: Install and maintain monitoring stations and the associated SCADA system to collect the necessary data. Evaluate the data collected from the existing sites.

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	\$35,000	\$60,000	\$60,000	\$60,000	\$60,000
New Annual Operating Costs	\$4,500	\$6,100	\$7,700	\$9,300	\$10,900
Existing Annual Operating Costs	NA	NA	NA	NA	NA

Funding: Storm Water Fund (One Time Startup Costs)
General Fund (Annual Operating Costs)

BMP PC 01: Storm Water Ordinance

Minimum Control Measure: Long-Term Storm Water Management in New Development and Redevelopment (Post-Construction Storm Water Management)

Target Pollutants: TSS, phosphorus, nitrogen and dust

Audience: City, Contractors, Businesses, Developers, and Residential

Existing: X **New**

Desired Results: Update and enforce the program to reduce pollutants in storm water runoff to the Logan City MS4 from new development and redevelopment with a land disturbance greater than 1.0 acre, including projects less than one acre that are part of a larger common plan of development or sale after construction.

Measurable Goal:

- 1) Update the ordinance and design standards (BMP PC-02) that require long-term post construction storm water controls at new development and redevelopment sites at least equivalent to requirements set forth in the current MS4 permit.
- 2) Maintain Logan City MS4 requirements to improve hydrology by matching peak flows and runoff volumes to historical levels on all development and redevelopment in accordance with our design standards established in BMP PC 03.
- 3) Update the enforcement strategy and update the enforcement provisions of the ordinance including processes and sanctions to minimize occurrence of and obtain rapid compliance from violators which shall include appropriate escalating enforcement procedures and actions.
- 4) Ensure storm water ordinance (BMP CS 03) provides access to private property for post construction inspections.

Justification: The objective of this BMP is for the hydrology associated with new development and redevelopment to mirror pre-development peak flows and total runoff of the previously undeveloped site and to improve the hydrology of a redeveloped site and decrease the discharge of storm water flows (volumes and peaks) and contaminants by the Logan City MS4. This ordinance coincides with the ordinance requirements associated with BMP CS 03.

Measure of Success:

- 1) Approval by City Council and Administration of the updated ordinance that complies with the measurable goals in this BMP.
- 2) Approval by Administration of the updated standard procedures for enforcement of this ordinance.
- 3) Continue to provide training of all City engineering and public works inspectors personnel who will be enforcing the storm water ordinance.

Responsible Agent in Logan City: City Engineer

Milestones:

Year 1: Obtain Approval of City Council and Administration on the updated ordinance. Update standard enforcement procedures. Continue to provide training.

Year 2: Enforce Ordinance and update procedures. Continue to provide training.

Year 3: Enforce Ordinance and update procedures. Continue to provide training.

Year 4: Enforce Ordinance and update procedures. Continue to provide training.

Year 5: Enforce Ordinance and update procedures. Continue to provide training.

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
Annual New Operating Costs	NA	NA	NA	NA	NA
Existing Annual Costs	\$2000	\$2000	\$2000	\$2000	\$2000

Funding: General Fund

BMP PC 02: Standards and Specifications for Development and Redevelopment

Minimum Control Measure: Long-Term Storm Water Management in New Development and Redevelopment (Post-Construction Storm Water Management)

Target Pollutants: TSS, phosphorus, nitrogen

Audience: City, Contractors, Businesses, Developers, and Residential

Existing: X

New: _

Desired Results: : Implement and enforce a program to reduce pollutants in storm water runoff to the Logan City MS4 from new development and redevelopment with a land disturbance greater than 1.0 acre, including projects less than one acre that are part of a larger common plan of development or sale after construction.

Measurable Goal: Implement and make available to the public the standard requirements in design guidelines for new development and redevelopment that includes the following:

- 1) Update storm water design standards and construction standards and specifications annually.
- 2) Update documentation explaining how long-term BMPs are selected, pollutant removal expected by each BMP method, and the technical basis that supports the performance claims of each BMP.
- 3) Require designers to provide BMPs that will minimize the negative impacts on water quality from new development and redevelopment
- 4) Implement land development code restrictions to the development of sensitive lands susceptible to erosion and sediment loss or provide areas that provide important water quality benefits, and protect the integrity of natural resources and sensitive areas .
- 5) Continue implementation of measures for flood control.
- 6) Update and modify the process to evaluate and select low impact development (LID) methods .
- 7) Update and refine Logan City’s plan to retrofit existing developed sites that are adversely impacting water quality emphasizing Low Impact Development and green infrastructure including but not limited to: infiltration basins, depressed grassed swells, and water harvesting as allowed by State Code.
- 8) Update the method and standard procedures for calculating runoff volumes and flow rates to ensure consistent sizing of structural BMPs and incorporate retaining the 90th percentile storm event.

Justification: The objective of this BMP is for the hydrology associated with new development and redevelopment to mirror pre-development hydrology of the previously undeveloped site and to improve the hydrology of a redeveloped site and reduce the discharge of storm water flows (volumes and peaks) and contaminants by the Logan City MS4. This BMP coincides with the standards and criteria requirements associated with BMP CS 02. This will reduce flows rates and volumes into the canals, streams, and rivers as well as improve overall water quality.

Measures of Success:

- 1) Update storm water design standards and construction standards. Track amendment dates, participants, and versions on the document title page. Maintain this document on the engineering website for easy access.
- 2) Continue collecting existing documentation on how long-term BMPs are selected, pollutant removal expected by each BMP method, and the technical basis that supports the performance claims of each BMP. Make this information available on the City's website for designers.
- 3) Mandate water quality BMPs, including LID methods, that will minimize the negative impacts on water quality by new development and redevelopment.
- 4) Update in the standards and specifications a reference to the land development code restrictions for the development of sensitive lands susceptible to erosion and sediment loss or provide areas that provide important water quality benefits, and protect the integrity of natural resources and sensitive areas.
- 5) Finish remapping the flood plain and continue flood plain management program to identify areas where future flood control structures may be built.
- 6) Refine the process to evaluate and encourage low impact development (LID).
- 7) Update the method and standard procedure for calculating runoff volumes and flow rates to ensure consistent sizing of structural BMPs using the 100-year 24 hour storm for all design except retention basins which shall use the 100-year 48-hour storm. The updated standard will require retaining the 90th percentile storm event.

Responsible Agent in Logan City: Engineering Division, City Engineer

Milestones:

Year 1: Update Storm Water Design Standards annually, update data collected from EPA and others on effectiveness of various BMPs allowed as alternatives, finish Logan River Flood Plain Mapping Project, modify LID alternatives in construction standards, and update standard hydrology procedures.

Year 2: Update Storm Water Design Standards

Year 3: Update Storm Water Design Standards

Year 4: Update Storm Water Design Standards

Year 5: Update Storm Water Design Standards

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000

Funding: General Fund

BMP PC 03: Retrofit Existing Development Impacting Water Quality

Minimum Control Measure: Long-Term Storm Water Management in New Development and Redevelopment (Post-Construction Storm Water Management)

Target Pollutants: TSS, phosphorus, nitrogen, trash, dust and debris

Audience: City, Contractors, Businesses, Developers, and Residential

Existing: X

New: _

Desired Results: Implement and enforce a program to reduce pollutants in storm water runoff to the Logan City MS4 from existing development and redevelopment that are identified by the implementation of the post construction facility inspections (BMP PC 05), illicit discharge inspections (BMP ID 01), mapping and inspecting existing septic tanks (BMP ID 01), and water quality monitoring and sampling (BMP ID 05)

Measurable Goal: Implement program and process to reduce storm water pollution from existing development within the City Boundary by:

- 1) Incorporate additional results from water quality monitoring and sampling.
- 2) Incorporate results from the MCM Illicit Discharge Detection and Elimination Program.
- 3) Incorporate results from the post construction inspections (BMP PC 05).
- 4) Using GIS maps of sensitive lands; develop a ranking system for prioritizing projects to correct deficient areas based on proximity to the receiving water; distance to discharge into Logan River, Blacksmith Fork River, Spring Creek, Swift Slough, or other waters of the U.S; hydrologic condition of the water body; proximity to sensitive ecosystem or protected areas; and upcoming development that could be further enhanced in cooperative effort.
- 5) Develop prioritization list of projects and incorporate these into the planned CIP projects based on available funding.
- 6) Incorporate results into the next master plan update.

Justification: The objective of this BMP is for the hydrology associated with existing development to mirror pre-development hydrology of the previously undeveloped site and to improve the hydrology of a redeveloped site and reduce the discharge of storm water flows (volumes and peaks) and contaminants by the current MS4. This BMP coincides with the standards and criteria requirements associated with the MCM's for Construction Sites and Illicit Discharge Detection and Elimination. This will reduce flow rates and volumes into the canals, streams, and rivers as well as improve overall water quality.

Measures of Success:

- 1) Using investigative data from other BMP's develop a map of water quality problem areas. Update this information annually.
- 2) Update ranking system for prioritizing projects to correct deficient areas.
- 3) Annually update prioritization list of projects and incorporate these into the master planned CIP projects.
- 4) Develop a mitigation strategy for the five most important projects using both structural and non-structural methods. Primary focus should be on non-structural methods.

5) Incorporate results into the next master plan update and into each year's CIP planning.

Responsible Agent in Logan City: Engineering Division, City Engineer

Milestones:

Year 1: Update GIS maps showing water quality problem areas. Using data already collected, develop ranking procedure.

Year 2: Rank projects that need to be addressed

Year 3: Develop CIP and Rank projects that need to be addressed.

Year 4: Update CIP and rank projects that need to be addressed.

Year 5: Update CIP and rank projects that need to be addressed.

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000

Funding: General Fund

BMP PC 04: Design Review Process Development, Redevelopment, and Retrofit Projects

Minimum Control Measure: Long-Term Storm Water Management in New Development and Redevelopment (Post-Construction Storm Water Management)

Target Pollutants: TSS, phosphorus, nitrogen

Audience: City, Contractors, Businesses, Developers, and Residential

Existing: X

New: _

Desired Results: Update and enforce a program to reduce pollutants in storm water runoff to the Logan City MS4 from new and existing development and redevelopment projects and retrofit projects being completed by City, State, and private entities.

Measurable Goal: Update the Design Review Process that accomplishes the desired results by:

- 1) Update a checklist and standard operating procedure for design review to ensure compliance with this SWMP related to post construction BMPs.

Justification: The objective of this BMP is for the hydrology associated with existing development to mirror pre-development hydrology of the previously undeveloped site and to improve the hydrology of a redeveloped site and reduce the discharge of storm water flows (volumes and peaks) and contaminants by the Logan City MS4. This BMP coincides with the standards and criteria requirements associated with the MCMs for Construction Sites and Illicit Discharge Detection and Elimination. This will reduce flows rates and volumes into the canals, streams, and rivers as well as improve overall water quality.

Measures of Success:

- 1) Success with BMP CS 02 and BMP PC 02.
- 2) Use of design review checklist on all qualifying projects.
- 3) Compliance with design review process on all qualifying projects to ensure projects being built will comply with the goals of the BMP.

Responsible Agent in Logan City: Engineering Division, City Engineer

Milestones:

Year 1: Update design review checklist and SOP. Log compliance in project tracking database.

Year 2: Log compliance in project tracking database.

Year 3: Log compliance in project tracking database.

Year 4: Log compliance in project tracking database.

Year 5: Log compliance in project tracking database.

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	\$1000	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000

Funding: General Fund

BMP PC 05: Post Construction Inspection

Minimum Control Measure: Long-Term Storm Water Management in New Development and Redevelopment (Post-Construction Storm Water Management)

Target Pollutants: TSS, phosphorus, nitrogen, debris

Audience: City, Contractors, Businesses, Developers, and Residential

Existing: X **New:** ___

Desired Results: Update and enforce a program to reduce pollutants in storm water runoff to the Logan City MS4 from existing development projects and retrofit projects existing within the boundaries of Logan City MS4 by inspecting the existing facilities annually to ensure proper operations and maintenance.

Measurable Goal:

- 1) Ensure ordinance provides authority to require and enforce annual inspection of private storm water facilities that discharge to the Logan MS4.
- 2) Update and implement maintenance agreements that will require property owners of Long Term Storm Water Management BMPs to be maintained and inspected at least annually.
- 3) Continue to require non-City owned facilities be inspected annually by a licensed qualified professional to ensure that facilities are being maintained and operated as designed. Require non-City owned facilities be inspected at least once every five (5) years by City staff.
- 4) Continue to require City owned facilities be inspected by a City qualified staff member annually.
- 5) Update Logan City MS4 Post Construction facility checklist to be used in all annual inspections, whether by City staff or by third party qualified inspector which includes:
 - a. Inspection Date
 - b. Name and Signature of inspector
 - c. Project Location
 - d. Description of facilities
 - e. Description of storm water control measure including quality of :
 - i. Vegetation and soils
 - ii. Inlet and outlet channels and structures
 - iii. Catch basins
 - iv. Spillways
 - v. Weirs/Orifices
 - vi. Sediment and debris accumulation
 - vii. Specific maintenance issues and violations found that need to be corrected by property owner along with deadlines and re-inspection dates.
 - f. Update post construction inspection SOP.

Justification: The objective of this BMP is for the hydrology associated with existing development to mirror pre-development hydrology of the previously undeveloped site and to improve the hydrology of a redeveloped site and reduce the discharge of storm water flows (volumes and peaks) and contaminants by the Logan City MS4. This BMP coincides with the standards and criteria requirements associated with the MCMs for Construction Sites and Illicit

Discharge Detection and Elimination. This will reduce flows rates and volumes into the canals, streams, and rivers as well as improve overall water quality.

Measures of Success:

- 1) Update the maintenance agreement that requires property owners of Long Term Storm Water Management BMP’s be maintained and inspected at least annually by September 1, 2016.
- 2) Evaluate and update tracking procedure and SOP to continue the storm water post construction inspections.
- 3) City to inspect 100 percent of mapped City owned facilities annually and 20 percent of mapped non-city owned facilities once every year.
- 4) Update Logan City MS4 Post Construction facility checklist to be used in all annual inspections by September 1, 2016.
- 5) Make checklist available on the City’s website.
- 6) Update post construction inspection SOP.

Responsible Agent in Logan City: Engineering Division, City Engineer

Milestones:

Year 1: Update storm water ordinance. Update definition of qualified post construction BMP inspector. Evaluate and update storm water maintenance agreement. Maintain tracking database for annual inspections. Update inspection checklist.

Year 2: Continue inspections and track responses and compliance.

Year 3: Continue program.

Year 4: Continue program.

Year 5: Continue program.

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000

Funding: General Fund

BMP PC 06: Post Construction Inspector Training

Minimum Control Measure: Long-Term Storm Water Management in New Development and Redevelopment (Post-Construction Storm Water Management)

Target Pollutants: TSS, phosphorus, nitrogen

Audience: City, Contractors, Businesses, Developers, and Residential

Existing: X

New:

Desired Results: Update and enforce a program to reduce pollutants in storm water runoff to the Logan City MS4 from existing development projects and retrofit projects existing within the boundaries of Logan City MS4 by inspecting the existing facilities annually to ensure proper operations and maintenance. This BMP provides for the training of post construction inspectors and defines “qualified” as a registered storm water inspector (RSI) with the Utah Chapter of the American Public Works Association or other recognized storm water inspector certification.

Measurable Goal:

- 1) Provide annual training opportunities to all City staff involved in post-construction storm water management, planning and review, inspections, and enforcement.
- 2) Provide training annually to staff involved in inspections, both City staff and third party staff on the use of the approved post-construction inspection checklist.

Justification: The objective of this BMP is for the hydrology associated with existing development to mirror pre-development hydrology of the previously undeveloped site and to improve the hydrology of a redeveloped site and reduce the discharge of storm water flows (volumes and peaks) and contaminants by the Logan City MS4. This BMP coincides with the standards and criteria requirements associated with the MCMs for Construction Sites and Illicit Discharge Detection and Elimination. This will reduce flows rates and volumes into the canals, streams, and rivers as well as improve overall water quality.

Measures of Success:

- 1) Continue to provide training opportunities to ensure key positions have been trained.
- 2) Maintain log of training classes including course dates, course titles, course descriptions, names and qualifications of instructors, and names and positions of attendees.

Responsible Agent in Logan City: Engineering Division, City Engineer

Milestones:

Year 1: Continued training opportunities and RSI inspector certification and re-certification of City staff.

Year 2: Continued training opportunities and RSI inspector certification and re-certification of City staff.

Year 3: Continued training opportunities and RSI inspector certification and re-certification of City staff.

Year 4: Continued training opportunities and RSI inspector certification and re-certification of City staff.

Year 5: Continued training opportunities and RSI inspector certification and re-certification of City staff.

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000

Funding: General Fund

BMP PC 07: Post Construction Facility Mapping

Minimum Control Measure: Long-Term Storm Water Management in New Development and Redevelopment (Post-Construction Storm Water Management)

Target Pollutants: TSS, phosphorus, nitrogen

Audience: City, Contractors, Businesses, Developers, and Residential

Existing: X

New:

Desired Results: Update and enforce program to reduce pollutants in storm water runoff to the Logan City MS4 from existing development projects and retrofit projects within the boundaries of Logan City MS4 by inspecting the facilities annually to ensure proper operations and maintenance. This BMP provides for mapping the long term storm water infrastructure within the Logan City MS4.

Measurable Goal:

- 1) Update map of all storm water infrastructure and long term BMPs within Logan City MS4 boundaries.
- 2) Update GIS layers and database tracking:
 - a. Short description of each storm water control measure
 - b. Create a short description of maintenance requirements
 - c. Document structure ownership and contact information in GIS.
 - d. Document City inspection frequency requirements and private inspection frequency requirements.
 - e. Track inspections in GIS in support of BMP PC 05.
- 3) Update inventory based on inspections.

Justification: The objective of this BMP is for the hydrology associated with existing development to mirror pre-development hydrology of the previously undeveloped site and to improve the hydrology of a redeveloped site and reduce the discharge of storm water flows (volumes and peaks) and contaminants by the current MS4 permit. This BMP coincides with the standards and criteria requirements associated with the MCM's for Construction Sites and Illicit Discharge Detection and Elimination. This BMP will provide the documentation necessary to implement the rest of the BMPs in this MCM.

Measures of Success:

- 1) Provide quality control, inspection, verification and update of 20 percent of storm water infrastructure within Logan City annually.
- 2) Update infrastructure inventory with the construction of all development, re-development, and retrofit of storm water infrastructure.
- 3) Create tracking database using GIS for annual mailers and inspection results tracking system.
- 4) Update the SOP for implementing this BMP.

Responsible Agent in Logan City: Engineering Division, City Engineer

Milestones:

Year 1: Coordinate facilities with property ownership. Generate mailers, notifications, and standard GIS mapping SOP. Continue mapping all storm water infrastructure.

Year 2: Continue mapping all storm water infrastructure.

Year 3: Continue mapping all storm water infrastructure.

Year 4: Continue mapping all storm water infrastructure.

Year 5: Continue mapping all storm water infrastructure.

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000

Funding: General Fund

BMP PE 01: Reduction, Reuse, Recycling and Composting Education

Minimum Control Measure: Public Education and Outreach

Target Pollutants: TSS, phosphorus, nitrogen, litter, green waste materials, debris, and other wastes

Audience: Residential, Businesses, City, Contractors & Developers

Existing: X

New

Desired Results: Continue educating the public, businesses and manufacturing facilities, City employees, and contractors and developers, concerning reduction, reuse, and recycling of solid and hazardous waste materials as well as green waste materials in order to prevent littering and dumping of these materials such that they come in contact with storm water run-off.

Measurable Goal:

- 1) Mail a solid waste management newsletter in the City utility bill at least once per year.
- 2) Publish advertisements, educational tips, and public service announcements in the local paper concerning solid waste management and recycling at least twice per year.
- 3) Advertise, promote educational tips, and produce public service announcements on local radio stations concerning solid waste management and recycling at least four times per year.
- 4) Sponsor and staff an educational display at the Cache County Fair and other local community events regarding solid waste management, recycling, composting, litter prevention and storm water pollution prevention.
- 5) Provide education and information about solid waste management and recycling through regular maintenance of the Logan City Environmental Department's web site.
- 6) Provide in-classroom instruction about recycling, composting, and hazardous waste management to 50% of one grade level of elementary schools within the Logan City and Cache County School Districts. Provide classroom instruction to secondary education and higher education classes as requested.
- 7) Provide landfill tours to cub-scout troops, religious organizations, clubs, and educational institutions as requested to educate about solid waste management.

Justification: Gutters, ditches, and other storm water conveyance systems frequently contain litter (paper, plastics, and food containers), as well as green waste and organic materials. This BMP aims at educating the public about the appropriate local disposal, recycling, and composting programs for solid waste, hazardous wastes, and green waste materials.

Measure of Success: Success will be defined as completion of the following areas and an annual report documenting progress:

- 1) All local paper and radio advertisements will be compiled in an Environmental Department scrap book or filed electronically.
- 2) People educated, whether in class, at a community event, or on a tour will be tracked through an annual metric.
- 3) Classrooms taught throughout the County and City School Districts will be tracked through an annual metric.
- 4) The Logan City web site is available for review at any time.

Responsible Agency in Logan City: Environmental Department

Milestones:

- Year 1:** Continue program and update as necessary.
- Year 2:** Continue program and update as necessary.
- Year 3:** Continue program and update as necessary.
- Year 4:** Continue program and update as necessary.
- Year 5:** Continue program and update as necessary.

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
Annual New Operating Costs	NA	NA	NA	NA	NA
Existing Annual Costs	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000

Funding: Environmental Department Engineering

BMP PE 02: City Web Site

Minimum Control Measure: Public Education and Outreach

Target Pollutants: Typical Urban Pollutants

Audiences: Residents, Businesses(Institutions, Industrial and Commercial), Contractors, Developers, City

Existing: X

New: _

Desired Results: Provide easy contact information and resource information to assist citizens and businesses who want to obtain information on the proper disposal of wastes.

Measurable Goal: On the City Web Site, provide the following information:

- 1) Information about Logan City's recycling program, curb side recycling, and locations of recycling drop locations.
- 2) Information about Logan City's green-waste facility, curb side pickup program, and green waste drop locations.
- 3) Information about household hazardous waste disposal program with descriptions of what is taken and any associated fees.
- 4) Information on the construction and demolition waste landfill with descriptions of fees and summary of limitations.
- 5) Information on the dead animal disposal program with descriptions of fees and summary of limitations.
- 6) Information on illegal garbage disposal (dumping) and environmental impacts associated with it.
- 7) Information on educational programs available through Logan City to assist in public education.
- 8) Information and guidelines concerning the impacts, responsibility, and methods for reducing or eliminating storm water impacts associated with illicit discharges, litter and garbage, fertilizers, pesticides, herbicides, yard wastes, oil and antifreeze, pet wastes, paint and cleaners, and soaps (yard and parking lot car wash issues, proper use of salt and other de-icing materials, disposal of highly chlorinated water (pools and hot tubs)
- 9) Copies of storm water master plans and storm water design criteria
- 10) Links to low impact development (LID) guidelines and information.

Justification: The internet is becoming a convenient and widespread means of disseminating information to interested citizens.

Measures of Success:

- 1) Update of website annually.
- 2) Track annually the number of website hits to each topic listed in BMP.

Responsible Agency in Logan City: Environmental Development, Permits and Analysis Section and Public Works Department, Streets and Storm Water Division

Milestones:

- Year 1:** Update as required.
- Year 2:** Update as required.
- Year 3:** Update as required.
- Year 4:** Update as required.
- Year 5:** Update as required.

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$300	\$300	\$300	\$300	\$300

Funding: General Fund

BMP PE 03: Annual Storm Water Fair

Minimum Control Measure: Public Education and Outreach

Target Pollutions: TSS, Phosphorus, nitrogen, Common Urban Pollutants

Audiences: Residents, focusing on 4th Grade Students

Existing: X

New:

Desired Goal: Help fourth graders in the Logan City School District gain an understanding of the importance of water quality and help build a habit of water quality protection.

Measurable Goal: Provide a water fair opportunity for fourth graders to attend once per year covering water shed protection, erosion control, water conservation, and good housekeeping to reduce residential pollution.

Justification: Providing education to students establishes a foundation for civic consciousness throughout the student’s lives, and the students carry the message back into their homes creating a multiplier effect for the information presented.

Measure of success: Attendance of 4th grade classes from the Logan City School District.

Responsible Agency in Logan City: Public Works Department, City Engineer.

Milestones:

Year 1: Continue program annually

Year 2: Continue program annually

Year 3: Continue program annually

Year 4: Continue program annually

Year 5: Continue program annually

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$19,000	\$19,000	\$19,000	\$19,000	\$19,000

Funding: Storm Water Utility Fund

BMP PE 04: Annual Contractors, Engineers and Development Meeting

Minimum Control Measure: Public Education and Outreach

Target Pollutions: TSS, Phosphorus, Nitrogen, Trash, Dust, and Debris

Audiences: Contractors and Developers

Existing: X

New: _

Desired Goal: Help educate contractors and developers in Logan City MS4 about the SWMP and requirements associated with General Construction Permit.

Measurable Goal:

- 1) Hold annual contractors meeting every year to instruct contractors of the requirements and BMPs associated with construction sites and post construction activities, especially NOI, SWPPP, and NOT requirements.
- 2) Train contractors on access and application of standards and specifications and reiterate these requirements for contractors during any preconstruction meetings.
- 3) Train Developers and Engineers on access and application to City requirements regarding construction, post construction, low impact development

Justification: Contractors are the single largest producer of water pollution during storm events if sites are not appropriately maintained and appropriate BMPs are not installed.

Measure of success:

- 1) Completion of an annual syllabus for inclusion in the SWMP.
- 2) Inclusion of an annual sign in list for attendance to the annual construction meeting.
- 3) Inclusion of general agenda in the SWMP.

Responsible Agency in Logan City: Public Works Department, City Engineer.

Milestones:

Year 1: Continue program annually

Year 2: Continue program annually

Year 3: Continue program annually

Year 4: Continue program annually

Year 5: Continue program annually

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500

Funding: General Fund

BMP PE 05: Annual City Staff Training

Minimum Control Measure: Public Education and Outreach

Target Pollutions: TSS, Phosphorus, Nitrogen, Hydrocarbons, Salts/ De-Icing, Dust, and Debris

Audiences: City Staff

Existing: X

New: _

Desired Goal: Educate the public, institutions, industrial/commercial and City staff on Storm Water Impacts

Measurable Goal:

1. Provide annual letter in City utility bill that directs the public to the City web page for information regarding potential impacts to storm water.
2. Identify Institutions, commercial/industrial facilities and businesses based on business licensing classifications and provide the following:
 - a. Annual letter/ mailing or email specific to each audience and/or business type addressing storm water pollution impacts and reference to City web page for additional information.
 - b. As identified per noted violations provide notification and training sessions specific to most common violations
3. Provide written notifications to Engineers, Construction Contractors and Developers of the annual Contractor/Engineer/Developer meeting (see BMP PE-04). This written notification shall also include reference to City website for information regarding, SWPPP's, storm water design standards, low impact design and the City process for project design, review, approval and construction projects.
4. Provide training of City Staff addressing storm water pollution impacts and reference to City web page for additional information. Provide specific training to City staff based on job type and associated SOP's
5. Provide annual training and documentation on LID practices, green infrastructure and post construction BMP's to MS4 engineers, land use planners, review staff and others as applicable.

Justification: City planners and engineering design review are the first line of defense to protect water quality before construction ever gets started.

Measure of success:

1. Send flyer in City utility bill annually regarding potential impacts of pollution to storm water and direct the public to the City website for additional information regarding storm water and pollution impacts.
2. Develop a database of business types based on data collected from building licensing, environmental and industrial permits. Prepare a annual mailer addressing potential pollution impacts to storm water based on each targeted business type. This mailer shall also direct them to the City website.

3. Document and track storm water violations by targeted business type and prepare a special training for these specific pollutant discharges to storm water.
4. Hold an annual contractor, engineer, and developer meeting. Discuss items identified in BMP PE-04 and reference additional information that is available on City website.
5. Provide annual training to City staff, MS4 engineers, land use planners and design review staff on impacts pollution of storm water, website information, design review process, LID practices, green infrastructure and specific job SOP's.

Responsible Agency in Logan City: Public Works Department, City Engineer.

Milestones:

Year 1: Prepare targeted business database, track common pollutant violations, update City website, schedule and prepare required mailers and schedule targeted training topics

Year 2: Continue program annually

Year 3: Continue program annually

Year 4: Continue program annually

Year 5: Continue program annually

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000

Funding: General Fund

BMP PI 01: Public Involvement and Participation

Minimum Control Measure: Public Involvement/Participation

Target Pollutants: TSS, phosphorus, nitrogen, trash, dust and debris.

Audience: City, Contractors, Businesses, Developers, and Residential

Existing: X

New: _

Desired Results: To implement a program that will provide opportunities for public involvement in advisory panels, public hearings, watershed committees, stewardship programs, environmental activities, other volunteer opportunities, or other similar activities.

Measurable Goal:

- 1) All development projects, except those disturbing less than ten (10) percent of the existing project, pass through a review process that includes an approval process by the Planning Commission using public notification and public involvement and comment in accordance with State law.
- 2) All projects funded by state or federal money pass through a program that requires the compliance with NEPA, including formal public involvement.
- 3) Maintain copy of SWMP and all other storm water documents on the City Web Site and make hard copies available for review at the Public Works Office on appointment.

Justification: The objective of this BMP is to document the compliance of Logan City with the open meeting laws of the State of Utah.

Measures of Success:

- 1) Maintain documentation of public meeting notices and minutes indefinitely by the Planning and Zoning Commission.
- 2) Maintain documentation of NEPA compliance on associated infrastructure projects indefinitely.
- 3) A copy of the SWMP and other storm water documents are already available for public review at the Public Works Office.

Responsible Agent in Logan City: Engineering Division, City Engineer and Community Development Department, Community Development Director.

Milestones:

Year 1: Continue Program

Year 2: Continue Program

Year 3: Continue Program.

Year 4: Continue Program.

Year 5: Continue Program

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000

Funding: General Fund

BMP PI 02: Storm Water Advisory Board

Minimum Control Measure: Public Involvement and Participation

Target Pollutants: TSS, phosphorus, nitrogen, trash, dust and debris.

Audience: City, Contractors, Businesses, Developers, and Residents.

Existing: X

New: _

Desired Results: Provide a means for the public to provide public comment and gain understanding into the activities of the Storm Water Utility.

Measurable Goal:

- 1) Maintain a Storm Water Advisory Board to review and make recommendations to City staff and the City Council on policy and programs affecting storm water management within the City of Logan.
- 2) Maintain membership on Storm Water Advisory Board consisting of representatives of the entire Target Audience.

Justification: Public involvement, especially from representatives of those interest groups who will be most impacted by storm water management policies and programs, is important to the success of any program. The Storm Water Advisory Board will serve as an advisory body to City Staff and the City Council and will review policies, programs and project plans for storm water management involving both quantity and quality issue.

Measure of Success:

- 1) Meet at least 6 out of 12 months annually.
- 2) Develop formal by-laws governing the advisory board.

Responsible Agency in Logan City: Public Works Department, Public Works Director

Milestones:

Year 1: Maintain Board under auspices of mayoral authority. Develop by-laws and organizational procedures.

Year 2: Continue board activities

Year 3: Continue board activities

Year 4: Continue board activities

Year 5: Continue board activities

Cost Summary:

Costs	Year 1	Year 2	Year 3	Year 4	Year 5
One Time Startup Costs	NA	NA	NA	NA	NA
New Annual Operating Costs	NA	NA	NA	NA	NA
Existing Annual Operating Costs	\$7,000	\$7,000	\$7,000	\$7,000	\$7,000

Funding: Storm Water Fund

BUDGET NECESSARY TO IMPLEMENT SWMP

Table 4, Annual Storm Water Operating Cost Summary

Fund Source/Activity	Year 1	Year 2	Year 3	Year 4	Year 5
Storm Water General Fund					
Minimum Control Measures	\$ 226,100	\$ 195,200	\$ 197,800	\$ 200,400	\$ 203,000
Maintenance (SOP's)	\$ 79,150	\$ 80,797	\$ 82,445	\$ 84,092	\$ 85,740
CIP	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal	\$ 305,250	\$ 275,997	\$ 280,245	\$ 284,492	\$ 288,740
Storm Water Utility					
Minimum Control Measures	\$ 176,000	\$ 202,500	\$ 204,000	\$ 205,500	\$ 207,000
Maintenance (SOP's)	\$ 533,750	\$ 544,860	\$ 555,970	\$ 567,079	\$ 578,189
CIP	\$ 1,090,000	\$ 1,160,000	\$ 750,000	\$ 1,000,000	\$ 1,000,000
Subtotal	\$ 1,799,750	\$ 1,907,360	\$ 1,509,970	\$ 1,772,579	\$ 1,785,189
Class C Road Funds					
Minimum Control Measures	\$ -	\$ -	\$ -	\$ -	\$ -
Maintenance (SOP's)	\$ 51,600	\$ 52,674	\$ 53,748	\$ 54,822	\$ 55,896
CIP	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal	\$ 51,600	\$ 52,674	\$ 53,748	\$ 54,822	\$ 55,896
Parks & Recreation					
Minimum Control Measures	\$ -	\$ -	\$ -	\$ -	\$ -
Maintenance (SOP's)	\$ 321,400	\$ 321,400	\$ 321,400	\$ 321,400	\$ 321,400
CIP	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal	\$ 321,400	\$ 321,400	\$ 321,400	\$ 321,400	\$ 321,400
Environmental					
Minimum Control Measures	\$ 64,000	\$ 64,000	\$ 64,000	\$ 64,000	\$ 64,000
Maintenance (SOP's)	\$ 13,000	\$ 13,000	\$ 13,000	\$ 13,000	\$ 13,000
CIP	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal	\$ 77,000	\$ 77,000	\$ 77,000	\$ 77,000	\$ 77,000

Table 4, Annual Storm Water Operating Cost Summary (Continued)

Fund Source/Activity	Year 1	Year 2	Year 3	Year 4	Year 5
Facilities					
Minimum Control Measures	\$ -	\$ -	\$ -	\$ -	\$ -
Maintenance (SOP's)	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000
CIP	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000
Waste Water					
Minimum Control Measures	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000
Maintenance (SOP's)	\$ 319,804	\$ 319,804	\$ 319,804	\$ 319,804	\$ 319,804
CIP	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal	\$ 323,804	\$ 323,804	\$ 323,804	\$ 323,804	\$ 323,804
Light & Power					
Minimum Control Measures	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000
Maintenance (SOP's)	\$ -	\$ -	\$ -	\$ -	\$ -
CIP	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000
Total	\$ 2,884,804	\$ 2,964,235	\$ 2,572,167	\$ 2,840,098	\$ 2,858,029

For further project detail on specific cost break downs, see Appendix B.

APPENDICIES

Do to the dynamic nature of each appendix, they have not been numbered.

APPENDIX A

SUPPLEMENTAL STORM WATER GUIDE FOR CONTRACTORS AND DEVELOPERS

This appendix includes the following:

- Cache Valley Stormwater Design Standards
 - Design Methods and Considerations
 - SWPPP requirements
 - Procedures for considering LID Practices
 - Process of including water quality on public and private projects
- SWPPP and Design Review Checklists
- Construction and Post Construction BMP fact sheets
 - Reference for standard details
 - Reference for standard maintenance during and post construction
- SWPPP Template for projects 1.0 acres and larger
 - Including review of threatened and endangered species
 - Including review for historical properties
 - Requirements for all elements in UTR300000
- Inspection Checklist to be used by City Staff
- Maintenance Agreement for New Development
- NOT Procedures

APPENDIX B

SUPPLEMENTAL STORM WATER GUIDE FOR CITY STAFF

This appendix contains information in addition to Appendix A for City Staff and City projects. This Appendix should always be used in addition to Appendix A. This Appendix includes the following:

- Detailed Budget Breakdown
- Public Information and Review Process
- Inventory of City Operated Facilities and Storm Water Controls
- Assessment of City Owned Facilities
- City Facility Floor Drain Maps
- Employee Storm Water Training Flow Chart
- Standard Operating Procedures
 - Airport, Landfill, and Wastewater Treatment Lagoons (References to individual permits)
 - Facilities Department
 - Environmental Department
 - Logan City Light and Power Department
 - Parks Department
 - Streets/Storm Water Department
 - Water and Wastewater Department

APPENDIX C

ILLCIT DISCHARGE PROGRAM AND FORMS

This appendix includes the following:

- Logan City Storm Water Illicit Discharge Detection and Elimination Program
- Logan City- Determine Priority Areas
- IDDE Priority Areas Map
- Logan City Incident Response and Hotline, Operators Flow Chart/Decision Tree
- Logan City Dry Weather Screening Flow Chart/Decision Tree
- Logan City Spill, Dump, or Illicit Discharge Response (Field Responder) Flow Chart/Decision Tree
- Enforcement Construction Flow Chart/Decision Tree
- Logan City Spill Response SOP
- Dry Weather Screening and Visual Storm Water Discharge Examination Report
- IDDE Incoming Call Report Form (For phone operator)
- Illicit Discharge Incident Log
- Logan City Spill Response Report Form (For Public Works Crew)

APPENDIX D

DOCUMENTATION OF COMPLIANCE

This appendix includes the following as of date of submittal:

- MCM Evaluation Table developing the minimum BMPs

The following items will be included in this appendix as part of the annual update and annual report.

- Completed inspection forms and work orders for all public facilities and construction sites.
- Copies of all enforcement actions
- Copies of training schedules and attendance logs
- Completed visual inspection forms
- Copies of maintenance logs and records
- Copies of annual reports
- Copies of annual budgets
- Copies of subsequent justifications for change.

APPENDIX E
CITY ORDINANCE

This appendix includes the Storm Water Ordinance adopted by Logan City Council on March 1, 2011.

APPENDIX F

COPIES OF STORMWATER PERMITS AND AGREEMENTS

This appendix includes the following:

- General Permit for Discharges from Small Municipal Separate Storm Sewer Systems (MS4s)
- UTRC00000, Storm Water General Permit for Construction Activities
- UTRH00000, General Storm Water Permit for Construction Activity Connected with Single Lot Housing Projects
- Storm Drainage and Flood Control Agreement, Seventh Ward Irrigation Company
- Storm Drainage and Flood Control Agreement, Logan Northwest Field Irrigation Company
- Storm Drainage and Flood Control Agreement, Crockett Avenue Irrigation & Distribution System, Inc.
- Storm Drainage and Flood Control Agreement, Benson Canal Company
- Bear River Health Department (BRHD) Agreement

APPENDIX G
LOGAN CITY STORM WATER MAP