

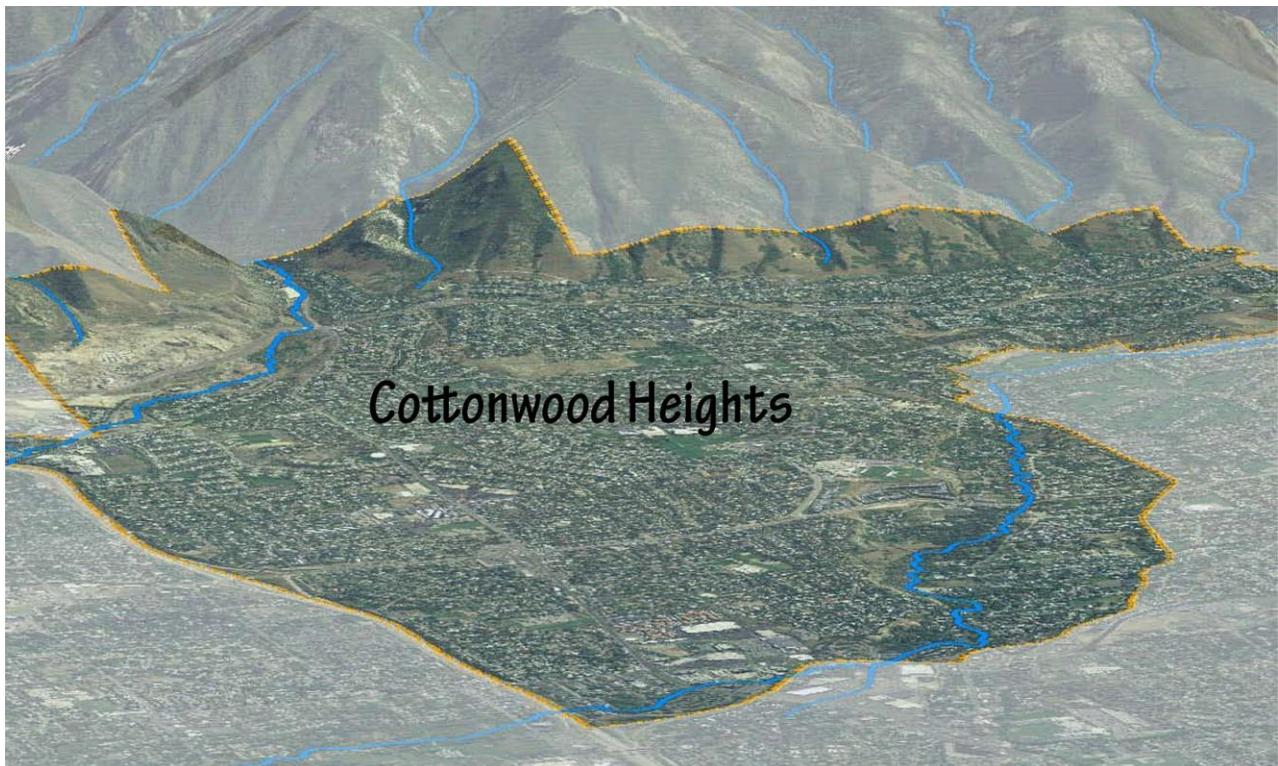
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# City of Cottonwood Heights

Stormwater Management Plan  
July, 2016

Submitted to:  
State of Utah • Department of Environmental Quality • Division of Water Quality

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## List of Terms

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|       |   |
|-------|---|
| ABOP  | Antifreeze, Batteries, Oil & Paint          |
| BMP   | Best Management Practices                   |
| DCIAs | Directly Connected Impervious Areas         |
| DWQ   | Division of Water Quality                   |
| EPA   | Environmental Protection Agency             |
| GIS   | Geographic Information System               |
| HHW   | Household Hazardous Waste                   |
| MEP   | Maximum Extent Practicable                  |
| MIS   | Management Information System               |
| PHF   | Pesticides, Herbicides, Fertilizers         |
| SIC   | Standard Industry Classification            |
| SLVHD | Salt Lake Valley Health Department          |
| SWMP  | Storm Water Management Plan                 |
| SWPPP | Storm Water Pollution Prevention Plan       |
| UAC   | Utah Administrative Code                    |
| UPDES | Utah Pollution Discharge Elimination System |
| TSS   | Total Suspended Solids                      |
| DEQ   | Division of Environmental Quality           |
| LOD   | Limits of Disturbance                       |

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## *Storm Water Management Program Plan Description*

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### Summary

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Cottonwood Heights is Phase II Co-Permittee of Jordan Valley Municipalities. As part of the permit renewal for the term ending in 2018, Cottonwood Heights has updated the Storm Water Management Plan (SWMP). The SWMP is implemented to limit, to the maximum extent practicable (MEP), the discharge of pollutants from the Cottonwood Heights storm drain system. The program is implemented by the Cottonwood Heights Public Works Department with assistance from local engineering consultants. Funding is provided through the Cottonwood Heights general fund. This is a living document, and will be updated as appropriate.

### Permit Number

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Permit Number – UTS000001

### MS4 Location

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Cottonwood Heights is located in the south east corner area of Salt Lake County. It is located south of I-215, and is bordered by Holladay City to the north, Sandy City to the South, and Midvale City to the west. Please see Figure 5-1 for a map of Cottonwood Heights.

### SWMP Coordination

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Agency: Cottonwood Heights

Contact:

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Phone: (801) 944-7000

Adam Ginsberg, Project Manager  
Phone: (801) 571-9414

## ***Information regarding overall water quality concerns***

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Water quality concerns include target pollutants including sediments, nutrients, heavy metals, trash and debris, oil and grease, herbicides and pesticides, bacteria and viruses and organic matter which may contribute to the impairment of Big Cottonwood Creek, Little Cottonwood Creek and the Jordan River. Cottonwood Heights has selected the measurable goals outlined in each minimum control measure's section of this SWMP. We have also developed a dry weather screening program to target high-risk pollutants.

### ***Discharges into 303(d) Impaired Waters***

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A portion of the storm water from the Cottonwood Heights storm water system discharges into the Big Cottonwood Creek & Little Cottonwood Creek. Little & Big Cottonwood Creek have been identified as impaired by the EPA. The listed pollutants from the 303(d) include total dissolved solids (TDS), Benthic Macroinvertebrates Bioassessments, and temperature for Little Cottonwood Creek. Big Cottonwood Creek is listed on the 303(d) for temperature. No TMDL study has been prepared for Big or Little Cottonwood Creek downstream of the Metropolitan WTP.

### ***TMDL Requirements***

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Phase I of the TMDL study on the Jordan River was approved by the EPA on June 5, 2013. In the study, dissolved oxygen was identified as the greatest impairment for the Jordan River. Organic matter contributes to the dissolved oxygen levels, and will continue to be the focal point of future phases of the TMDL strategy. As specific requirements are established to improve the TMDL, appropriate BMPs and capital improvements will be installed to meet those requirements and update the Cottonwood Heights SWMP accordingly.

### ***Pollutant Control***

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When new requirements are imposed from the TMDL to improve dissolved oxygen levels in the Jordan River, a description of how Cottonwood Heights will control upstream discharges will be prioritized and implemented.

## ***Threatened or Endangered Species and Historic Properties***

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### ***Summary***

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Cottonwood Heights complies with Federal and State laws relating to threatened and endangered species and historic properties.

## *Storm Water Management Program*

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The SWMP has been developed to meet the requirements of the UPDES permit and consists of the six minimum control measures established by the EPA for Phase II storm water discharges. Cottonwood Heights enforces this SWMP to reduce the discharge of pollutants from the MS4 through six minimum control measures.

The Implementation Schedule will be met to implement the SWMP.

### *Implementation Process*

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Implementation of these control measures are expected to result in significant reductions of pollutants discharged into receiving water bodies. The six control measures are addressed in separate sections.

Cottonwood Heights personnel meet once a month to discuss and evaluate portions of the SWMP and assess any needs for improvements. Assignments are then made and followed up the following month to implement improvements to our program. This monthly meeting allows Cottonwood Heights to plan, set priorities, evaluate effectiveness of the SWMP implementation and make any updates and improvements as needed.

### *BMP's Implementation*

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BMP's implemented for each minimum control measure are described in this SWMP.

### *Measurable Goals*

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Measurable goals for each of the BMPs, including timeframes for implementation and frequency of actions are included on pages

### *Responsible Party for Implementation*

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The specific person or position responsible for implementation of the BMP will be documented in the SWMP or the SOP.

### *Good Faith Effort*

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A good faith effort is being made to comply with the terms of the MS4 permit.

## ***Minimum Control Measures***

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Each control measure contains BMPs necessary for proper storm water management. The BMPs contain specific tasks to meet the objective of that control measure. This SWMP is intended to be a living document with BMPs added and deleted as new management practices arise and other management practices are found not to work. The following provides a summary of each minimum control measure:

### **Public Education and Outreach Program**

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This measure is intended to ensure greater public support for the storm water program and greater compliance through education. An informed public can significantly contribute to the success of the program.

In general, Cottonwood Heights is emphasizing education in the SWMP because it is a cost-effective BMP and is proactive in trying to reduce storm water pollutants rather than reactive by treating the storm water pollutants.

### **Public Involvement/Participation Program**

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This measure is intended to provide opportunities for the public to play an active role in both the development and implementation of the storm water program. An active community that understands the importance of protecting storm water from illicit discharges is crucial to the success of the program. The BMPs in this section not only serve to involve the public, but also function to educate the public on storm water issues.

### **Illicit Discharges and Improper Disposal Program**

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This measure is intended to minimize the illicit discharges into the storm drain system. Illicit discharges are those that are not composed entirely of storm water. Storm drain systems are not designed to accept, process, or discharge such non-storm water wastes. Minimizing these discharges can help to prevent high levels of pollutants from entering receiving waters.

### **Construction Site Storm Water Runoff Control Program**

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This measure is intended to minimize polluted storm water runoff from construction activities. Construction activities can contribute significant levels of sediment to storm water runoff if erosion and sediment controls are not implemented.

### **Post-Construction Storm Water Management Program**

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This measure is intended to minimize the impact to storm water quality caused by development and redevelopment following construction. The increase in impervious areas caused by development can cause an increase in the type and quantity of pollutants in storm water runoff. Prior planning and design to minimize pollutants in runoff from these areas is an important component to storm water quality management.

Pollution Prevention/Good Housekeeping Program

This measure is intended to ensure a reduction in the amount and type of storm water pollutants by establishing routine activities in the operation and maintenance of municipal operations that address storm water runoff. Setting particular guidelines for source controls and materials management is an important component to storm water quality management.

***Public Education and Outreach***

The Public Education and Outreach Program of the Storm Water Management Plan (SWMP) addresses implementation of a public awareness program for targeted pollutants aimed at the following groups: general public, public employees, commercial facilities, construction and development, MS4 facilities.

The BMPs described in this section of the SWMP include training of municipal employees and education of the public sector. These education and training programs will introduce the Utah Pollutant Discharge Elimination System (UPDES) program, and focus on targeted pollutants and how to control their sources.

Below, Cottonwood Heights has identified the target pollutants for each specific target audience.

Table 1 – Targeted Pollutants for Audience Group

| Audience Group (Source)    | Sediments | Nutrients | Heavy Metals | Trash & Debris | Oil & Grease | Bacteria & Viruses | Herbicides & Pesticides |
|----------------------------|-----------|-----------|--------------|----------------|--------------|--------------------|-------------------------|
| General Public             | X         | X         |              | X              | X            | X                  | X                       |
| Commercial Facilities      | X         | X         | X            | X              | X            | X                  | X                       |
| Construction & Development | X         | X         |              | X              | X            |                    |                         |
| MS4 Facilities             | X         | X         | X            | X              | X            |                    | X                       |

X = Targeted potential pollutant may be expected from the audience group

Participation in Storm Water Coalition Meetings

The Salt Lake County Storm Water Coalition meetings are held on the 3rd Wednesday of each month. It consists of a coalition of various local agencies whose purpose is reducing the load of pollutants entering storm drains and receiving water bodies and enforcing the appropriate regulations. The coalition meets to discuss pertinent issues and reviews progress of each agency in meeting phase II requirements. Cottonwood Heights will continue to have representation at these meeting.

## General Education Outreach Programs

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Storm water educational literature is distributed regularly through the Cottonwood Heights Public Relations Department at City-sponsored events, through Neighborhood Watch programs and is available to the general public at the City Offices.

Cottonwood Heights has a printed journal delivered to all postal addresses in Cottonwood Heights every other month. Cottonwood Heights places an ad in every edition of the Journal which promotes good behavior and proper handling of addressing specific targeted pollutants. This includes pet waste, fertilizer use, household hazardous waste disposal and car washing. Specific information will inform the public of the impact of storm water discharges on the Big and Little Cottonwood Creek systems.

## Storm Water Information Booth at City Events

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An information booth will be set up at one city event that will educate the public about storm water pollution. The booth will use displays and handout materials illustrating the storm drain system, the hydrological cycle, and impacts of pollution on the streams located within the city.

Local residents need to be educated that all the storm drain pipes in Cottonwood Heights discharge directly into Big Cottonwood Creek or Little Cottonwood Creek. The information will also explain what the public can do to help reduce pollutants or eliminate them from our storm drain system. This booth as well as other public outreach efforts will be combined with our water conservation efforts throughout the City.

The Storm Water Coalition hosts an annual Water Quality Fair for 4th graders. Funding will be provided by the City and/or Metropolitan Water Conservation District to bus students from all elementary schools in the City to the fair. At the fair, various water quality issues are discussed with entertaining and educational presentations geared towards students. Materials are given to students and chaperones to discuss with their families which extends the impact of the presentations.

## Businesses, Institutions and Commercial Facility Owners Education

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Businesses and commercial facilities will be educated on specific measures they can take in conjunction with their required city inspections. The higher risk pollutants include food grease, petroleum products, lawn pollutants, heavy metals and general waste from dumpsters and parking lots. The educational efforts Cottonwood Heights implements for this measure addresses these more prevalent pollutants and also provides an opportunity to educate business about IDDE hazards as required by Part 4.2.3.7 of the permit. Building permit inspectors and other city employees are trained to address storm water issues during their regularly scheduled inspections.

## Site Construction Education Program

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The city requires that all main contractors working on development projects in the city attend a preconstruction meeting. Utility construction, submittal, development and SWPPP requirements are discussed at the preconstruction meeting.

## Website and Links

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The City maintains a storm water page on the City website. The storm water page provides the current copy of the Storm Water Management Plan and links to the Salt Lake County Storm Water Coalition and other storm water quality related websites. A comment form will be added to allow public comment and input on the Storm Water Management Plan. Interactive GIS maps are available on the website that show specific areas in the City that discharge into Little Cottonwood Creek and Big Cottonwood Creek.

## Record Keeping

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The City will develop forms, spreadsheets and procedures to track public education and outreach efforts and their costs. This will assist in yearly budgeting and ensure continuity within the program. Individual activities will be evaluated for effectiveness to promote improvements and ensure budget will be used to the maximum benefit. Records will be kept for a minimum of five years.

**Table 0-1 Current Educational Resources**

| <b>TITLE</b>   | <b>PUBLISHER</b>   | <b>SUMMARY</b>   | <b>STORM WATER TOPIC AREAS</b>   |
|--|--|--|--|
| Recycle Utah   | Recycle Utah, w/ support from The City of Holladay, Salt Lake County, and others | Tri-fold brochure describes locations of recycling drop-off centers & items accepted. Also describes public education activities   | Reduces trash-related contamination of storm water runoff  |
| Water Conserving Grasses for Front Range Landscaping | Xeriscape Colorado   | 4-fold 11x17 brochure lists characteristics, planting guidelines, and maintenance guidelines for native, water-conserving grasses  | Reduced water, fertilizer, and herbicide use reduces contamination of storm water from residential landscaping practices     |
| Xeriscaping: garden flowers for low-water landscapes | Colorado State University Cooperative Extension                                  | 4-page handout includes flower species lists, shade/sun requirements, soil condition guidelines for using flowers in xeriscapes  | More efficient landscaping water use reduces the amount of irrigation runoff entering the storm water system                 |
| Utah's Water Supply                                  | Utah Division of Water Resources   | 10-pg. 8.5x11 brochure. Describes the origin of Utah's water supply, precipitation patterns, water distribution systems, water conservation tips, water treatment and testing. | Heightens public awareness and understanding of water supply and water quality issues.                                       |
| Reducing Construction and Demolition Waste           | Center for Resourceful Building Technology                                       | 40-page handout describes techniques for reducing and recycling construction waste; tips provided for home owners, designers, contractors, and suppliers                       | Reduces trash-related contamination of storm water runoff; reduces area of disturbed, erosion-prone soil during construction |
| Slow the Flow, Save H2O                              | Jordan Valley Water Conservancy District   | T.V. and web ads that advocate the Public on water conservancy   | More efficient landscaping water use reduces the impact of irrigation runoff entering the storm water system.                |
| Salt Lake Storm Water Coalition                      | Salt Lake Storm Water Coalition  | T.V., radio and movie theatre ads on steps residents can take to improve storm water quality   | Heightens public awareness of negative impacts of car washing, trash, dumping waste in storm drain                           |

## **Public Involvement / Participation**

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The Public Involvement/Participation Program section addresses the importance of public involvement with respect to the protection of storm water. Community participation provides for broader public support, public understanding of the nature and magnitude of the problems faced with, shorter implementation schedules, a broader base of expertise, and development of important relationships with other community programs. The BMPs described in this section of the SWMP include opportunities for the public to play an active role in the development and implementation of the SWMP. Such opportunities include the public notification process and efforts to reach out and engage all economic and ethnic groups, and additional community programs to foster public input and participation.

This program will be closely integrated with the Public Education and Outreach Program to incorporate education with hands-on programs. The following BMPs describe implementation tasks and assessment tasks to be completed by Cottonwood Heights for the Public Involvement/Participation Program.

### **Utilize Volunteer Groups**

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A program utilizing Eagle Scouts or other interested community groups is in place to clean out the storm drain inlet boxes and glue markers or stencil on storm drain inlets to discourage illicit dumping and littering. This increases public awareness that water discharges directly to creeks and streams. The City will document the number of participants and storm drains that are marked. The City will coordinate the purchase of inlet markers with Salt Lake County, and will develop a map to track project locations, and identify the condition of the inlet box. The City council will consider purchasing the county stream crossing signs with the City logo and placing them at the major stream discharge areas.

### **Public Hearing on SWMP**

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The city will follow the public comment process for all ordinances developed or changed. The Council will hold a public hearing during a council meeting to receive public comments. Prior to the meeting, the hearing will be advertised on the City website, in a cabinet at City Hall, and at several locations around the city. The City will review the comments received prior to passing the ordinance. A storm drainage ordinance was adopted by the City and is currently in use.

### **Recycle Center for Antifreeze/Batteries/Oil/Paint**

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This program includes the Anti-freeze, Batteries, Oil and Paint (ABOP) program and the annual Household Hazardous Waste (HHW) Drop Off Day that are both administered by the Salt Lake Valley Health Department and the Salt Lake Valley Solid Waste Management Facility. The ABOP program is a specific drop off point located near Cottonwood Heights for these materials that accepts waste year-round. The annual HHW Drop off Day provides a central location for residents to dispose of

household hazardous waste once per year.

### Record Keeping

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The City will develop forms, spreadsheets and procedures to track public involvement and participation and its costs. Use of the recycle center will be documented to evaluate effectiveness and promote use. This will assist in yearly budgeting and ensure continuity within the program. Activities will be evaluated for effectiveness so budget will be used to the maximum benefit. Records will be kept for a minimum of five years.

## **Illicit Discharges and Improper Disposal Elimination Program**

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The Illicit Discharges and Improper Disposal Program section of the SWMP addresses storm drain flows that contain pollutants and/or pathogens during a dry weather period. The program will implement BMPs to assist in identifying illicit discharges to the storm water system and eliminating these discharges from the system. This program will focus on prevention of new illicit discharges to the system by means of education, regulation, spill prevention, and improved response.

This program will also be integrated with the Public Education and Outreach Program to promote awareness of the importance of protecting the storm water system from illicit discharge and the resultant impact to receiving waters. The following BMPs describe implementation tasks and assessment tasks to be completed by Cottonwood Heights for this program.

### **Outfall Map Using GPS and GIS**

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A comprehensive storm drain map showing all the outfalls into Little and Big Cottonwood Creek has been developed. The City will update the storm drain map as needed to identify all inlet points into the system. The City will add this map to the storm drainage page of the City website to allow for public access.

### **Dry Weather Screening**

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This program provides a framework for field screening the outfalls and to identify suspect outfalls as a basis for initiating more detailed drainage area investigations. In addition, the storm drain system map will be updated on an annual basis to add and delete outfalls to reflect field conditions as appropriate. Any dry weather flows will be identified and traced to their source. Cottonwood Heights will inform the Salt Lake Valley Health Department of any illicit connections or illegal discharges. The Health Department will pursue enforcement action. Below is the implementation schedule to help ensure the success of the dry weather screening program.

## Implementation Schedule

1. Understand the storm water infrastructure through outfall screening. Continue to update the storm drain outfalls GIS mapping. Use information from dyes tests used to help trace flows through storm drain system.
2. All of the streams in Cottonwood Heights have been walked and all outfalls into Little and Big Cottonwood Creek have been identified.
3. A desktop assessment of illicit discharge potential has been completed which includes delineation of sub watersheds within Cottonwood Heights and compilation of available mapping for each drainage unit including land use info. A SOP for screening and ranking of illicit discharge potential at the sub watershed level will be developed and used.
4. Search for illicit discharge problems in the field once every 6 months by finding problem outfalls in priority sub watersheds. City Engineer will create schedule to cover entire city system
5. Trace any illicit discharge problems to the specific source through trunk and onsite investigations and corrections and enforcement. Develop a form to be used to log and track problems and their progress.
6. Prevent illicit discharge problems in the field by selecting key discharge behaviors, community outreach programs to prevent illicit discharge from neighborhoods and storm drain stenciling.

## City Ordinances for Illicit Discharge

A City ordinance is in place to prohibit illicit discharges. City of Cottonwood Heights Code 17.18 defines illicit discharges and gives authority for inspection and enforcement procedures and actions. Illicit discharges are defined as any discharge to the storm drain system that is not composed entirely of storm water. Examples of this include sanitary wastewater, improper disposal of waste oil, concrete, paint, household toxic chemicals and spills from roadway accidents.

Exceptions: (Cottonwood Heights Code 17.18.070)

- Water line flushing
- Landscape irrigation or lawn watering
- Diverted stream flows
- Rising ground water
- Ground water infiltration to storm drains
- Uncontaminated pumped ground water
- Foundation or footing drains (not connected to floor drains)
- Crawl space sump pumps
- Air conditioning condensation
- Springs
- Non-commercial washing of vehicles
- Natural riparian habitat or wetland flows
- Swimming pools (if de-chlorinated – typically less than one PPM chlorine)
- Fire fighting activities, and any other water source not containing pollutants
- Discharges specified in writing as being necessary to protect public health and safety

## Public Reporting System

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The City maintains an after hours emergency phone number to central dispatch. If a call comes in regarding a complaint associated with the storm drain system, the proper City personnel are notified to investigate the complaint and to follow up with the Salt Lake Valley Health Department if necessary. Cottonwood Heights will develop a form for central dispatch to fill out regarding any storm drain issues. This will assist in tracking the number and type of calls that are received. The public will be informed of the hazards associated with illicit discharges and improper disposal and the number to call to report spills and other illicit discharges through information on the storm water page of the City website and information available at the booth at a City event.

## City Personnel Training

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The City will annually train City personnel to recognize illicit discharges and avoid improper disposal. City personnel can be utilized to recognize and report illicit discharges due to their work regularly exposing them to storm drain discharges and interaction with the public.

## Record Keeping

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The City will develop forms, spreadsheets, databases and procedures to track illicit discharge and improper disposal reports, investigations, and corrections and their costs. This will assist in yearly budgeting and aid in coverage of the entire system by showing which areas have been inspected and how recently. Records outlining training completed by City staff on illicit discharge and improper disposal will be kept. All records will be kept for a minimum of five years.

## Construction Site Storm Water Runoff Control Program

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This section of the SWMP addresses water quality concerns for construction sites greater than or equal to one acre. Polluted storm water runoff from construction sites often flow to storm drains and into receiving waters. This runoff can contribute more sediment to receiving waters than can be deposited naturally during several decades. The resulting situation can cause physical, chemical and biological harm to receiving waters. The BMPs described in this section of the SWMP include the development of a construction site program designed to reduce pollutants in storm water runoff from construction activities. This program will include procedures for construction site plan review, site inspections and notification of specific requirements to all construction site owners/operators.

This program will also be integrated with other facets of the SWMP to provide information and up-to-date BMPs to the public, construction site operators, etc. The following BMPs describe goals and assessment tasks to be completed by Cottonwood Heights for the Construction Site Storm Water Runoff Control Program.

### Construction Site Program Development

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Cottonwood Heights will provide construction site runoff control through various ordinances, development codes, city design standards, construction specifications, and standard drawings. The City, per City of Cottonwood Heights Code Title 17.25.020, requires all contractors to submit a storm water pollution prevention plan to be approved by the City before obtaining a permit.

The program, per City of Cottonwood Heights Code Title 17.26.010, requires the submittal of a plan to reduce pollution to the maximum extent practicable from the proposed construction activity which may be similar to the Storm Water Pollution Prevention Plan (SWPPP) required by the State from each development that disturbs a land surface area greater than one acre in size or is part of a larger common plan of development. The plan must be approved before construction activities commence. Included in the overall plan will be an erosion control plan.

The erosion control plan is intended to prevent erosion during the construction phase by implementing various erosion control measures as appropriate. The control of construction waste debris at the site that may cause adverse impacts to water quality will be a part of the plan.

This program will include procedures for plan review, site inspections, public reporting and contractor education.

**Ordinance:** City of Cottonwood Heights Code Title 17, and in particular 17.25 and 17.26, were created to control pollution generated by storm water runoff from construction activities. The ordinance includes allowances for site plan review, inspections and enforcement.

**Storm Water Pollution Prevention Plan:** A SWPPP or its equivalent must be submitted for review and approval prior to commencing grading operations per City

Code. The plan is intended to prevent erosion during the construction phase by implementing various erosion control measures as appropriate. Such measures may include temporary silt or sediment fences, sediment traps and detention ponds, temporary and permanent vegetation, etc. A checklist as well as SOPs for SWPPP review will be developed by the City to ensure all potential storm drainage issues are being addressed in approved plans. See (reference) for typical BMPs to be used.

**Site Plan Review:** Procedures are in place for the City to review site plans for BMPs during construction. Site plan review will include assessing construction phasing, limiting the disturbed area for areas within the sensitive lands overlay zone, materials management, and temporary erosion and sediment controls. Consideration for proper operation and maintenance of control measures will be incorporated into the plan review process. No construction plan shall be approved per City of Cottonwood Heights Code Title 17.26.040 unless it includes a storm water pollution prevention plan consistent with City standards.

**Inspections:** SWPPP and BMP inspections are incorporated into grading and/or building inspections. BMP installation and maintenance is discussed in pre-construction meetings. Site inspections and enforcement of erosion control measures at construction sites will help to deter infractions. Inspections occurring throughout the project will help ensure that NPDES requirements are met through all phases of construction. SOPs including forms and/or checklists will be developed to log and track inspection and enforcement. Regular inspections by qualified personnel will help to ensure erosion and sediment controls are operating properly and to identify problem areas.

**Enforcement:** An adequate enforcement program is essential to the success of this program. Enforcement actions serve to deter infractions by other companies, as well as by the company in violation. Enforcement actions outlined by City of Cottonwood Heights Code Title 17 may include verbal and written warnings, notices of violation, stop work orders, correction of the problem by the City at the developer's expense, fines, and issuance of a class C misdemeanor. Per City of Cottonwood Heights Code Title 17.26.050 no certificate of occupancy shall be issued by the City until the City has confirmed the applicant's compliance.

**Public Reporting Program:** The public can play a crucial role in identifying instances of noncompliance and in preventing stormwater pollution during construction activities. Procedures for public reporting will be developed and coordinated with the SLVHD.

**Owner/Operator Notification:** The construction owner/operator is notified of UPDES permit requirements at the pre-construction meeting before any work begins. Making construction owner/operators aware of UPDES permit requirements for construction activities is beneficial in minimizing stormwater pollutant runoff from such sites and ensuring compliance with the stormwater regulations.

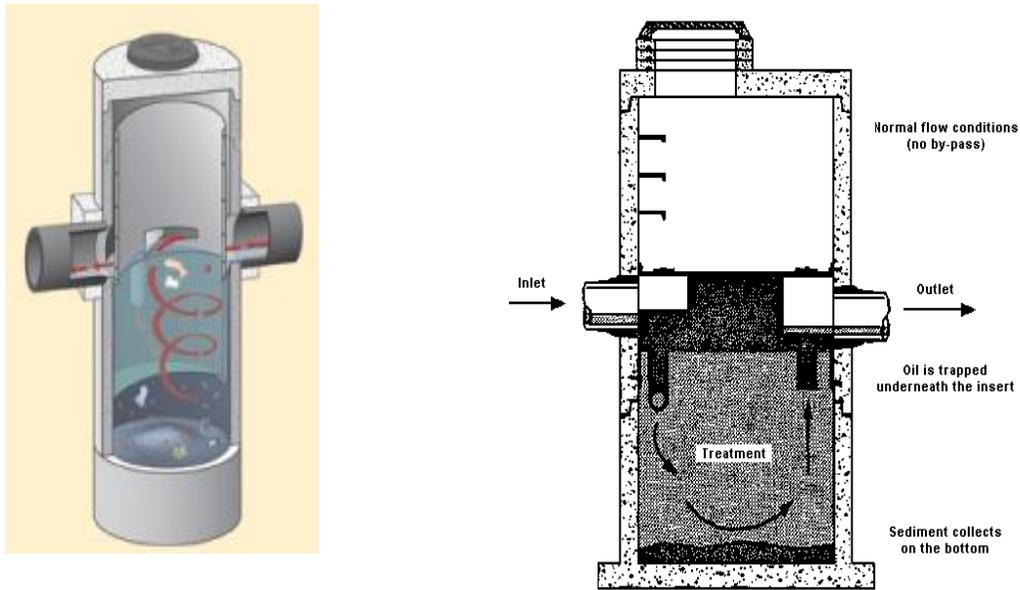
**Table 0-1 - Typical Pollution Prevention Plan Content**

| <b>REQUIREMENT</b>                          | <b>DEFINITION</b>  |
|---|--|
| Silt Screen Fencing                         | Specification of the installation of silt screen fencing or other measures to control runoff                               |
| Dust and Mud Control                        | Requires dust control and prohibits off-site mud tracking  |
| Trash management and recycling of materials | Requires adequate storage and removal  |
| Grading and excavation                      | Restricts trucking routes and hours of operation   |
| Hours of operation                          | Specifying the set times for active construction   |
| Construction phasing                        | Reduces congestion due to narrow streets, etc. Reduces runoff by having smaller areas cleared and stabilized more quickly. |
| Parking                                     | Defines parking restrictions and requires an approved parking plan   |
| Deliveries                                  | Regulates time and routing of deliveries   |
| Stockpiling and staging                     | Reduces the number of delivery trips   |
| Noise                                       | Restricts loud noises  |
| Stabilizing Entrance                        | Reduces mud tracking outside construction area   |
| Temporary lighting                          | Requires a temporary lighting plan   |
| Construction Sign                           | Requires a construction sign with contractor contact info. Prohibits dogs at construction                                  |
| Other Issues                                | Encourage communication with neighboring property owners for site specific concerns  |

### Storm Water Treatment Systems

The City requires any new development that is larger than one acre to use a storm water treatment system. The system shall be designed such that the pump-out volume is less than one-half of the total system volume and not allow surcharge of the upstream piping network during dry weather conditions. The treatment system will remove 80% of the net annual TSS based on the 125-micron particle size and remove all oils and floatables from the storm water. The system must have approved protocol verification for both laboratory and in-field testing. Approved verification must come from either Washington State TAPE program or New Jersey CAT program.

Figure 0-1 - Storm Water Treatment System



### Contractor Education

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Training will be recommended to contractors regarding storm water controls for construction sites. The City will develop a Guidance Document for storm water that contains a chapter on construction site BMPs. Storm water quality issues will be discussed with developers and contractors throughout the approval and review process. Low impact development will be discussed during site design and plan review. Development of an effective SWPPP and appropriate BMPs will be addressed during plan review. Maintenance and installation of BMPs will be emphasized in pre-construction meetings as well as site inspections.

### Training for City Employees

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Cottonwood Heights will coordinate with the DEQ to learn about opportunities to train applicable City personnel regarding storm water regulations and the requirements for storm water controls on construction sites. Information on specific storm water BMPs will also be provided to city personnel. Training will be provided for City personnel that go into businesses regularly to discuss with businesses storm drainage and water quality issues specific to their business.

### Record Keeping

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The City will develop forms, spreadsheets, databases and procedures to track review of SWPPP and erosion control plans, pre-construction meetings, inspections, non-compliance issues, and enforcement. Costs for these activities will also be documented. Review and inspection fees can assist to offset these costs. Records outlining training completed by City staff on NPDES requirement will be kept. All records will be kept for a minimum of five years.

## Post-Construction Storm Water Management Program

The Post-Construction Storm Water Management in new development and redevelopment program addresses the importance of storm water runoff management in new development and redevelopment projects following construction. The land use map for Cottonwood Heights shows that the city is nearly built out; with only minor vacant parcels remaining open for development. Therefore, the city's post-construction program will most likely focus on redevelopment projects.

Substantial impacts of post-construction runoff are caused by an increase in the type and quantity of pollutants in storm water runoff. The BMPs described in this section of the SWMP include the development of structural and non-structural storm water runoff strategies and the development of post-construction programs that consider water quality impacts of new development and redevelopment projects in the comprehensive land use master planning process.

The following BMPs describe goals and assessment tasks to be completed by Cottonwood Heights for the Post-Construction Storm Water Management in new development and redevelopment program.

### Water Quality Ordinances

The City will develop a program to address post construction storm water runoff with both structural and nonstructural controls. The City has adopted a storm water ordinance, City of Cottonwood Heights Title 17, which addresses storm water runoff control from areas of new development and redevelopment. The ordinance includes allowances for site plan review, inspections and enforcement. Pre-plan review coordination with land development planners is essential to minimizing storm water impacts caused by new development and redevelopment. This program will require coordination with planners to incorporate storm water controls and to minimize Directly Connected Impervious Areas (DCIAs). Minimizing DCIAs include various methods designed to reduce the volume of runoff.

All new construction within the sensitive lands overlay is required to set a Limit of Disturbance (LOD) boundary to protect existing construction site vegetation. This minimizes the development's future water demands and reduces visual and ecological impact. All construction activity must be contained within the LOD line. Building lot LOD lines are generally identified either through the subdivision of property process or through the building permit process.

### Storm Drain Master Plan

A comprehensive Storm Drain Capital Facilities Plan was completed in February 2006. This plan included a projected budget to 2018 to complete the storm drain improvements. Future storm drain projects were prioritized based on budget and water quality value. This prioritization will be reviewed and altered if required annually. Also included in the plan is to develop storm water pollution prevention plan (SWPPP) standards and for storm water treatment standards for new development over an acre. City of Cottonwood Heights Title 17 outlines that new development should mirror pre-development hydrology in amount and quality. All new developments greater than 1 acre

are required to submit plans which show long term compliance with this criteria. Review checklists and forms will be developed to ensure the SWPPP addresses long-term storm water management. City personnel will be trained in post-construction storm water management including planning, review, inspections and enforcement. A guidance document will be created that will provide developers with preferred design specifications for different development types. Documentation will be kept of how long-term BMPs were selected. Installation of all permanent BMPs will be reviewed during inspections required on all development within the City per City code. The guidance document will also address storm water controls for water quality and specific hydrologic measures for runoff volume.

### Inspection of Storm Water Control Measures

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A schedule will be determined to inspect all storm water control measures at least once every five years. The guidance document will develop SOP for inspections and post construction actions. A form will be developed to be filled out by the inspector at each site. Sites that are adversely impacting water quality will be identified and a retrofit plan shall be developed including a ranking. This process will be outlined in the guidance document.

All new detention ponds will be verified by either City personnel, a licensed Professional Engineer or a licensed Professional Surveyor to assure that they match the volume specified in the approved plan set.

### Record Keeping

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The City will develop forms, spreadsheets and procedures to track reviews and inspections and to evaluate and encourage low impact development construction. A database will be developed to track construction activities. Costs for these activities will also be documented. Review and inspection fees can assist to offset these costs. Records outlining training completed by City staff on NPDES requirement will be kept. All records will be kept for a minimum of five years.

## Good Housekeeping

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The Pollution Prevention/Good Housekeeping Program of the Storm Water Management Plan addresses routine activities in the operation and maintenance for drainage systems, roadways, parks and open spaces, and other municipal operations to help ensure a reduction in pollutants entering the storm drain system. This Program includes a training component to prevent and reduce storm water pollution from municipal operations. The BMPs in this program include source controls and materials management. Source controls are BMPs designed to prevent or reduce pollutants at the source and include BMPs such as storm drainage system maintenance and flood control projects. Materials management BMPs are designed to reduce pollutants with non-structural controls such as snow removal, de-icing practices, pesticide education and spill prevention control.

This program will also be integrated with the Public Education and Outreach, Public Involvement and Participation and Illicit Discharges and Improper Disposal Programs to promote awareness of water quality concerns in performing routine roadway maintenance and operation, and other practices. The following BMPs describe goals and assessment tasks to be completed by Cottonwood Heights for the Pollution Prevention/Good Housekeeping Program.

## City Owned Facilities Maintenance

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Cottonwood Heights will develop a written inventory of all City owned or operated facilities and storm water controls. The potential to discharge pollutants to the storm water will be assessed for each identified facility. This data will be used to create an operations and maintenance (O&M) program for these facilities. The current SOPs will be reviewed and assessed to determine where changes are needed and new written SOPs will be developed and training will be utilized to notify personnel of proper procedures. The ultimate goal of these procedures will be to prevent or reduce pollutant runoff from all facilities.

Cottonwood Heights currently owns a public works yard which is covered under the General UPDES Permit for Storm Water Discharges Associated with Industrial Activities. A SWPPP will be developed and implemented for the public works yard. Currently Cottonwood Heights does not own any 'high priority' facilities. If the City obtains a 'high priority' facility written SOPs for the facility will be created. These SOPs will include BMPs that will be developed for the facility, weekly inspections, and comprehensive quarterly inspections.

Included in the storm water guidance document will be SOPs for the proper application, storage, and disposal of fertilizer, pesticides and herbicides in parks and open space owned by the City. The guidance document will evaluate lawn maintenance and landscaping activities to ensure practices are protective of water quality.

## Storm Drain Maintenance

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Cottonwood Heights is committed to maintaining the existing inlet boxes located around the city. All inlet boxes will be inspected and cleaned if necessary at least once every five years. The cleaning procedures will be implemented for the purpose of

reducing pollutants in storm water runoff. Areas of chronic problems will be identified and corrective actions for these areas will be developed and implemented. Implementation of BMPs shall reference the storm water guidance document. Proper system maintenance and employee training will help to reduce storm water impacts from such activities as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.

The current disposal procedures for waste removed from the storm drain system will be reviewed and assessed and written SOPs created. Such wastes include dredge spoil, accumulated sediments, floatables and other debris. Controls for reducing or eliminating the discharge of pollutants from areas such as roads and parking lots, maintenance and storage yards and waste transfer stations will help to reduce the discharge of pollutants to receiving water bodies. Currently, trash racks are used to prevent floatables from entering the storm drain system.

### Street Sweeping

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Routine street sweeping will reduce storm water pollution by removing sediment accumulated on roadway surfaces. Sediment and the associated pollutants will be removed to prevent them from entering the storm drain system. Cottonwood Heights' goal is to conduct street sweeping of all streets at least 4 times per year. Separate O&M programs will be developed for roadway operations and vehicle and equipment maintenance. Proper maintenance, repair and storage of vehicles will prevent pollutants from entering the storm water system.

### Snow Removal and Alternate De-icing Methods

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Cottonwood Heights has a "Bare Road" policy to keep all roads open and free of snow or ice pack during every storm. The salt application rate is based on the temperature and snow pack conditions on the road surface accordingly. There is an annual coordination meeting prior to the winter season to discuss general practices and to review safety and equipment procedures. Records will be kept from this meeting.

Review and assess current de-icing practices for prevention and reduction in storm water pollution. The use of less toxic salt alternatives and appropriate BMPs will be evaluated. A snow removal section of the roadway O&M program will be developed based on these findings.

### Salt Pile Management

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Cottonwood Heights currently has one covered salt pile that is located at the public utilities office. Management and handling (loading and unloading) procedures of the salt pile will be reviewed and assessed to confirm there is no migration of concentrated suspended material to storm drain systems. Salt pile management will be addressed in the roadway O&M program.

### Spill Prevention/Response Program

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Cottonwood Heights will work with the Fire Department to maintain an effective program that responds to reports of spills or illegal discharges and initiates enforcement actions. Local fire departments are also equipped to respond to spills, to mitigate spills

and to eliminate the danger to human health. The current program will be evaluated for effectiveness, and will be modified as necessary. SOPs will be documented. Personnel training is an important component to this program and employees will be trained on how to prevent spills from reaching receiving waters.

### City Construction Projects

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All new flood management structural controls will assess water quality impacts in the design. City public construction projects shall comply with the same requirements applied to private projects. All projects disturbing more than one acre shall include construction and post-construction storm water controls. All future City development greater than one acre will file for an NOI permit. Projects will be inspected as required for private projects.

### Record Keeping

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The City will develop forms, spreadsheets and procedures to track inspections, operations and training and to evaluate and encourage BMPs in regards to everyday operations. Costs for these activities will also be documented. Records will be kept for a minimum of five years.