

STORMWATER PROGRAM SUMMARY

The mandates for each stormwater program or Minimum Control Measure (**MCM**) are provided by Colorado State Codified Regulations. In the following sections the regulation for each mandated MCM is cited, followed by the program objectives and then the activities undertaken by the City of Cañon City in 2007 in order to comply with those regulations. Each section then concludes with a summary of planned activities for 2008

STORMWATER PROGRAM AREAS

1. Public Education, Outreach, Participation and Involvement
2. Illicit Discharge Detection and Elimination
3. Construction Site Stormwater Runoff Control
4. Post Construction Stormwater Management
5. Pollution Prevention and Good Housekeeping Operations

STORMWATER PROGRAM GOALS

- #1 - Public Education, Outreach, Participation and Involvement** - Reduce the degradation of local water bodies by increasing public knowledge of local water quality problems caused by urban stormwater runoff.
- #2 – Illicit Discharge Detection** - Reduce the frequency of untreated discharges in which pollutants are intentionally or accidentally discharged into the municipal separate storm sewer system.
- #3 – Construction Site Stormwater Runoff Control** – Reduce sediment and other construction related discharges from entering the municipal separate storm sewer system.
- #4 – Post Construction Stormwater Management** - Implement planning procedures and enforcement mechanisms to reduce stormwater impacts resulting from areas of new development and significant re-development.
- #5 - Pollution Prevention and Good Housekeeping Operations** – Reduce the amount and type of pollution that is generated by municipal operations or from municipally-owned property.

MCM #1 Public Education, Outreach, Participation and Involvement

Regulation (CCR 61.8(11)(a)(ii)(A)):

- (A) *Public education and outreach on stormwater impacts. The permittee must implement a public education program to:*
- (I) *Distribute educational materials to the community or conduct equivalent outreach activities about the impacts of stormwater discharges on water bodies and the steps that the public can take to reduce pollutants in stormwater runoff; and*
 - (II) *Inform businesses and the general public of impacts associated with illegal dischargers and improper disposal of waste. and;*

Regulation (CCR 61.8(11)(a)(ii)(B)):

- (B) *Public involvement/participation. The permittee must at a minimum comply with State and local public notice requirements when implementing the stormwater management programs required under this permit. Notice of all public hearings should be published in a community publication or newspaper of general circulation, to provide opportunities for public involvement that reach a majority of citizens through the notification process.*

MCM#1 – 2007 Objectives & Activity

- a) Produce one new brochure per month (12/yr) for distribution with monthly water bill mailings (avg. 3500/ mo.) to commercial and residential accounts.
 - Eleven different stormwater informational brochures were produced
 - Residential Total Mailings = 27,411
 - Commercial Total Mailings = 11,868
- b) Develop four new stormwater I&E web pages on City of Cañon City Stormwater Program Web Site in 2007. Update existing web pages as necessary.
 - Additional web pages were added providing fiscal information and overviews of stormwater program components.
- c) Demonstrate the effects of land use practices and stormwater runoff on water quality using the Enviroscope Stormwater model in four demonstrations in local schools.
 - Presented the Enviroscope model to the:
 - Harrison Elementary 5th Grade
 - Tally Ho 4H Club
 - McKinley Elementary Kindergarten
 - Skyline Elementary 4th Grade
 - Skyline Elementary 5th Grade

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MCM#1 – 2007 Objectives & Activities (continued)



McKinley Elementary Kindergarten

Skyline Elementary 5th Grade



Skyline Elementary 4th Grade

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MCM#1 – 2007 Objectives & Activities (continued)

- d) Disseminate industry appropriate stormwater BMP information quarterly (4/yr) to businesses and industries identified in 2006 as those whom have either a moderate or high potential to produce pollutants.


Best Management Practices (BMPs) for Business

Commercial and industrial business is responsible for a majority of total impervious surface area. This however also provides a huge opportunity for business to have the greatest influence on protecting future water quality. Impervious surface is the number one problem. There are two primary approaches to *best manage* the problem.

- Reduce the percentage of impervious surface
- Maintain existing impervious surface

Business BMPs

- When it comes time to replace impervious surface, redesigning parking and landscaped areas to include storm water management features (i.e. rain gardens, bio-retention areas, collection areas for roof runoff, and shared parking)
- Property maintenance – sweeping (not washing) parking lots including proper disposal of dirt and trash collected



Rain and snowmelt wash contaminants into storm drain.

More Business BMPs

- **Training and Education for Employees.**
Workers should "know their site," notice where runoff from the property goes, and know where their drain inlets go. Good housekeeping practices are required to keep pollutants out of storm drains and are also a good idea if a property drains to the sanitary sewer or combined sewer.
- **Spill Prevention and Clean Up**
Businesses should avoid toxic materials to the extent possible, store liquids where they cannot be knocked over, and consider the best place to conduct specific activities. For example, businesses should keep their property clean, but not by washing grit and grime into the storm drainage system. Instead litter should be removed, all impervious areas swept with material collected and disposed of in the garbage (unless it contains hazardous material and requires special disposal) and use absorbent materials to absorb oils.
- **Good Storage and Waste Management**
To help keep rain from washing away pollutants, companies should be advised to keep dumpsters and other containers securely closed; store containers under cover; and cover stockpiled materials such as gravel, wood chips, and building materials (for example, by using plastic sheeting).

- e) Develop a series of 10 stormwater public service announcements to be aired on KRLN radio on a rotational basis and develop two stormwater related public service announcements to be aired on CCTV-Channel 19 on a rotational basis.
- 10 Water Spots radio public service announcements were recorded and ran for a total of 726 minutes of air time.
 - Two video public service announcements were developed and shown on Channel 19 on a rotational basis.

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MCM#1 – 2007 Objectives & Activities (continued)

- f) Stencil twenty-five high visibility stormdrains inlets utilizing stencils developed locally by high school students or service groups.

- Garden Park High School students in coordination with City staff stenciled selected storm drains within the MS4 in October.



- g) Attend meetings and participate in the Colorado Stormwater Council, the Upper Arkansas Watershed Council and others as appropriate.

- h) Continue public participation and involvement through the collection of program funding through the stormwater utility in 2007.

- Estimated total stormwater utility fee collected in 2007 \$663,400

- i) Utilize local access television and radio station to participate in recycling program during 2007. City financially supports Upper Arkansas Recycling program and advertises for a recycling activities held at municipal facilities. Recycling program also assists in proper disposal of hazardous materials such as oil through referrals and information

- Co-Sponsored a Household Hazardous Waste day with the Upper Arkansas Recycling program.
- **643 Vehicles 8,821 gallons of liquid haz waste 6,362 lbs of solid haz waste**



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MCM#1 – 2007 Objectives & Activities (continued)

J) Coordinate with Canon City area High School students and Arkansas River rafting companies to design, produce and display four stormwater related murals to be mounted on river rafting shuttle busses.

- Four different murals were designed and mounted on rafting busses during the summer/fall. Two examples below.



Bill D. 3rd Dimension Sign, Cindy L. Artist,

Dennis Weid & Will Colon, Raftmasters



Talley Ho 4-H Club

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MCM#1 – 2008 Planned Activities

1. Produce one stormwater newsletter per quarter (4/yr) for distribution with monthly water bill mailings to residential accounts and every three months to commercial accounts.
2. Develop four new stormwater I&E web pages on City of Cañon City Stormwater Program Web Site in 2008. Update existing web pages as necessary.
3. Demonstrate the effects of land use practices and stormwater runoff on water quality using the Enviroscope Stormwater model in local schools and civic organizations.
4. Disseminate industry appropriate stormwater BMP information quarterly (4/yr) to businesses and industries identified in 2006 as those whom have either a moderate or high potential to produce pollutants.
5. Develop a series of 10 stormwater public service announcements to be aired on KRLN radio on a rotational basis and develop two stormwater related public service announcements to be aired on CCTV-Channel 19 on a rotational basis.
6. Attend meetings and participate in the Colorado Stormwater Council, the Upper Arkansas Watershed Council, the Fremont Conservation District and others as appropriate.
7. Stencil twenty-five high visibility stormdrains inlets utilizing stencils developed locally by high school students and/or service groups.
8. Continue public participation and involvement through the collection of program funding through the stormwater utility in 2007.
9. Utilize local access television (Channel 19) and local radio station (KRLN) and participate in local recycling program to promote clean up during 2007. City financially supports Upper Arkansas Recycling program and advertises for a recycling activities held at municipal facilities. Recycling program also assists in proper disposal of hazardous materials such as oil through referrals and information.
10. Coordinate with Canon City area Schools, civic organizations, businesses, and local artists to design, produce and display four stormwater related murals to be mounted on river rafting shuttle busses.

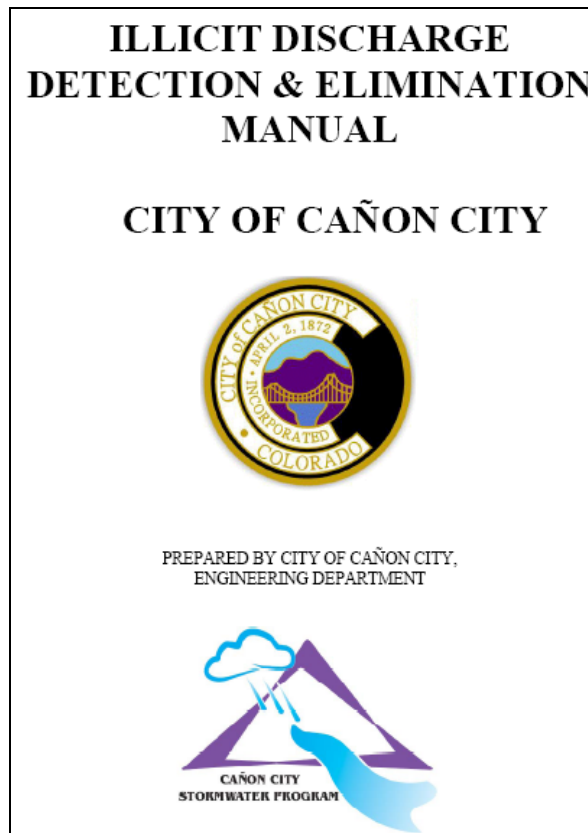
MCM #2 – Illicit Discharge Detection

Regulation (CCR 61.8(11)(a)(ii)(C)) is as follows:

- (C) The permittee must develop, implement and enforce a program to detect and eliminate illicit discharges (as defined at 61.2) into the permittee's MS4. The permittee must:*
- (I) Develop, if not already completed, a storm sewer system map, showing the location of all municipal storm sewer outfalls and the names and location of all state waters that receive discharges from those outfalls;*
 - (II) To the extent allowable under State or local law, effectively prohibit, through ordinance or other regulatory mechanism, non-stormwater discharges into the storm sewer system, and implement appropriate enforcement procedures and actions; and*
 - (III) Develop and implement a plan to detect and address non-stormwater discharges, including illicit discharges and illegal dumping, to the system. The plan must include the following three components: procedures for locating priority areas likely to have illicit discharges; procedures for tracing the source of an illicit discharge; and procedures for removing the source of the discharge.*

MCM#2 – 2007 Objectives & Activity

- a) City will continue to enforce Stormwater Management Program regulations through the development of an Illicit Discharge Detection and Elimination Procedures Manual to be adopted by June 2007. - Completed -

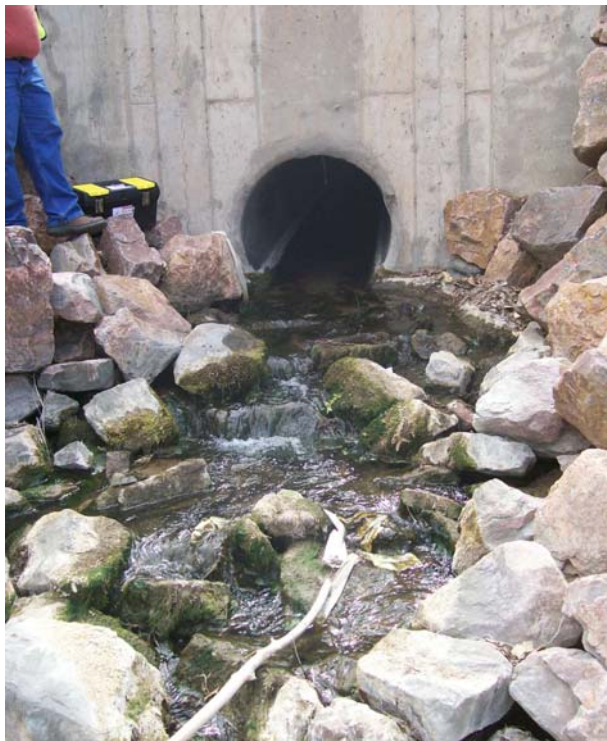


http://www.canoncity.org/pdf_documents/StormWater/Illicit_Discharge_Manual-Final.pdf

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MCM#2 – 2007 Objectives & Activities (continued)

- b) Stormwater Technician will enforce Stormwater Management regulations through implementation of Stormwater Management programs.
- c) Provide training for new employees involved with the identification of illicit discharges.
- d) Periodically inspect all outfalls for illicit discharge; assess water chemistry when discharge is found; track down and eliminate source of illicit discharge. Implement CarteGraph Stormview database to include all stormwater management infrastructure to track facilities condition, IDDE actions taken, and schedule maintenance.



- In an effort to establish background water chemistry for future reference, fifteen (15) surface water locations were sampled a total of thirty-eight (38) times during the last three months of 2007. The parameter suite sampled for was based upon recommendations from the IDDE Manual.

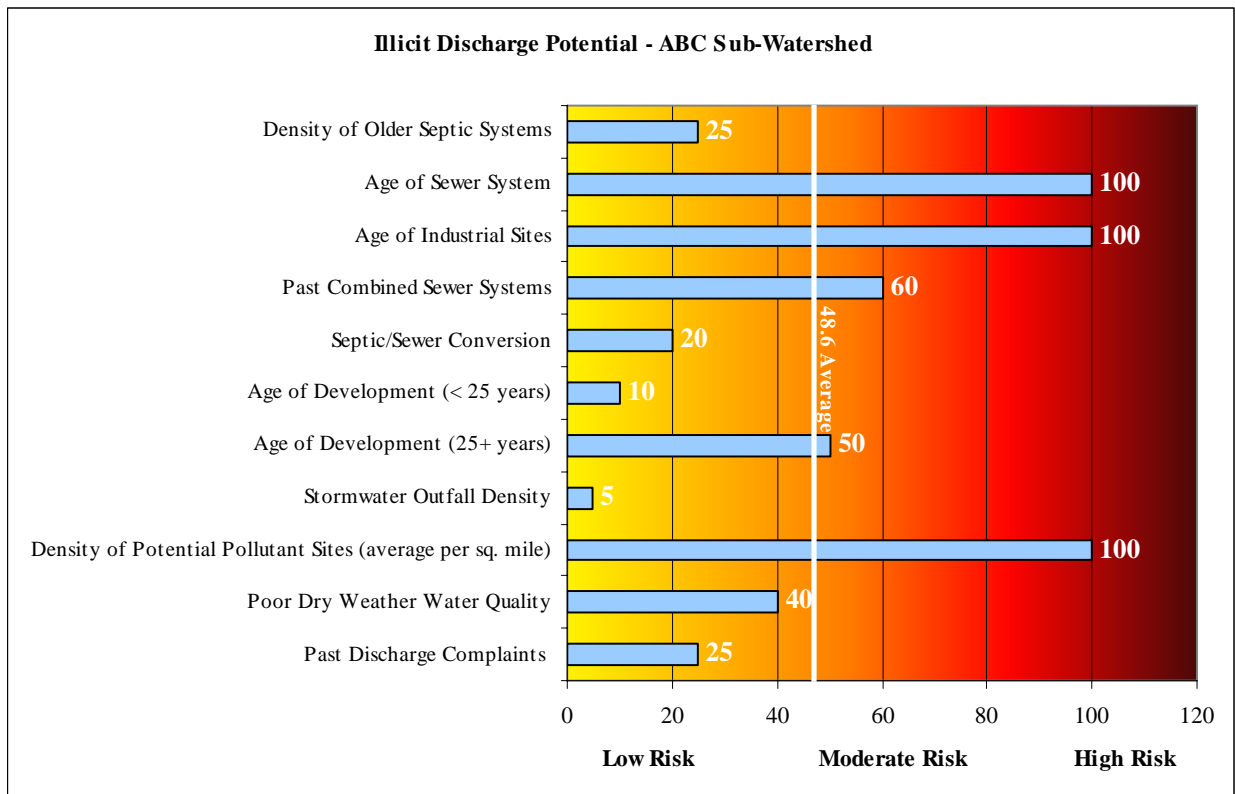
- e) Review existing City of Cañon City ordinances to determine conformity with IDDE ordinance.

MCM #2 - Summary of Inspections and Formal Enforcement Actions

- 1) A total of five (5) suspected illicit discharges were observed and reported by both private individuals and City staff. Each incident was investigated immediately and in five of the incidences verbal contacts were made, information regarding the impacts of illicit discharge was provided, and the issue resolved.
- 2) One hundred ninety-four (194) outfalls were located and inspected. Information on each outfall was collected using the IDDE Manual inspection forms. The CarteGraph database was used to begin utilizing information obtained during detention basin inspections.

MCM#2 – 2008 Planned Activities

- 1) Stormwater Technician will enforce Stormwater Management regulations through implementation of Stormwater Management programs.
- 2) Provide training for new employees whom may observe potential illicit discharges.
- 3) Periodically inspect all outfalls for illicit discharge; assess water chemistry when discharge is found; track down and eliminate source of illicit discharge. Expand CarteGraph Stormview database to include all stormwater management infrastructure to track facilities condition, IDDE actions taken, and schedule maintenance.



MCM #3 – Construction Site Stormwater Runoff Control

Regulation (CCR 61.8(11)(a)(ii)(D)):

(D) Construction site stormwater runoff control.

- (I) The permittee must develop, implement, and enforce a program to reduce pollutants in any stormwater runoff to the MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of pollutants in stormwater discharges from construction activity disturbing less than one acre must be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more. If the Division waives requirements for stormwater discharges associated with a small construction activity in accordance with 61.3(2) (f) (ii) (B), the permittee is not required to develop, implement, and/or enforce its program to reduce pollutant discharges from such a site.*
- (II) The program must be developed and implemented to assure adequate design, implementation, and maintenance of BMPs at construction sites within the MS4 to reduce pollutant discharges and protect water quality. The program must include the development and implementation of, at a minimum:*
 - (a) An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State or local law;*
 - (b) Requirements for construction site operators to implement appropriate erosion and sediment control BMPs;*
 - (c) Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;*
 - (d) Procedures for site plan review which incorporate consideration of potential water quality impacts;*
 - (e) Procedures for receipt and consideration of information submitted by the public, and;*
 - (f) Procedures for site inspection and enforcement of control measures.*

MCM #3 – 2007 Objectives & Activity

- a) As necessary, amend the City of Cañon City GESC/DESC manual to reflect updates to the UDFDC Manual.
 - No amendments were necessary in 2007.
- b) Provide guidance to developers and contractors to facilitate compliance with City of Cañon City GESC Manual. Apply formal enforcement procedures when necessary.
 - Developers and their engineers were provided written and verbal guidance during the development of GESC plans.
 - Subsequent inspections provided compliance with GESC plans. Refer to following subsection for inspection details.



Improper installation of sediment and erosion controls caused a failure in the drainage system in a new sub-division

- c) Provide guidance to contractors and homebuilders to facilitate compliance with City of Cañon City DESC program. Apply formal enforcement procedures when necessary.
 - General Contractors and homebuilders were provided written and verbal guidance during the development of DESC plans.
 - Subsequent inspections provided compliance with GESC plans. Refer to following subsection for inspection details.
- d) Provide sediment and erosion control training to contractors on a one-on-one basis as requested.
 - Training provided during permit application review and during site inspections.

MCM #3 - Summary of Inspections and Formal Enforcement Actions

- (1) A total of forty-eight (48) inspections were performed on eight development projects >1 acre.
 - Twenty-Two (22) formal enforcement actions were taken.



Severe erosion from a precipitation event caused by inadequate sediment and erosion controls.

- (2) A total of three hundred eighty-six (386) inspections were performed on projects <1 acre per the City of Cañon City Drainage Erosion & Sediment Control (DESC) program.
 - Forty (40) formal enforcement actions were taken

MCM#3 – 2008 Planned Activities

- 1) As necessary, amend the City of Cañon City GESC/DESC manual to reflect updates to the UDFDC Manual.
- 2) Provide guidance to developers and contractors to facilitate compliance with City of Cañon City GESC Manual. Apply formal enforcement procedures when necessary.
- 3) Provide guidance to contractors and homebuilders to facilitate compliance with City of Cañon City DESC program. Apply formal enforcement procedures when necessary.
- 4) Provide sediment and erosion control training to contractors on a one-on-one basis as requested.

MCM #4 – Post-Construction Stormwater Management

Regulation (CCR 61.8(11)(a)(ii)(E)):

(E) Post-construction stormwater management in new development and redevelopment.

(I) The permittee must develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the MS4. The program must ensure that controls are in place that would prevent or minimize water quality impacts.

(II) The permittee must:

- (a) Develop and implement strategies which include a combination of structural and/or non-structural BMPs appropriate for the community;*
- (b) Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State or local law; and*
- (c) Ensure adequate long-term operation and maintenance of BMPs.*

MCM #4 – 2007 Objectives & Activity

a) Perform annual inspection of all stormwater facilities by 8/31/07 and submit maintenance list(s) to facility owners by 10/31/07.

- Inspection of all private basins completed and notification sent to responsible parties.

b) Require Post-construction BMP's where applicable in any new development within the City of Cañon City.



MCM #4 - Summary of Inspections and Formal Enforcement Actions

- 1) A total of 30 private post construction detention basins were inspected.
 - Ten of the privately maintained facilities were found to be unsatisfactory condition requiring major maintenance or structural repairs. Letters were sent to the responsible parties providing details of the deficiencies and the required actions.
 - Ten of the detention basins were found to be in satisfactory condition requiring only minor maintenance. Letters were sent to the responsible parties providing details of suggested actions.
 - Ten of the detention basins were found to be in good condition. Letters were sent to the responsible parties thanking them for their good stewardship.



The Detention Basin in the Cobblestone subdivision has been well maintained.

MCM#4 – 2008 Planned Activities

- 1) Perform annual inspection of all stormwater facilities by 4/31/08 and submit maintenance list(s) to facility owners by 5/31/08.
- 2) Require Post-construction BMP's where applicable in any new development within the City of Cañon City.

MCM #5 - Pollution Prevention and Good Housekeeping Operations

Regulation (CCR 61.8(11)(a)(ii)(F)):

(F) Pollution prevention/good housekeeping for municipal operations.

(I) The permittee must develop and implement an operation and maintenance program that includes an employee training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations. The program must also inform public employees of impacts associated with illegal discharges and improper disposal of waste from municipal operations. The program must prevent and/or reduce stormwater pollution from facilities such as streets, roads, highways, municipal parking lots, maintenance and storage yards, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations and snow disposal areas operated by the permittee, and waste transfer stations, and from activities such as park and open space maintenance, fleet and building maintenance, street maintenance, new construction of municipal facilities, and stormwater maintenance, as applicable.

MCM #5 - 2007 Objectives & Activity

- a) Stormwater program staff to attend stormwater related Conferences, Workshops and Seminars. Disseminate information to other appropriate City staff.
 - Two workshops – CarteGraph & ESRI.
- b) Begin to assess city-owned sites and develop and implement an O&M program for these municipal facilities.
 - Ongoing.
- c) Begin to develop and implement an SOP/O&M program for municipal facilities.
 - Ongoing.
- d) Complete maintenance required as determined by schedule by bid or in-house. Continue to update maintenance schedule as required to keep BMPs in compliance. Complete by December 31, 2007.
 - Major public drainageways and public detention basins were inspected and the required maintenance performed.



Before

After

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MCM #5 - 2007 Objectives & Activity (cont)

e) Annual biological assessment of Arkansas River at two locations (one above and one below MS4) to assess stormwater program effectiveness.

- Completed with assistance from the Garden Park High School.



Students assist with gathering field data in the Arkansas River.

MCM#5 – 2008 Planned Activities

- 1) Stormwater program staff to attend stormwater related Conferences, Workshops and Seminars. Disseminate information to other appropriate City staff.
- 2) Assess city-owned sites for pollution potential in 2008
- 3) Develop and implement an SOP/O&M program for municipal facilities.
- 4) Complete maintenance required as determined by schedule by bid or in-house. Continue to update maintenance schedule as required to keep BMPs in compliance. Complete by December 31, 2008
- 5) Annual biological assessment of Arkansas River at two locations (one above and one below MS4) to assess stormwater program effectiveness.

