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# City of Cottonwood Heights

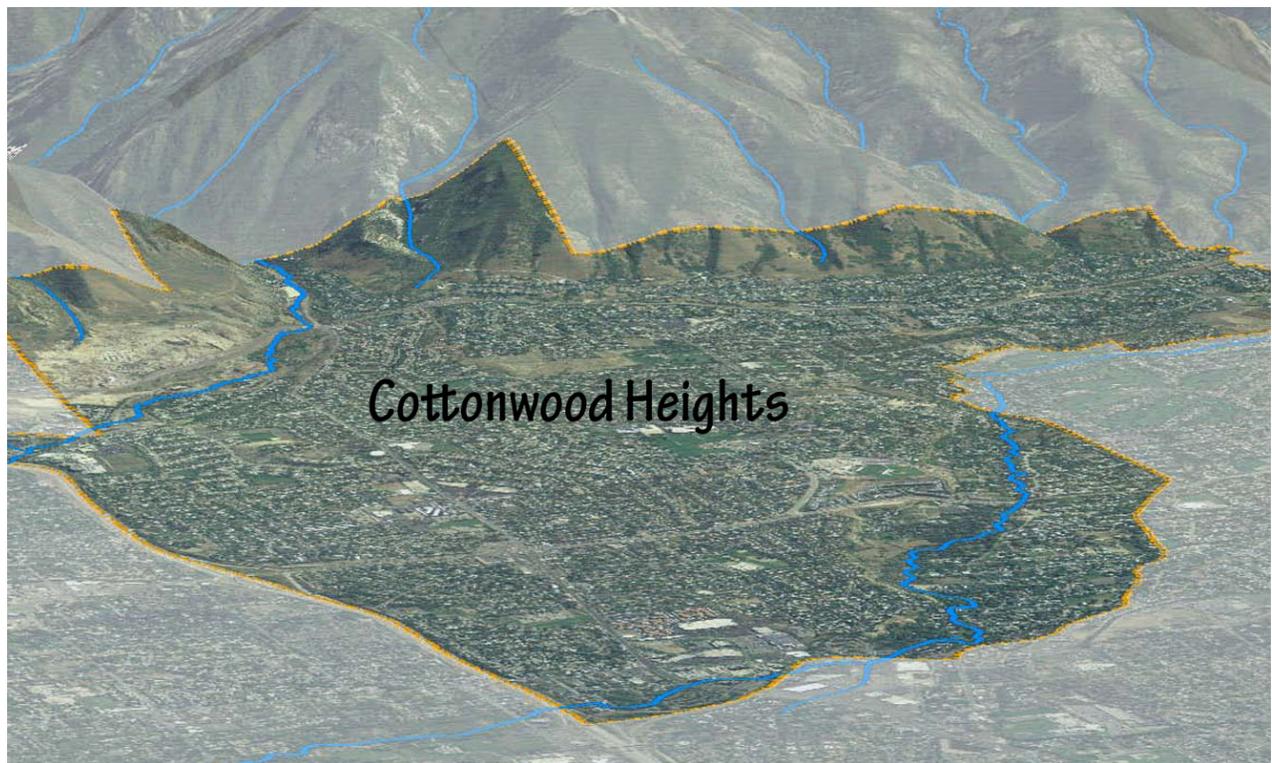
Stormwater Management Plan

February 1, 2008

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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# Section - 1 Preface

## 1.1 Purpose

The Storm Water Management Plan (SWMP) will be implemented to limit, to the maximum extent practicable (MEP), the discharge of pollutants from the Cottonwood Heights storm drain system. The development and implementation of the SWMP is to fulfill requirements of storm water discharges from a Small Municipal Separate Storm Sewer System (UAC R317-8) and as a co-permittee under the State of Utah UPDES Permit for Salt Lake County (UTS00001) Authorization to Discharge Municipal Storm Water, Section II, in accordance with Section 402(p)(3)(B) of the Federal Clean Water Act, and the State Storm Water Regulations (UAC R317-8-3.8). The SWMP was developed to comply with Part I.C.2.b. of the UPDES permit.

Cottonwood Heights has been covered under the UPDES Phase 1 Stormwater Discharge permit issued in 1995. When the permit was issued, Cottonwood Heights was part of unincorporated Salt Lake County. Cottonwood Heights was created in 2004, and is now required to issue its own storm water permit under Phase II Stormwater regulations.

Cottonwood Heights is an urban community within Salt Lake Valley. The valley is a terminal valley which drains to the Great Salt Lake. The two main conveyance systems in Cottonwood Heights are Little Cottonwood Creek and Big Cottonwood Creek. Both systems flow from the mouth of their respective canyon to the Jordan River. The Jordan River flows from Utah Lake to the Great Salt Lake. The Great Sale Lake is a terminal system.

## 1.2 SWMP Coordination

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Phone (801) 571-9414

## **1.3 Program Summary**

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. 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 chapters.

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:

### **Section 2: Public Education and Outreach Program**

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.

### **Section 3: Public Involvement/Participation Program**

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.

### **Section 4: Illicit Discharges and Improper Disposal Program**

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.

### **Section 5: Construction Site Storm Water Runoff Control Program**

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.

## **Section 6: Post-Construction Storm Water Management Program**

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.

## **Section 7: 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.

## **Section - 2 Public Education and Outreach**

The Public Education and Outreach Program of the Storm Water Management Plan (SWMP) addresses increasing general public, public employee, commercial business and development awareness of water quality concerns and Best Management Practices (BMPs) that may be implemented with respect to protection of storm water. The BMPs described in this section of the SWMP include training of professionals and 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 known contaminant sources and how to control these sources.

This program also integrates many other facets of the SWMP to provide current information and up-to-date BMPs to the end user. The following BMPs describe implementation tasks and assessment tasks to be completed by Cottonwood Heights for our Public Education and Outreach Program.

### **2.1 Participation in Storm Water Coalition Meetings**

The Salt Lake County Storm Water Coalition meetings are held on the 3<sup>rd</sup> 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.

### **2.2 Storm Water Brochure**

The city strives to use existing materials available through the Salt Lake County Storm Water Coalition and develop specific information pertinent to the residents of Cottonwood Heights. Specific information would inform the public of the impact of storm water discharges on the Big and Little Cottonwood Creek systems.

The information will be provided to the residents through a pamphlet that will address many of the storm water issues specific to Cottonwood Heights. The pamphlet will also have a section for children, to educate them about the storm drain system, and the effects pollution has on the system.

### **2.3 Storm Water Information Booth at City Events**

An information booth will be set up at a 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 presentation can be combined with our water conservation efforts throughout the City.

## **2.4 Public Education Workshops**

A public workshop to solicit comments and input on the SWMP will be conducted. In order to make the community aware of the public workshops, notices will be included in the City newsletter and published on the City website. Additional efforts will be to homeowner associations, by mailing notices to registered Homeowner Association presidents within the City.

In addition, a cooperative educational program between the Cottonwood Heights and Salt Lake County, contractors, homebuilders, and developers will be implemented. Educational workshops on construction site runoff control will be presented to contractors, homebuilders, and developers. Applicable City officials will attend a workshop that educates on the implementation of BMP's.

## **2.5 Website and Links**

The City will create a storm water page on the City website. The storm water page will provide 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. Using GIS maps the website will show specific areas in the City that discharge into Little Cottonwood Creek and Big Cottonwood Creek. Cottonwood Heights will provide the City residents with access to the following information summarized in Table 2-1.

**Table 2-1 Current Educational Resources**

TITLE	PUBLISHER	SUMMARY	STORM WATER TOPIC AREAS
Recycle Utah	Recycle Utah, with 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.

## **Section - 3 Public Involvement / Participation**

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.

### **3.1 Utilize Volunteer Groups**

A program utilizing Eagle Scouts or other interested community groups will be initiated to clean out the storm drain inlet boxes and to glue markers on storm drain inlets to discourage illicit dumping and littering. The City council will consider purchasing the county stream crossing signs with the City logo and place them at the major stream discharge areas. 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.

### **3.2 Public Hearing on SWMP**

The city will follow the public comment process for all ordinances developed. 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 draft ordinance has been prepared by the City Engineer and is currently in the review process.

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

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.

## **Section - 4 Illicit Discharges and Improper Disposal Program**

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.

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

The first step in an effective program involves creating a comprehensive storm sewer map showing all the outfalls into Little and Big Cottonwood Creek. Cottonwood Heights has acquired a complex storm sewer system from Salt Lake County. The available storm sewer maps are incomplete and inaccurate. These maps will be used as a starting point in creating a comprehensive storm sewer map in Cottonwood Heights. The City will begin to update the stormdrain map and identify all inlet points into the system.

### **4.2 Dry Weather Screening**

This program will provide 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
  - a. Use GIS Maps to determine main storm sewer outfalls
  - b. Use dyes to help trace flows through storm sewer system
2. Walk all of the streams in Cottonwood Heights in the first permit cycle
  - a. Identify all outfalls into Little and Big Cottonwood Creek
3. Complete a desktop assessment of illicit discharge potential
  - a. Delineate sub watersheds within Cottonwood Heights
  - b. Compile available mapping for each drainage unit including land use info
  - c. Screen and rank illicit discharge potential at the sub watershed level
4. Search for illicit discharge problems in the field once every 6 months
  - a. Find problem outfalls in priority sub watersheds
  - b. City Engineer will create schedule to cover entire city system
5. Trace any illicit discharge problems to the specific source
  - a. Trunk and onsite investigations
  - b. Corrections and Enforcement
6. Prevent illicit discharge problems in the field
  - a. Select key discharge behaviors
  - b. Community outreach programs to prevent illicit discharge from neighborhoods
  - c. Storm drain stenciling

## **4.3 New City Ordinances for Illicit Discharge**

Review current city ordinances and develop new ordinances as necessary to prohibit illicit discharges into the storm drain system. Ordinances should address appropriate enforcement procedures and actions. Illicit discharges are defined as any discharge to the storm drain system that is not composed as 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: (UPDES Permit, Part II.F.3.d.)

- Water line flushing
- Diverted stream flows
- Rising ground waters
- Uncontaminated ground water infiltration (as defined in CFR 35.2005 (20)) to separate storm drains
- Discharges from potable water sources
- Uncontaminated footing and foundation drains
- Air conditioning condensate
- Irrigation water
- Springs
- Lawn watering
- Individual residential car washing
- Flows from riparian habitats

- Street wash waters
- Discharges or flows from emergency fire fighting activities

#### **4.4 Public Reporting System**

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.

## **Section - 5 Construction Site Storm Water Runoff Control Program**

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.

### **5.1 Construction Site Program Development**

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

The program will require 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. 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:** A city ordinance will be created and will include control of pollution generated by stormwater runoff from construction activities. The ordinance will include 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. 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. See

Table 5-1 for typical BMPs to be used.

**Site Plan Review:** Procedures will be developed for the City of Cottonwood Heights 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.

**Inspections:** Procedures to incorporate BMP inspections into grading and/or building inspections will be developed. Site inspections and enforcement of erosion control measures at construction sites will help to deter infractions. Procedures will include steps to identify priority sites for inspection and enforcement based on the nature and extent of the construction activity, topography and the characteristics of soil and receiving water quality. Regular inspections by qualified personnel will help to ensure erosion and sediment controls are operating properly and to identify problem areas. Procedures for follow-up activities will be developed.

**Enforcement:** Enforcement procedures will be developed. 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 may include warnings, notices of violation, stop work orders and fines.

**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:** Procedures for notification of UPDES permit requirements will be developed. Making construction owner/operators aware of UPDES permit requirements for construction activities will be beneficial in minimizing stormwater pollutant runoff from such sites and ensure compliance with the stormwater regulations.

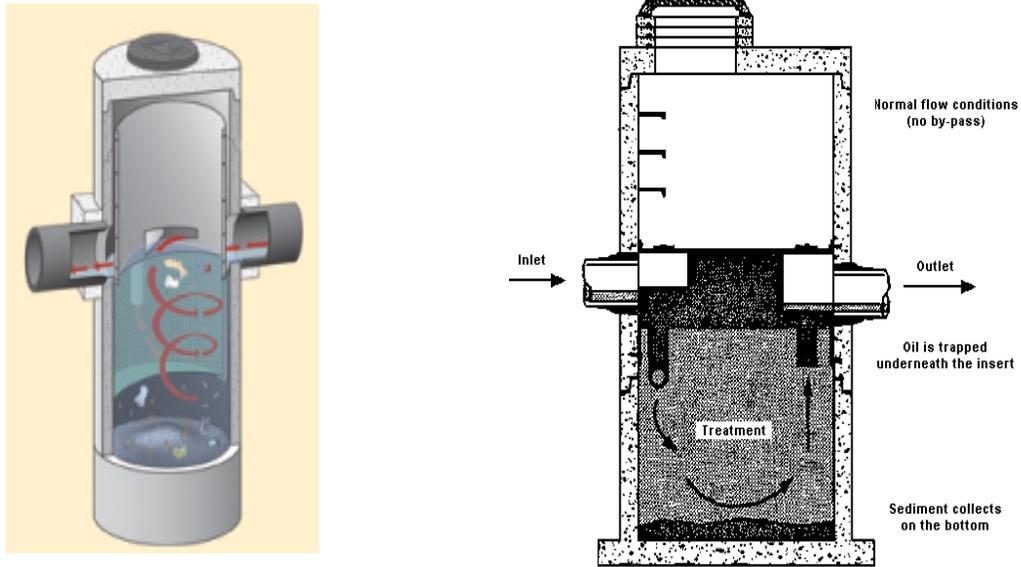
**Table 5-1 - Typical Pollution Prevention Plan Content**

<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
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

## **5.2 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 a vortex system manufactured by Vortech Inc (shown in Figure 5-1) or a similar treatment system with equal or greater specifications. The treatment system shall include a circular aluminum “swirl chamber” (or “grit chamber”) with a tangential inlet to induce a swirling flow pattern that will accumulate and store settleable solids in a manner and location that will prevent re-suspension of previously captured particles. 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 50-micron particle size and remove all oils and floatables from the storm water. The patented grit chamber and flow controls work together to eliminate turbulence and provide positive removal efficiencies throughout the full range of operation.

**Figure 5-1 - Vortech Storm Water Treatment System**



### **5.3 Contractor Education**

Training will be recommended to contractors regarding storm water controls for construction sites. Salt Lake County has developed a Guidance Document for storm water that contains a chapter on construction site BMPs. The city will coordinate with Salt Lake County to provide contractors the opportunity to attend training seminars on SWPPP and BMP's,

### **5.4 Training for City Employees**

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.

## **Section - 6 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.

### **6.1 Water Quality Ordinances**

The City will develop a program to address post construction storm water runoff with both structural and nonstructural controls. An ordinance will be developed to address storm water runoff control from areas of new development and redevelopment. The ordinance will include 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.

## **6.2 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. 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.

## **Section - 7 Good Housekeeping**

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.

### **7.1 Storm Drain Maintenance**

Cottonwood Heights is committed to maintaining the existing inlet boxes located around the city. All inlet boxes will be checked and cleaned if necessary by 2010. 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 appropriate guidance materials. 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. 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.

## **7.2 Snow Removal and Alternate De-icing Methods**

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.

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.

## **7.3 Salt Pile Management**

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.

## **7.4 Street Sweeping**

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 currently conducts street sweeping of all streets at least 4 times per year.

## **7.5 Spill Prevention/Response Program**

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. Personnel training is an important component to this program and employees will be trained on how to prevent spills from reaching receiving waters.