

### 8.4 Nonpoint Source Assessment

The State of Colorado, following a national policy, has moved forward in qualifying and quantifying areas of nonpoint source (NPS) pollution in all drainage basins in the state. Section 305(b) of the Clean Water Act requires States to assess and report on the quality of State's waters. This report is broken up into the four major river basins originating in Colorado: Arkansas & Rio Grande, Colorado, South Platte, San Juan & Dolores & Gunnison. This biannual report entitled Status of Water Quality in Colorado 2002, (CDPHE-WQCD, 2002a) was last updated in February 2002. This report details the status of water quality in the watersheds and incorporates concerns noted in the 208 Plan.

This section will explain what the NPS problems are and what is currently being done to control and mitigate their impact. This is especially critical in the Fountain Creek Watershed, which has become a priority for PPACG.

#### 8.4.1 Agricultural Runoff

The most heavily impacted stream segments in El Paso and Pueblo Counties with respect to agricultural nonpoint source pollution are Fountain Creek Segments 2a and 2b. The two forms of agricultural nonpoint source pollution, which are the most pervasive in Fountain Creek, are total dissolved solids and sediment. These concerns are addressed in the Fountain Creek Watershed Plan (PPACG, 2003a). Nitrogen and pesticides were considered to be insignificant as components of agricultural nonpoint source pollution affecting Fountain Creek Segments 2A and 2B.

These pollutants are amenable to mitigation through the implementation of BMPs. With regard to total dissolved solids, BMPs include the use of measures to increase the efficiency of irrigation water application, reduce irrigation water losses through seepage, collection and disposal of saline agricultural return flows, and desalination of drainage water from irrigated crop land. With regard to sediment, BMPs include the promotion of such techniques as contour cropping, strip cropping, field diversions, terracing and waterway stabilization. These BMPs, along with others, are discussed in the Colorado's Nonpoint Source Management Program (CDPHE-WQCD, 2000). Future projects will look at the possibility of developing pilot projects and grants to determine the effectiveness of these programs.

### 8.4.2 Resource Extraction

The main resource extraction area in the Fountain Creek Watershed that is affecting water quality are the tailings pile from Cripple Creek and Victor, referred to as Gold Hill Mesa. It is located in El Paso County, and the Cripple Creek and Victor Gold Mining operations, is located in Teller County. Gold Hill Mesa is 0.42 square miles in size and was once used for processing tailings from the gold fields of Cripple Creek and Victor. It is located on the southern stream bank of Fountain Creek (Segment 1), between 8<sup>th</sup> and 21<sup>st</sup> Streets, approximately half a mile upstream from the confluence with Monument Creek. This tailings pile is subject to erosion because the soil does not support vegetation and it is extremely difficult to stabilize the slopes. Runoff from the tailings pile percolates into Fountain Creek. In 1979 and 1980, a brief study was conducted by the USGS to assess the impact of the tailings pile on levels of metals in the creek. It was demonstrated that runoff from the tailings pile does indeed increase the concentration of certain metals in Fountain Creek. The site is currently developable and the City of Colorado Springs has approved a concept plan for a traditional neighborhood in the area with a soil cap over the tailings. The plan is currently being processed for development and construction of a residential neighborhood.

### 8.4.3 Urban/Stormwater Runoff

Erosion and sedimentation are causing the most serious and pervasive impacts to surface water quality resulting from stormwater runoff, the affects of population growth and development. Urban stormwater runoff in El Paso County and the City of Colorado Springs has the highest potential for nonpoint source impact on the water quality of Fountain Creek. Throughout the Fountain Creek Watershed, stormwater runoff from urban areas contributes to increased stream flow and bank erosion. The increased flow of urban storm runoff is also highly variable and may be affected by a myriad of potential pollution causing activities.

#### Phase I

A Municipal Stormwater Discharge Permit (COS-000004) was issued to the City of Colorado Springs and became effective on October 12, 1997 and expired on September 30, 2002. A final permit was re-issued and became effective on March 2004. The City of Colorado Springs was the fourth city in Colorado to receive this permit and it carries penalties of up to \$25,000 per day for non-compliance.

The goals and concepts of this permit are:

1. Create an integrated citywide monitoring program.

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2. Document base line stream health conditions through each of the monitoring components:
  - a) Develop baseline data of biological and physical integrity.
  - b) Document aggradation/degradation of stream zones.
  - c) Document storm event and base flow sediment concentrations.
  - d) Document basin water quality data and participate in regional stormwater concerns.
3. To the extent possible, evaluate impacts to the receiving waters and to tributary stream health from urban stormwater.
4. Continue existing BMPs and develop new programs related to stormwater quality.
5. Evaluate any changes in urban stormwater discharges that may be attributable to implementation of BMPs.

The City is considering the development of a separate stormwater code over the next few years. There are currently twelve locations used for stormwater monitoring: six gages on Monument and Fountain, five on Cottonwood Creek, and one on North Rockrimmon.

### Phase II

In December 1999, the EPA promulgated the final Phase II NPDES stormwater regulation affecting cities/counties with a population between 10,000 and 100,000. Initially, Phase II will impact El Paso County, the City of Fountain, the City of Manitou Springs, the Town of Monument and the City and County of Pueblo and Teller County may be affected in the future. These communities, along with non standard (i.e school districts) MS4 operators are required to develop and implement six stormwater management programs or minimum measures.

1. Public Education/Outreach
2. Public involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Runoff Control
5. Post – Construction Management
6. Pollution Prevention/Good Housekeeping for Municipal Operations

A permit application outlining programs that fulfill the permitting requirements was submitted for each of these communities in March 2003. The programs established by these permits must be implemented by March 9, 2008.

### *Drainage Criteria*

The City of Colorado Springs and El Paso County Drainage Criteria Manual was developed in 1987 and revised in 1991 and 1994. There are some minor differences between the City and County Drainage Criteria and so there is a Drainage Board jointly run by both entities (created in the 1960s) which reviews drainage criteria and administers a basin fee structure. The Board consists of 8-10 people who are Engineers, Public Citizens and Attorney(s); half of the members are appointed by the City and the other half by the County.

Subdivision regulations include performance standards for drainage and erosion control, as well as the requirement that a drainage plan be submitted with final subdivision plans. The City requires Erosion Control Plans and inspectors were hired in 2002 to monitor and enforce implementation. The County requires that a drainage report and erosion control plan be submitted with the Preliminary Plan. The City of Colorado Springs Drainage Criteria Manual, Volume 2 (BMP Manual) is complete and became effective November 1, 2002. The County plans to adopt this manual in the next couple of years, with modifications.

Each major basin within Colorado Springs is required to complete a Drainage Basin Planning Study, which identifies feasible drainage improvements for the existing and future needs of the individual Basin. These studies are updated on a regular basis, although fiscal constraints have prevented any updates since Sand Creek Basin in 1995. The City/County Drainage Board, Colorado Springs City Council, and the El Paso County Commissioners must adopt each Drainage Basin Planning Study. A list of the Drainage Basin Planning Studies completed in El Paso County and the City of Colorado Springs is included in Appendix D of the Fountain Creek Watershed Plan (PPACG, 2003a).

The City of Colorado Springs has developed specific criteria for development upstream of the US Air Force Academy Property to address stormwater flows affecting the Academy. The goal is to make certain that stormwater facilities proposed for development occurring upstream of the Academy will function in conjunction with other facilities within the drainage and not increase peak flows above a specified frequency.

Certain communities in the Fountain Creek Watershed have a graduated rate fee based on impervious surface area. Drainage fees are used to offset the impacts that developments have on local streams. El Paso County and Monument offer different fees for different

drainage basins based on the ability of that system to absorb and not be affected by the development. This will make it more expensive to build in certain areas and less expensive in others.

### **Streamside Overlay Ordinance**

The Colorado Springs Streamside Ordinance was adopted by the Colorado Springs City Council in November 2002 and is now in the process of being implemented. The ordinance is designed to protect the city's creeks and streams and this ordinance will regulate new developments within 100 to 200 feet of most waterways. An estimated 4,000 property owners could be affected and currently the City does little to regulate streamside development. This ordinance wouldn't bar new development near streams but would require developments to be compatible with streams features. The ordinance would ban specific uses such as scrap yards, auto dealers and parking garages from stream sides and will require builders to install ponds or to take other measures to reduce runoff. To compensate, developers would be allowed to build at higher densities on land away from the streams.

### **8.4.4 Construction Runoff**

The two entities having the greatest concentration of storm drainage facilities and construction activity are the City of Colorado Springs and El Paso County. The potential for nonpoint source erosion related impacts to Fountain and Monument Creeks is of particular significance based on proposed development. Major construction activity has occurred in the Kettle Creek, Pine Creek, Elkhorn Creek, Cottonwood Creek, Sand Creek, and Jimmy Camp Creek sub-basins of the Fountain/Monument Creek drainage area. Construction runoff in these sub-basins may impact water quality in the mainstems of Monument and Fountain Creeks. Development is also expected to occur in parts of the Black Squirrel, Williams and Chico Creek basins east of Colorado Springs. However, water quality effects will not be as severe in these eastern areas and will be limited mostly to sediment because the streams involved are ephemeral and, as a practical matter, represent dry drainageways except during heavy precipitation events.

The two areas most heavily impacted by new construction activities are in the Falcon, Norwood and Briargate communities. When the 208 Plan was originally written (1978), it was assumed that most growth would occur in the east. Instead, the bulk of growth has been primarily in the north and northeast with some in the south. A description of pertinent floodplain, zoning and subdivision regulations is contained in Chapter 6 of the Fountain Creek Watershed Plan (PPACG, 2003a).

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Requirements for controlling development-related erosion in the City of Colorado Springs are covered by both policy and regulation.

- The drainage criteria require that each drainage report include erosion and sediment control plans during and after construction.
- The hillside overlay zoning ordinance which covers areas steeper than ten percent and "sensitive areas", requires a grading plan to be submitted with the preliminary plan.
- Grading and Erosion Control Plans are required when:
  - Any grading or construction within Hillside Areas (City Code, 7.3.504), or Excavation or fill > 500 CY, or
  - Grading of a site with a platted acreage > 1 acre, or
  - Grading on any property with a natural slope > 8%, or
  - Any combination of the above three

City engineering financial assurance is required for all but the smaller sites. This requires the submission of a grading plan, for review by City Engineering, which may require a bond to ensure completion.

The El Paso County Department of Transportation enforces erosion control plan requirements in the County right-of-way and any other areas of grading with regard to any related construction. A performance bond is required for those items. The requirements that may be called for by the erosion control plan beyond those associated with the roadways are not enforced. Enforcement is also a problem with ordinances in Manitou Springs. A bond is not required and the proposed improvements are often incomplete.

Throughout the watershed, common problems which seem to hinder enforcement include:

- A. Requirements that are cumbersome to apply,
- B. Lack of staff for enforcement.
- C. Difficult and time consuming to make certain that if improvements are made, the necessary maintenance will be done.

### 8.4.5 Onsite Wastewater Systems (OWS)

Improved maintenance of septic systems begins with the education of homeowners concerning the limitations and weaknesses of their systems. Homeowners need to be advised of the limited hydraulic capacity of an OWS and of their inability to deal effectively with certain substances such as caustic solutions and heavy loads of grease. Instruction in proper techniques for monitoring system performance is required, as well

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as instruction in recognizing early warning signs of system failure. The importance of knowing the locations of septic tanks, leach fields, vents and piping must be stressed and accurate records of system maintenance must be maintained. Regular inspection of a septic system is necessary, and the ability to require system inspection, repair, or replacement may be needed by local governments in order to assure the success BMPs programs. Within El Paso County, the number of septic systems has increased from about 300 in 1990 to about 1200 in 2000. El Paso County routinely issues more septic system permits per year than other counties in Colorado. The El Paso County Health Department is in full support of the recommendations made by the OWS Independent Technical Review Committees to the Water Quality Control Commission. These recommendations from the Committee include support of a full time position at CDPHE to oversee the OWS program and its importance to the Colorado Legislature.

Only one of the local communities up Ute Pass is incorporated (Green Mountain Falls) and none have the organizational capacity to carry out a full-fledged program of education, inspection and enforcement. The PPACG is capable of providing direction for the educational elements of such a program, but lacks the authority and capability to perform inspections or to undertake enforcement actions. It is the opinion of the El Paso County Department of Health and Environment that a mandatory participation program regarding septic system inspection, repair and replacement should be put in place and there is reluctance of participation by homeowners, who know of deficiencies in their systems to participate in voluntary program. Renewable OWS permits are being considered as a method to oversee that the routine system maintenance has been completed.

Several alternatives have been discussed regarding the best institutional form for implementing a program of BMPs for OWS. The only general-purpose government having jurisdiction in the area with the authority to implement a mandatory septic tank maintenance program is the El Paso County Board of Commissioners. Prior to considering a regulatory approach, the Board of Commissioners has requested that PPACG pursue all other possibilities. There is a move within the Colorado Department of Public Health and Environment (CDPHE) encouraging local health departments to consider developing performance based OWS regulations in order to better protect water quality.

The El Paso County Department of Health and Environment has been in contact with the El Paso County Planning Department and is encouraged by talks of “cluster-type”

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residential development. This type of development could potentially have covenants that would require periodic OWS maintenance by residents. There are several programs related to the issues of failing septic systems in Ute Pass and could be good applications of Federal nonpoint source pollution funds. These include a pilot program for licensing private firms to perform septic system inspection, repair, and certification in lieu of the County Health Department; offering educational programs aimed at advising residents of water conservation and septic system maintenance techniques, and the temporary funding of an additional Health Department Environmental Health Specialist to initiate an inspection program. Maintenance information for ISDS has been included as Appendix 13 in the most recent revision of the El Paso County ISDS regulations.

The El Paso County Department of Health and Environment has recently hired 2 environmental technicians. These technicians will conduct nitrate sampling from wells within the County, with the long-term goal of using the data to aid the Planning Department with subdivision water source impact, and to educate the public about health effects of water high in nitrates.

### **8.4.6 Hydrologic Modification**

The effect of the changes in flow regimes in a stream impacts the stream's carrying capacity for sediment and increased capability of eroding to stream banks. Significant changes to the hydrologic function or attendant pollutant release regimes of rivers, streams, or groundwater can occur. Changes to the hydrologic regime occur within the Fountain Creek Watershed through construction and operation of reservoirs, construction and operation of diversions, check dams, riffle drop structures, and channelization of flows.