

# Stormwater Awareness Training



2014

# Purpose of Stormwater Awareness Training

To educate City of Aurora employees on the importance of identifying non stormwater discharges and reducing pollution through the use of Best Management Practices (BMPs) to comply with regulatory requirements.

# Goal of SW Awareness Training

- After completing this training you should have some basic knowledge of:
  - Stormwater Regulatory Requirements
  - City of Aurora Stormwater Permit
    - City Responsibilities
    - City Employee Responsibilities
  - **Who to call /what to do if you see an issue**

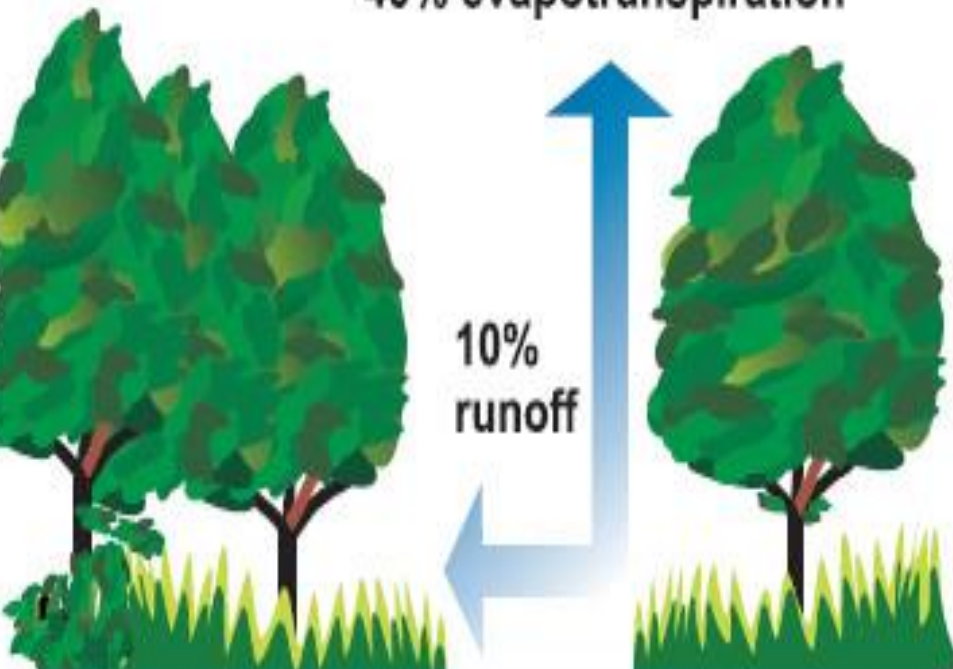


# Importance of Stormwater Runoff

- Definition: Stormwater runoff is generated when precipitation from rain and snowmelt events flows over land or impervious surfaces and does not percolate into the ground.



40% evapotranspiration



10% runoff

25% shallow infiltration

25% deep infiltration

Natural Ground Cover

30% evapotranspiration



55% runoff

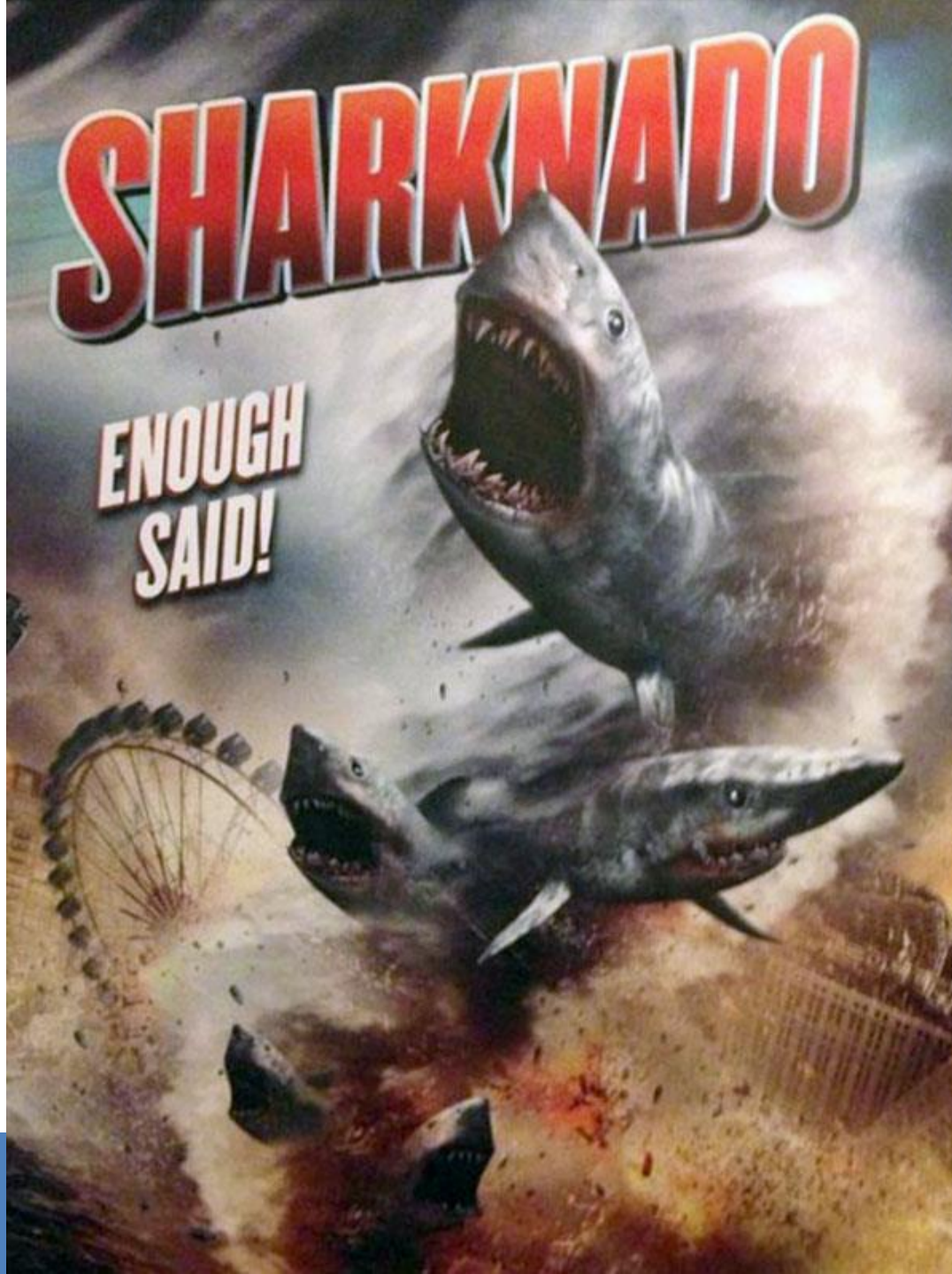
10% shallow infiltration

5% deep infiltration

75%-100% Impervious Cover

# SHARKNADO

ENOUGH SAID!



AURORA  
WATER



2008





IAN ZIERING TARA REID

# SHARKNADO 2

THE SECOND ONE

SHARK  
HAPPENS!

Wednesday July 30 at 9/8c  
#Sharknado2

**Syfy**  
Imagine Greater

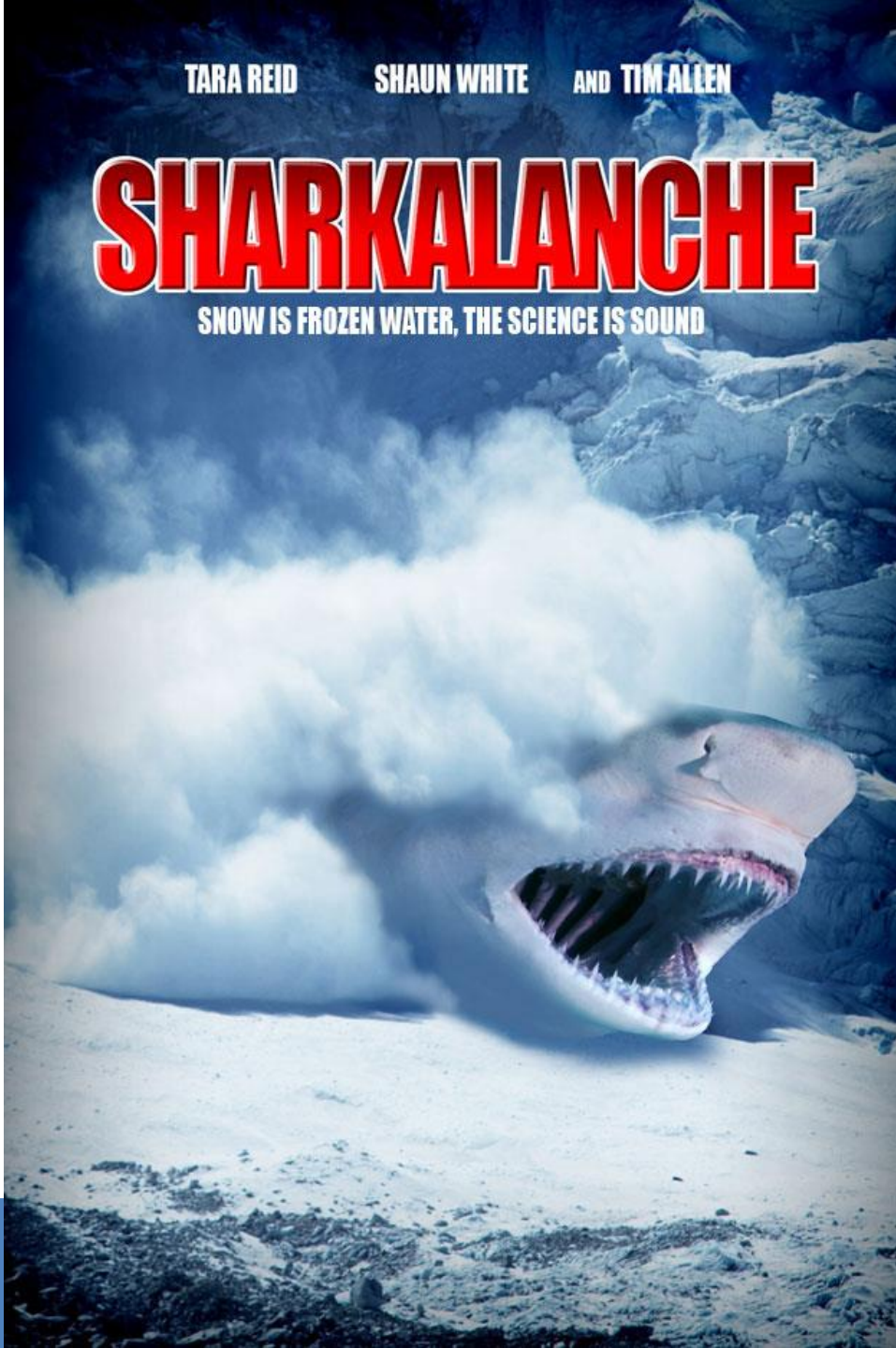
TARA REID

SHAUN WHITE

AND TIM ALLEN

# SHARKALANCHE

SNOW IS FROZEN WATER, THE SCIENCE IS SOUND



AURORA  
WATER







© 2013 Google

Google earth

1993 Imagery Date: 10/6/2013 39°42'41.64" N 104°47'26.86" W elev 5467 ft eye alt 5699 ft



Photos by Geoff Rabinowitz

# Importance of Stormwater Runoff

WBID	Segment Description	Portion	Colorado's Monitoring & Evaluation Parameter(s)	Water Act Section 303(d) Impairment	Priority
COSPUS16a	Sand Creek	All		Se, E. coli	L/H
COSPUS16c	Tributaries to S. Platte River, Chatfield Reservoir to Big Dry Creek except specific listings	Westerly Creek, Dry Creek		E. coli	H



# Stormwater Regulations

- Environmental Protection Agency (EPA)
  - Clean Water Act (CWA)
    - National Pollutant Discharge Elimination System (NPDES)
      - Municipal Separate Storm Sewer System (MS4)
- Colorado Dept of Public Health & Environment (CDPHE)
  - Water Quality Control Division (WQCD)
    - Colorado Discharge Permit System (CDPS)
- City of Aurora
  - Code Of Ordinances
    - 138-436 through 138-446

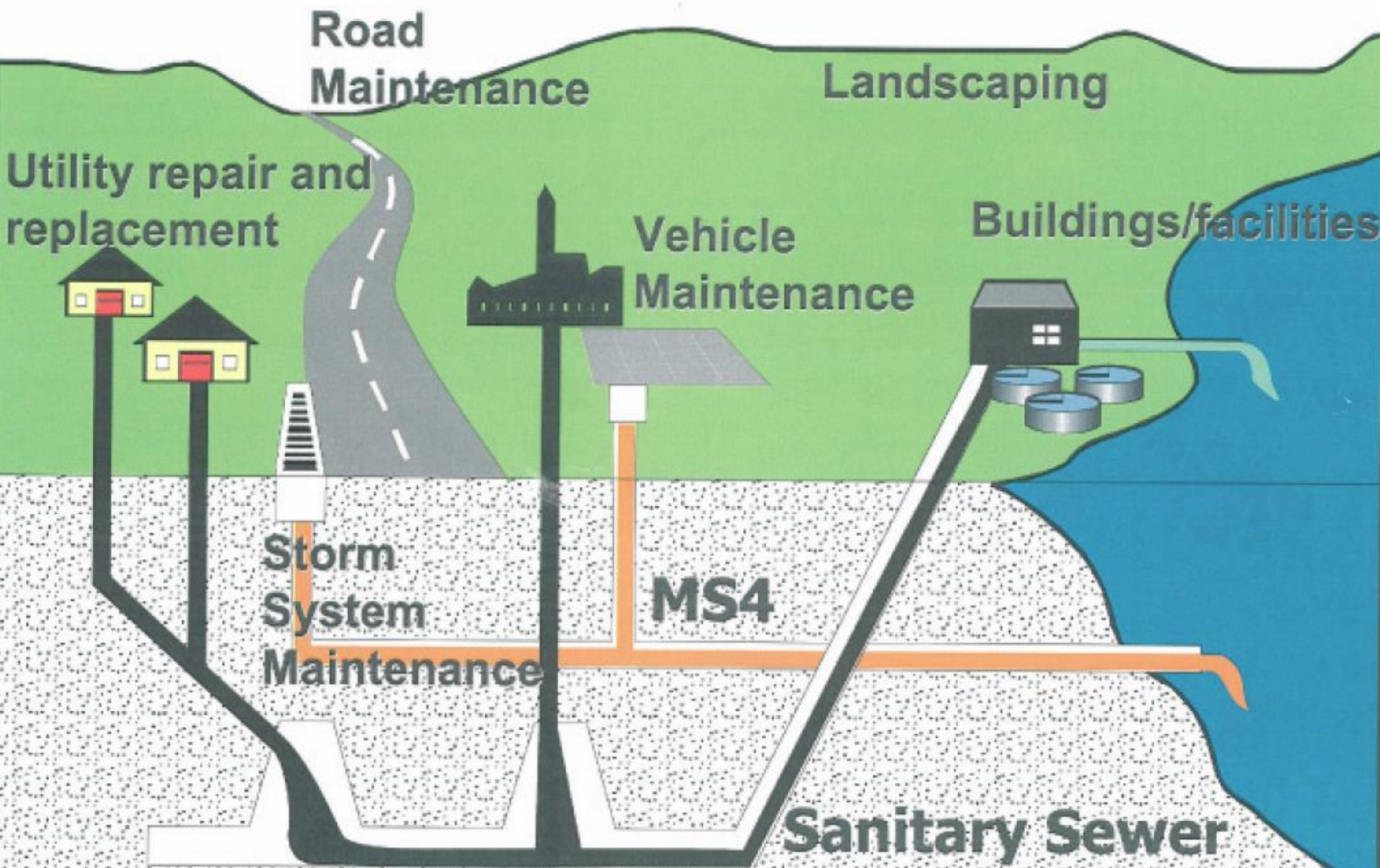
# Municipal Separate Storm Sewer System (MS4)

- Includes ditches, streets, curbs, gutters, inlets, underground pipe & other means of conveying stormwater runoff
- Does not connect to sanitary sewer system or a treatment plant



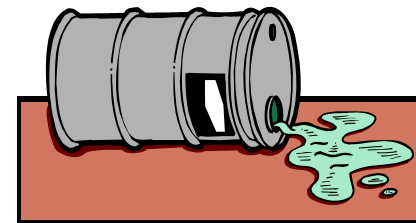


# Municipal Operations



# SW Discharge Limitations

- What can be discharged to the storm system?
  - Stormwater only
    - Some exceptions apply
  - Non-stormwater discharges entering the system are called Illicit Discharges





# Allowable Non-Stormwater Discharges

- Water line/hydrant flushing
- Landscape irrigation runoff
- Uncontaminated groundwater
- Foundation footing drains
- Air conditioning condensate
- Sump pump discharges
- Individual residential dechlorinated swimming pool and hot tub draining
- Individual residential car washing
- Emergency fire fighting activities
- Discharges authorized by permit

# Stormwater Permit (MS4)

- City of Aurora MS4 Permit
  - Prevent or reduce pollutants from entering storm sewer & water bodies to the “maximum extent practicable”
  - Train employees to incorporate and practice pollution prevention/good housekeeping at municipal facilities
  - Develop and implement appropriate BMPs during field operations

# MS4 Permit Minimum Control Measures

- I. Commercial/Residential Management Program
- II. Illicit Discharge Management Program
- III. Industrial Facility Program
- IV. Construction Site Program
- V. \*Pollution Prevention/Good Housekeeping for Municipal Operations



# Commercial and Residential Management Program



SWALE



Water Quality Pond

# Illicit Discharges Management Program









# Industrial Facilities Program



CLEAR CHOICES FOR CLEAN WATER

# Industrial Activities and Stormwater Pollution

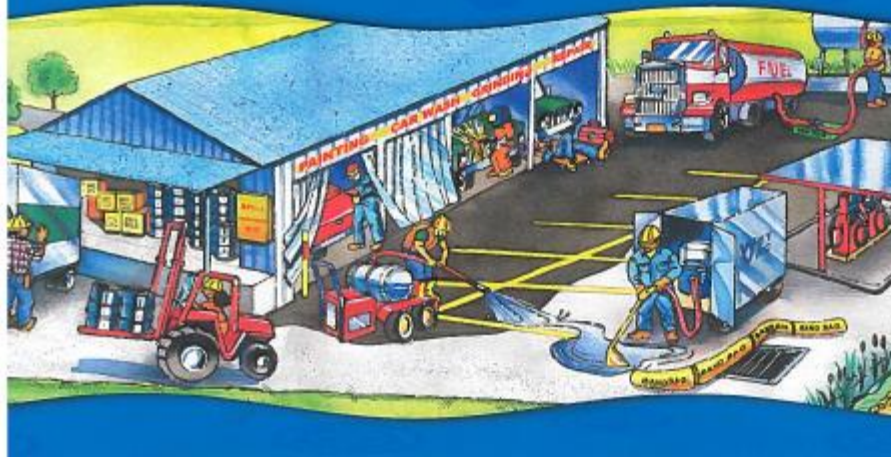


Photo by Geoff Rabinowitz

# Construction Sites Program







# Municipal Operations

## Pollutant Sources and Best Management Practices

# Pollutant Sources

SOURCE/ACTIVITY	Potential Pollutants									
	Sediment	Nutrients	Trash	Metals	Bacteria	Oil & Grease	Organics	Pesticides	Oxygen Demanding Substances	
Waste Handling and Disposal	X	X	X	X	X	X	X	X	X	
Vehicle & Equipment Fueling			X	X		X	X			
Vehicle & Equipment Maintenance and Repair				X		X	X			
Outdoor Materials Handling	X	X	X	X		X	X	X	X	
Outdoor Liquid Container Storage		X		X		X	X	X	X	
Outdoor Stockpiles	X	X	X			X	X	X	X	
Landscape Maintenance	X	X	X		X	X		X	X	

\*Onsite – Offsite Drainage

# Best Management Practices for Stormwater Management Controls

- Good Housekeeping
- Preventative Maintenance
- Spill Prevention and Response
- Employee Training
- Ongoing Evaluation



# Best Management Practices for Pollutant Source Control

- Runoff / Drainage Management
- Waste Handling / Disposal Management
- Fueling Practices Management
- Vehicle and Equipment Maintenance and Repair Management
- Outdoors Material Handling Management
- Outdoor Liquid Container Storage Management
- Outdoor Stockpile Management
- Landscape Maintenance Management

# Best Management Practices for Stormwater Management Controls



# Best Management Practices for Stormwater Management Controls

- Annual stormwater awareness training is required for all facility employees.
  - Identification of non-stormwater discharges
  - Appropriate response and implementation of best management practices
  - Environmental impacts of non-allowable stormwater discharges.
- Site representatives and employees need to maintain stormwater awareness while working at the municipal facility.
  - A consistent analysis of BMP function



# Best Management Practices for Pollutant Source Control





# Best Management Practices for Pollutant Source Control



# Best Management Practices for Pollutant Source Control





# Regulated COA Municipal Facilities

- North Satellite
- South Satellite
- Central Facility
- Nome Satellite
- Golf Course Maint Facilities (7)
- Aurora Sports Park
- Aurora Reservoir Maint Yard
- Snow stockpile sites
- \*This doesn't mean we are not responsible for all Pollution Prevention/Good Housekeeping at ALL City facilities and operations.



# Operation and Maintenance Procedures Include Activities conducted Outside the Municipal Facilities

- Examples Include:
  - Streets, curb and gutter operations & maintenance
  - Parks and Open Space operations & maintenance
  - Power washing
  - Snow and ice control
  - Large outdoor festivals
  - New construction
  - Municipal Building Maintenance and Parking Lots







# Street Sweeping



# Fertilizers, Herbicides, Pesticide Application



# Parks Operations





# Power Washing





## Snow and Ice Control





# Linear Projects





# Building Maintenance





# Municipal Parking Lots

# Spill Response



AURORA  
WATER

Operations and  
Maintenance  
Division

**SPILL  
RESPONSE**

INFORMATION  
RESOURCE FOLDER

Date Modified: March 2014

## PART I – O&M Information

Spill Communication & Response  
Guide

Contact List

Response Procedure Quick List

Guide for Estimating Volumes:  
Sanitary Sewer Overflows (SSO) and  
Spills

## PART II – Operations Compliance

Procedure for Outdoor SSO Cleanup  
and Disinfection

Procedure for Assignment of  
Financial Responsibility

COA Stormwater Code (excerpts)

Metro Wastewater Reclamation  
District Rules (excerpts)

Spill Reporting Guidelines/CDPHE  
Spill Reporting Guidance (WQE-10)

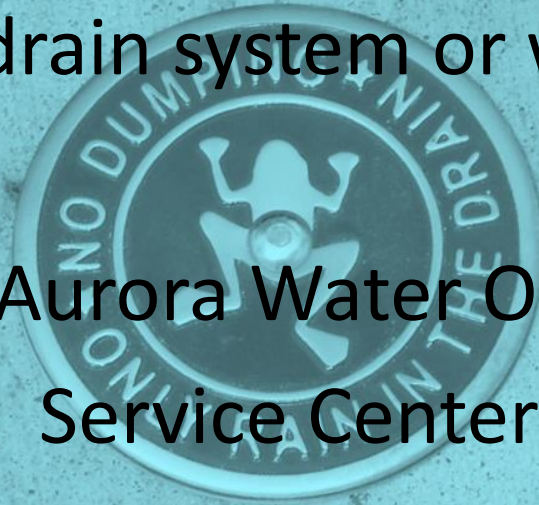
Spill Truck Supply Lists

# Report Spills

Spill of anything that threatens to enter the storm drain system or waterways

Call the Aurora Water Operations  
Service Center

**303-326-8645**





# Questions/Comments

KEEP MY  
ADW



WATER CLEAN  
MADE IN USA

D&L FDRY USA

03/09/2011 13:10