



2007 Annual Report

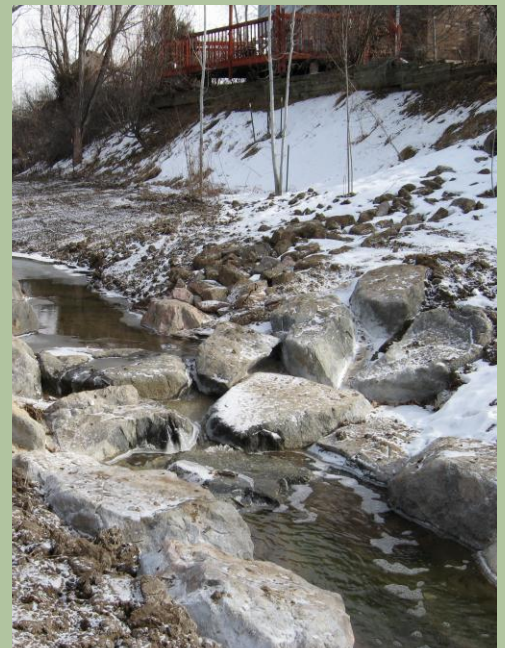


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Introduction

The Southeast Metro Stormwater Authority (SEMSWA) is a new independent governmental entity formed by the City of Centennial, Arapahoe County, the Arapahoe County Water and Wastewater Authority (ACWWA), the East Cherry Creek Valley Water and Sanitation District (ECCV), and the Inverness Water and Sanitation District (IWSD) after a multi-year planning effort. SEMSWA, envisioned as an efficient solution to the area's stormwater challenges, was recommended for formation in 2002 by a citizen stormwater advisory committee, followed by an intense multi-year effort by a special steering committee of interested parties. Out of this steering committee came the framework for the Intergovernmental Agreement (IGA) that legally formed the Authority in September 2006. SEMSWA began billing for stormwater services in January 2007. The fees for residents and commercial properties are based on the amount of impervious surfaces that prevent stormwater from being absorbed by the ground. The stormwater that runs off the impervious surfaces must be managed for safety, protection of property and water quality.

SEMSWA's goal is to provide an increased level of stormwater management and oversight than seen previously in the City and County. Funding from stormwater fees will help address critical new construction needs as well as stepped-up remediation and maintenance efforts. Master plans and studies have identified a backlog of some \$75 million in stormwater capital projects. SEMSWA funding will also provide for improved planning, design and monitoring of stormwater infrastructure, and water quality. Examples of maintenance efforts include upgrading the infrastructure with improved inlets, outfalls and drainage pipes, and removing debris and sediment for improved conveyance and water quality. These maintenance activities, and the capital and remedial new construction efforts, will help to protect people and property from flooding, and improve water quality.

New funding will also allow SEMSWA to meet Federal environmental regulations and make a difference in water quality. As stormwater flows across the landscape, it can pick up sediment, motor oils, fertilizers, pet waste, trash, and other pollutants. Environmental regulations are in place to minimize and prevent these pollutants that come from homes, businesses and industrial sites from entering stormwater runoff. These regulations are part of the National Pollutant Discharge Elimination System (NPDES) effort, requiring mapping of the entire drainage system, investigating illegal dumping activities, ensuring that construction sites keep sediment on site, designing and constructing facilities to improve water quality, and educating and involving the public regarding water quality issues. Funding via the SEMSWA fee provides for necessary water quality improvement efforts.

The benefit of the IGA parties joining together to form a new entity is a more efficient, standardized and comprehensive approach to stormwater management in the SEMSWA service area. The boundaries of the SEMSWA service area cover the City of Centennial and the developed areas of unincorporated

SEMSWA Stormwater Management

Stormwater must be managed for the common good as runoff does not follow political or subdivision boundaries.

The value of property, health of the environment, and quality of life are related to how well storm drain systems are maintained. Regardless of the location, all properties have an effect on the drainage system and on downstream properties. The formation of SEMSWA closes the funding gap to help protect people and property from flooding, and to protect water quality.

Arapahoe County, as well as special district areas within Douglas County (see service area map on back cover). SEMSWA is governed by a board appointed by the entities that are part of the IGA. SEMSWA staff consists of water resource and other professionals who are familiar with the challenges of stormwater management.

Several program areas within the organizational structure have been defined to encompass the activities that need to be undertaken to manage stormwater in the SEMSWA service area. This Annual Report is a compilation of progress to date within these program areas.

This Annual Report is a compilation of progress to date within the Maintenance, Remedial Construction, Capital Construction, Water Quality, Floodplain Management, Master Planning and Land Development, and Public Relations program areas.

Maintenance Program

Maintenance Program work is divided into several types of field activities: routine drainageway maintenance; drainageway and infrastructure restoration maintenance; and special maintenance projects. The Maintenance Program works closely with Urban Drainage and Flood Control District (UDFCD) to coordinate routine maintenance and restoration maintenance projects to optimize both work programs.

Routine Maintenance Services

SEMSWA's routine maintenance services consist of mowing native vegetation, trash and debris cleanup, including trash rack cleaning, weed control, and minor re-vegetation efforts during the growing season. These services address the maintenance of SEMSWA-owned drainageways with a contracted scheduled mowing, trash and debris removal program. Additionally, an important part of the maintenance program work consists of unscheduled, complaint-instigated trash and debris removal on major and minor drainageways in response to citizen reports of debris after a storm event. After a letter or call is received by SEMSWA from a citizen, the information is entered into a database, the maintenance group is alerted, and the maintenance personnel inspect the problem in the field. Based on the information gathered, the maintenance crew schedules a cleanup.

Coordination with UDFCD Routine Maintenance Services

The UDFCD Routine Maintenance Program is responsible for scheduled mowing, trash, and debris removal during the growing season on eligible, publically-owned, major drainageways that have been requested for maintenance. The SEMSWA Routine Maintenance Program currently addresses unscheduled, complaint-instigated maintenance of any UDFCD-eligible major drainageway, as well as other major and



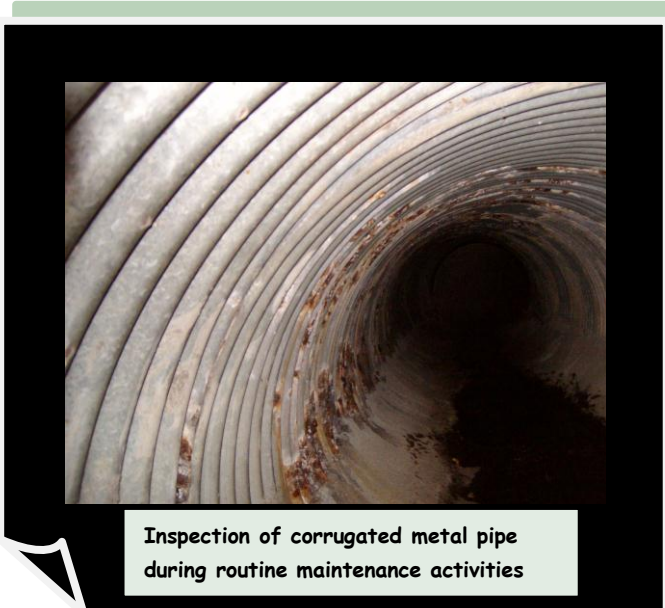
Debris in a stormwater feature requiring routine maintenance

minor drainageways, as part SEMSWA's citizen complaint resolution process. These maintenance activities are communicated with UDFCD for coordination purposes.

Restoration Maintenance Services

Drainageway restoration maintenance projects consist of a variety of small-scale repairs, either in a minor drainageway, in a collector system, a neighborhood or along a street. Typical restoration maintenance program projects include:

- ✚ Cleaning and inspecting stormwater conveyance features and thinning vegetation from a minor drainageway (Infrastructure Maintenance)
- ✚ Removing sediment deposits from culverts, channels, pipes, vaults, and swales (Infrastructure Maintenance)
- ✚ Constructing rundowns or creating localized low flow channels or swales to facilitate conveyance (Infrastructure Rehabilitation)
- ✚ Remove/replace deteriorating pipes, concrete channels or inlets (Infrastructure Replacement)
- ✚ Upsize inlets to account for increased flows (Infrastructure Replacement)
- ✚ Maintaining detention ponds, including sediment removal, cleaning outlets, installing trash racks or constructing trickle channels (Detention Pond Maintenance)
- ✚ Correcting localized erosion problems in a minor drainageway or collector system, or at a conveyance structure, involving earthwork, riprap or concrete (Special Maintenance Projects)



Citizen concerns can also identify drainageway restoration work by the Maintenance Program. Based on the information gathered from the citizen, a solution to the problem is determined, as well as the time and cost to correct the problem. If the problem is within the scope of Maintenance Program restoration work, it is scheduled for construction. If it is outside the Maintenance Program project scope, it is transferred to SEMSWA's remedial project construction as part of the CIP construction program.

Infrastructure Maintenance

Infrastructure maintenance activities include cleaning storm grates, storm pipes, manholes, and vaults, as well as inspection of storm sewer systems within the SEMSWA service area. During 2007, the following maintenance accomplishments included:

- ✚ 1,507 storm grates cleaned
- ✚ 90 manholes cleaned
- ✚ 209 vaults cleaned
- ✚ Over 1,000 linear feet of pipe cleaned
- ✚ Over 18,000 linear feet of storm sewer lines inspected

Infrastructure Rehabilitation

Infrastructure rehabilitation activities include sediment removal in open channels (ditches and swales) and restoration of the channel geometry back to design specifications. During inspection and maintenance activities, problems with any open channels are noted and placed on the Work Program for rehabilitation projects. During 2007, over 9,500 linear feet of open channel conveyance infrastructure were rehabbed, including sediment removal, re-grading, and re-vegetation.

Infrastructure Replacement

During inspection and maintenance activities, problems with the infrastructure are noted and placed on the Work Program for replacement. During 2007, 50 linear feet of storm sewer pipe were replaced. No manholes, vaults, concrete channels, inlets or grates needed to be replaced in 2007.

2007 Maintenance Statistics

*1,507 storm grates cleaned
 90 manholes cleaned
 209 vaults cleaned
 1,000 feet of storm sewer pipe cleaned
 18,000 feet of storm sewer lines inspected
 9,500 feet of channel sediment removed
 50 feet of storm sewer pipe replaced
 12 detention ponds maintained
 445 tons of trash and debris removal
 1,300 tons of sediment removed
 200 hours of equipment maintenance*



Collector system drainage swale special project in the Willow Creek subdivision

Detention Pond Maintenance

Maintenance activities associated with detention ponds include mowing, debris and trash removal, sediment removal, erosion control on embankments and at the inflow and outflow points, reinforcement of embankments and rundowns, cleaning of trickle channels and trash racks, and re-vegetation as needed. During 2007, 12 detention ponds were maintained by SEMSWA maintenance crews.

Special Maintenance Projects

The maintenance crews are occasionally able to schedule a large enough time block in between scheduled maintenance activities to complete special field projects. These projects are designed in-house or by outside consultants under the CIP and remedial project programs and are of a size to optimize the field experience and type of equipment available to the maintenance crews. Maintenance special projects are minor design and construction efforts which are intended to rebuild and reestablish existing drainage facilities and infrastructure which have been damaged or neglected. Examples include reconstructing or replacing drop structures; building low flow or trickle channels; establishing maintenance access into drainageways; and providing protection for existing channel improvements, box culverts, retaining walls, bridges and other facilities. During 2007, the following projects were constructed by the Maintenance Program:

- ✚ Orchard Valley - Pond, outlet and pipe maintenance
- ✚ Willow Creek Tributary swale restoration
- ✚ Willow Creek Upstream of Rosemary - Debris removal, riprap placement, bank repair

Equipment Report

Equipment maintenance includes regularly scheduled mechanical maintenance of SEMSWA trucks, skid loader and mini-excavator that can be done in-house, as well as scheduled repair shop maintenance of the vacuum truck. Over **200 hours** of crew time was used in 2007 for routine equipment maintenance.

Debris and Sediment Removal Report

A useful measurement for maintenance activities is the tonnage of removed trash, debris and sediment. During 2007, **445 tons** of trash and debris, and almost **1,800 tons** of sediment, were removed from the stormwater infrastructure during maintenance activities and taken to the landfill for disposal.

Remedial Construction Program

Urban areas may require repair and replacement of aging and under-sized conveyance systems to ensure safe and efficient control of runoff in the streets during a storm event. Drainage projects to correct these problems are designed and constructed within SEMSWA's remedial construction program. Remedial construction projects handle drainage issues primarily in the smaller conveyance systems, like tributaries and other collector systems that convey stormwater runoff to a creek outfall.

Remedial projects solve the smaller-scale drainage problems with varying design details required to complete the work. These projects are either bid among a small group of remedial contractors or, if the timing is right, completed by the maintenance crew as a Special



Maintenance Project. Typical remedial projects include:

- ✚ addressing local drainageway erosion problems at a grade control structure
- ✚ repairing or reconstructing deteriorated or inadequate drainage structures
- ✚ improvements to existing drainage facilities to enhance stability and maintainability
- ✚ restoring channel slopes and banks to enhance or increase conveyance capabilities

All remedial work projects are managed within the SEMSWA CIP Construction Program, so that projects of all sizes and scopes are handled in a similar manner. The majority of the UDFCD Maintenance Program Restoration and Rehabilitation projects (100% funding by the District) are managed as part of the remedial project portion of the CIP Construction Program.

2007 Remedial Design and Construction Projects

During 2007, several remedial projects were constructed, including:

- ✚ CHRISTENSEN LANE POND AND PIPE RETROFIT
- ✚ LITTLES CREEK PHASE I SURVEY & EVALUATION OF STORM SEWER SYSTEM
- ✚ WINDMILL CREEK PREVENTATIVE MAINTENANCE PILOT PROJECT (UDFCD Maintenance Program Project)
- ✚ BIG DRY AT CHERRY KNOLLS PARK (UDFCD Maintenance Program Project)

Also in 2007, the **GREENWOOD GULCH CONVEYANCE - UPSTREAM OF MONACO WAY** UDFCD Restoration project was designed, with construction starting in October 2007. This project is expected to be completed in the first quarter of 2008.



Construction of sheet pile cutoff wall at Greenwood Gulch @ Monaco Way project

Several Remedial Program projects have been in the design process during 2007 and are scheduled for construction in 2008, including:

- ✚ ORCHARD VALLEY CONVEYANCE (in-house design & probable Maintenance Program Special Project)
- ✚ COTTONWOOD CREEK DROP REPAIR AND TRAIL CONSTRUCTION (UDFCD Maintenance Project)
- ✚ HERITAGE PLACE
- ✚ ARAPAHOE PLAZA (in-house design project)
- ✚ WILLOW CREEK #3 – EAST TRIBUTARY D/S WILLOW WAY (UDFCD Maintenance Project)

2008 Remedial Design Projects

Several remedial projects were scoped in 2007 for design, and possible construction in 2008, including:

- ✚ EASTER/VERBENA CONVEYANCE
- ✚ GREENFIELD CHANNEL WQ RETROFIT (possible Maintenance Program Special Project)

- ✚ LAKE POINT ESTATES WQ POND RETROFIT
- ✚ WILLOW CREEK #1 COLLECTOR SYSTEM AT ROSEMARY
- ✚ WILLOW CREEK #2 COLLECTOR SYSTEM
- ✚ HOMESTEAD STORM SEWER
- ✚ PANAMA STORM SEWER
- ✚ FOREST PARK #1 OUTFALL AND FLARED-END SECTION REHAB
- ✚ FOREST PARK #2 STREAM STABILIZATION

Capital Improvement Project Construction Program

The Capital Improvement Project (CIP) Construction Program consists of larger projects, such as those on a major drainageway, including retrofitting and/or replacement of existing stormwater systems, as well as the construction of new systems to ensure safe and efficient control of runoff in the drainageways to minimize property damage. While remedial projects involve the smaller-scale drainage problems, CIP projects involve the larger infrastructure construction projects. The CIP Construction Program, including the remedial projects portion of the program, coordinates with the Maintenance Program to maximize resources among the three types of projects to make sure projects of all sizes and scopes are handled in a similar manner.

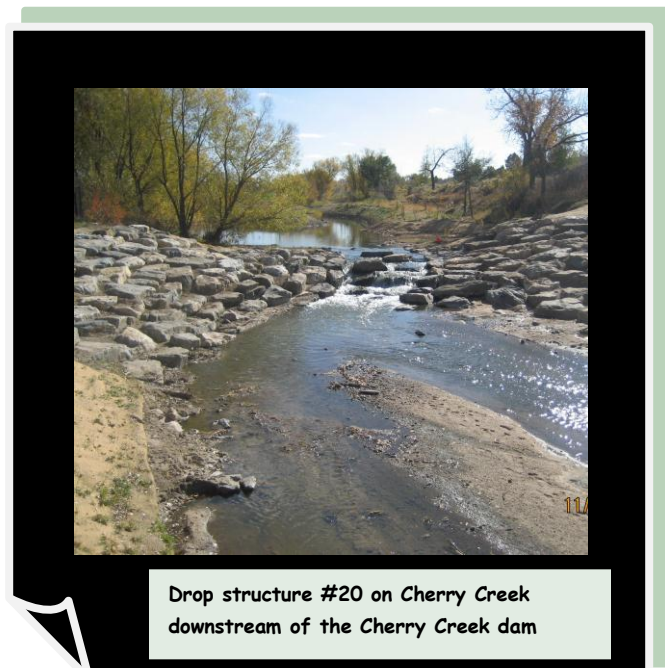
2007 CIP Construction and Design Projects

During 2007, several CIP construction projects were constructed, including:

- ✚ HOLLY HILLS DETENTION PONDS 1 AND 2
- ✚ CHERRY CREEK DROPS 20 AND 21 STREAM STABILIZATION
- ✚ GOLDSMITH GULCH FLOOD-PROOFING PHASE I ALTERNATIVES EVALUATION

Several CIP construction projects have been in design during 2007 and are scheduled to be constructed within the 2008/early 2009 timeframe, including:

- ✚ LITTLES CREEK SYSTEM EVALUATION – CLARKSON & GEDDES
- ✚ DOVE HILL ESTATES CONVEYANCE SYSTEM
- ✚ BIG DRY CREEK - SOUTHWOOD OUTFALL (UDFCD CIP Project)
- ✚ PINEY CREEK AT CALEY REPLACEMENT BRIDGE (UDFCD CIP Project)
- ✚ LITTLE DRY CREEK AT ARAPAHOE ROAD CONVEYANCE Improvements (UDFCD CIP Project)



2008 Regional Projects

Several CIP Program projects to improve the storm sewer system in tandem with new development or re-development are either designed or being designed by SEMSWA or others. Projects will be constructed when needed, and funds are available. At this time, construction is anticipated sometime in the 2008/2009 timeframe. These projects include the following:

- ✚ DAYTON STREET TOWNHOME STORM SEWER
- ✚ COTTONWOOD CREEK AT EASTER STREAM STABILIZATION
- ✚ WINDMILL CREEK STORMWATER POND W-4
- ✚ DOVE CREEK STORMWATER POND D-1
- ✚ PINEY CREEK – ESTANCIA OUTFALL (Arapahoe Road Widening Project)



Holly Hills Detention Pond CIP Project

2008 Design projects

Several CIP Program projects were scoped in 2007 for design in 2008, including:

- ✚ PINEY CREEK – BUCKLEY TO LIVERPOOL STREAM STABILIZATION (UDFCD CIP Project)
- ✚ LITTLE DRY CREEK REACH 6
- ✚ BIG DRY CREEK AT ARAPAHOE ROAD BRIDGE CONVEYANCE IMPROVEMENTS
- ✚ CHERRY CREST EAST CONVEYANCE IMPROVEMENTS

Water Quality Program

The IGA parties, the City, County, ACWWA, ECCV, and IWSD, as owners and operators of Municipal Separate Storm Sewer Systems (MS4), were issued a Phase II MS4 stormwater permit by the State in March of 2003, for a permit term of 5 years, with an end date of March 10, 2008. SEMSWA, as defined in the original IGA, was to be the designated entity to assume a single permit in SEMSWA's name for the IGA parties for the 2nd permit term, 2008 through 2013. During 2007, SEMSWA and the City finalized an Implementing IGA (IIGA) to transfer their permit responsibilities to SEMSWA, with final approval of the IIGA scheduled for January 2008. Also during 2007, negotiations on IIGA's with the special districts regarding their permit transfer to SEMSWA were conducted, but no permits were able to be

The six MS4 Permit program areas include:

1. *Public Education and Outreach*
2. *Public Participation/Involvement*
3. *Illicit Discharge Detection & Elimination*
4. *Construction Site Runoff Control*
5. *Post-Construction Site Runoff Control*
6. *Good Housekeeping/Pollution Prevention*

transferred before the State's deadline for transfer actions. These negotiations are expected to continue into 2008. The County notified SEMSWA in December 2007 that they would retain their MS4 permit, and began the process with the State to renew their permit.

The goal of SEMSWA's Water Quality Program for stormwater discharges is to reduce the amount of pollutants entering streams, lakes and rivers resulting from runoff from residential, commercial, and industrial areas. As per the NPDES permit requirements, all MS4s are required to develop and implement stormwater management programs, or minimum control measures, in six program areas. The control measures in the six program areas, when implemented together, are expected to reduce pollutant discharges into receiving water bodies to the maximum extent possible.

Education Outreach Program

During 2007, the 5th year of the MS4 permits, SEMSWA staff continued efforts to implement control measures for Program 1, Education and Outreach. SEMSWA and its education partners have accomplished the following outreach activities during 2007 in order to provide for an effective program that will encourage the public to become a willing partner in efforts to minimize discharge of pollutants:

- UTILIZE EXISTING PARTNERSHIPS WITH OTHER GROUPS THAT HAVE EDUCATIONAL GOALS AND EXISTING PROGRAMS AND STRENGTHEN NEW PARTNERSHIPS:* SEMSWA participated in 2007 in UDFCD MS4 Quarterly meetings; Stormwater Council (new partner in 2007) meetings; Arapahoe County Co-op Stormwater Permittees for Local Awareness of Stream Health (SPLASH) group meetings; Douglas County MS4 Co-op meetings; educational



Participants in the 2007 'Run for the Watershed' event in September

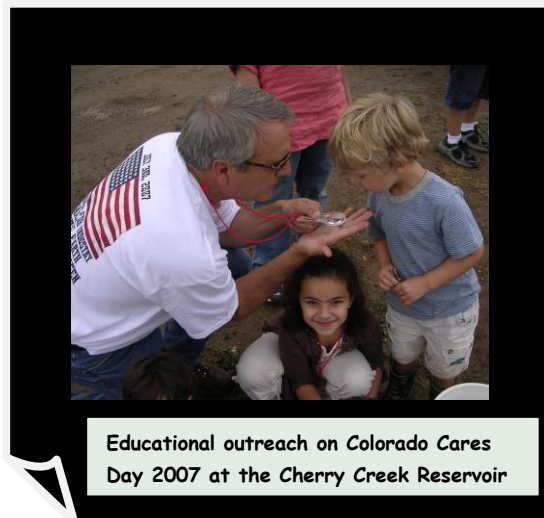
outreach activities, including a Western Welcome Week booth, a 'Run for the Watershed' aid station booth, and a World Monitoring Day booth; sponsored awards at regional Science Fairs; and volunteer work projects including weed removal, riparian plantings, and general cleanup of debris along creeks and at the Cherry Creek Reservoir.

- DEVELOP BROCHURES OVER THE TERM OF THE PERMIT TO ADDRESS TOPICS OF INTEREST AND VALUE:* SEMSWA prepared the last brochure required under the permit, a compilation of the four previous utility bill-stuffers completed in years 1 through 4 into one brochure, highlighting tips for homeowners and business owners to assist in preventing pollution from routine activities or chores around the house or business.



Students monitoring the South Platte during World Monitoring Day

- *FACILITATE THE PUBLIC'S ABILITY TO COMMUNICATE WITH THE MS4:* SEMSWA published contact numbers on project signage at 2 CIP projects, Cherry Creek Drops 20 & 21, and Piney Creek Drops for the community to be able to discuss water quality issues, and authored a postcard sent to Centennial and Arapahoe County residents about stormwater management and the formation of SEMSWA with a customer service line to call for more information on stormwater management in the community. SEMSWA and several education partners, including SPLASH, also provided important contact information on their websites, and provided information on water quality at various public events.
- *CONTINUE TO BE ACTIVE IN PARTICIPATORY EVENTS THAT TARGET NEW AND EXISTING AUDIENCES:* SEMSWA staff developed the agenda and coordinated the 4th in a series of Permanent BMP workshops (150 in attendance) to enhance water quality, as well as the 9th Annual 2007 Cherry Creek Stewardship Partners Watershed Conference (135 in attendance), and was part of the planning staff for the 3rd Annual 2007 Cherry Creek 'Run for the Watershed' (150 participants).



Educational outreach on Colorado Cares Day 2007 at the Cherry Creek Reservoir

Public Participation/Involvement Program

During 2007, SEMSWA staff continued efforts to implement control measures for Program 2, Public Participation/Involvement. SEMSWA and its partners have accomplished the following activities during 2007 in order to provide for an effective program that will actively engage the public in efforts to minimize discharge of pollutants:

- *MAXIMIZE OPPORTUNITIES FOR PUBLIC TO INTERACT TO DISCUSS IMPLICATIONS OF PERMIT IMPLEMENTATION:* SEMSWA published contact numbers on project signage at 2 CIP projects, Cherry Creek Drops 20 & 21 and Piney Creek Drops, for the community to be able to discuss MS4 issues, and authored a postcard sent to Centennial and Arapahoe County residents about stormwater management and the formation of SEMSWA with a customer service line to call for more information on stormwater management in the community. Public meetings have been held to discuss water quality in relation to CIP projects. SEMSWA and several partners, including SPLASH, also provided important contact information on their websites and at booths at public events.
- *PROVIDE OPPORTUNITIES FOR THE PUBLIC TO UNDERSTAND THE 'WATERSHED THEY LIVE IN' AND THEIR PART IN ITS PROTECTION:*



Signage at a CIP construction project to facilitate communication about WQ issues

SEMSWA prepared the last brochure required under the permit in 2007, a compilation of the four previous utility bill-stuffers completed in years 1 through 4 on tips for homeowners and business owners to prevent pollution from their everyday activities that has been distributed at several public events, including Western Welcome Week, the SEMSWA Open House, Cherry Creek 'Run for the Watershed', World Monitoring Day, and Cherry Creek Annual Conference.

- *PARTICIPATE WITH THE PUBLIC IN ACTIVITIES THAT PROMOTE PREVENTION OF POLLUTANTS FROM ENTERING THE SYSTEM:* SEMSWA sponsored several of the Cherry Creek Stewardship Partners outreach activities, including volunteer plantings with the Southcreek HOA at Cherry Creek @ 17-Mile House Park to improve riparian habitat to filter pollutants, Lake Appreciation Day volunteer clean-up efforts at the Cherry Creek Reservoir, Biology Teachers Workshop at Cherry Creek at 17-Mile House Park that highlighted teaching efforts at preventing non-point pollution sources, and Science Fair activities that explored the relationship of water resources and pollution prevention.
- *MAXIMIZE OPPORTUNITIES FOR THE PUBLIC TO PROVIDE INPUT INTO FUNDING MECHANISMS FOR WATER QUALITY PROJECTS AND PROGRAMS:* SEMSWA formed the Stormwater Fee Task Force, and invited the public to participate in the formulation of stormwater management fees in the SEMSWA service area. SEMSWA's website also has information and contact information to facilitate input into programs and funding, as well as various Public Meeting opportunities.

Illicit Discharge Detection and Elimination Program

During 2007, SEMSWA staff continued efforts to implement control measures for Program 3, Illicit Discharge Detection and Elimination (IDDE). SEMSWA and its partners continued to accomplish the following activities during 2007 in order to provide for an effective program that will trace, investigate and eliminate illicit discharges to the MS4:

- *PROVIDE THE PUBLIC WITH THE OPPORTUNITY TO RECYCLE AND PROPERLY DISPOSE OF HOUSEHOLD HAZARDOUS WASTE:* SEMSWA offers a Curbside, Inc. Household Hazardous Waste curbside pickup recycling and waste disposal service for residents of Arapahoe County and the City of Centennial. Information about the program is available through the website, brochures, handouts at public events, newsletter articles, and an 800 number for questions about the Curbside service.
- *COMPLETE THE MAPPING EFFORT OF STORMWATER RESOURCES IN THE URBANIZED PORTIONS OF UNINCORPORATED ARAPAHOE COUNTY AND THE CITY:* During 2007, SEMSWA added to the completed mapping effort with additional stormwater infrastructure inventory activities. SEMSWA has completed the outfall mapping required in the permit.
- *EDUCATE AND TRAIN MS4 STAFF TO IDENTIFY POTENTIAL PROBLEM AREAS AND PROBLEM OUTFALLS, INVESTIGATE THE PROBLEM, AND ELIMINATE THE DISCHARGE:*



Improper non-point pollution source (paint) runoff into inlet

SEMSWA Maintenance and Inspection staff have investigated 8 incidents during 2007; SEMSWA staff conducted IDDE training for maintenance crew and inspection staff on several occasions in 2007, as well as one-on-one training in the field.

- *PROVIDE A MECHANISM FOR ENFORCING THE IDDE PROGRAM.* The County will now be able to develop its own Ordinance for the IDDE enforcement program per the recent legislative powers given to counties to formulate their own ordinances, rather than rely on the State Statute for Litter that is the regulation presently used; SEMSWA will continue to enforce the IDDE program in the City with the City's Illicit Discharge Ordinance.
- *UTILIZE A VISUAL OBSERVATION PROGRAM (VOP) TO IDENTIFY POTENTIAL ILLICIT DISCHARGE POINTS:* The VOP Standard Operating Procedure document is in place at SEMSWA and SEMSWA, City and County staff are being trained in the use of the VOP.
- *EDUCATE THE PUBLIC AND COUNTY AND CITY STAFF ABOUT THEIR WATERSHED AND WHAT THEY CAN DO TO BE A PART OF PROTECTING IT:* see Education and Outreach and Public Participation sections above.

Construction Site Runoff Control Program

During 2007, SEMSWA staff continued efforts to implement control measures for Program 4, Construction Site Runoff Controls, utilizing the City's and County's Grading, Erosion, and Sediment Control (GESC) Manual and their respective land use codes. SEMSWA and its partners have accomplished the following activities during 2007 in order to provide for an effective program that will reduce pollutants in stormwater runoff from construction activities:

- *UPDATE THE STORMWATER MANAGEMENT CRITERIA MANUAL TO REFLECT THE REQUIREMENTS FOR CONSTRUCTION BMPs, INCLUDING THOSE CONTAINED IN THE CHERRY CREEK RESERVOIR CONTROL REGULATION, AND INCLUDING GUIDANCE ON SITE REVIEW PROCEDURES:* The Stormwater Management Manual (approved 2007) and the GESC Manual (Approved 2006) are both utilized by the City and County in order to enforce Program 4 requirements.
- *DEVELOP A MORE FORMALIZED INSPECTION PROGRAM FOR CONSTRUCTION BMPs, INCLUDING ENFORCEMENT PROCEDURES:* This was accomplished in 2006 with the approval of the GESC Manual by both the City and County. During 2007, SEMSWA conducted a total of 256 GESC construction inspections in the City and 388 GESC inspections in the County. Also, 17 non-compliance follow-up inspections were conducted, 3 re-inspection fines issued, and one pre-Notice of Violation letter sent by SEMSWA inspection staff.
- *IDENTIFY AN EDUCATION AND TRAINING PROGRAM FOR MS4 STAFF THAT CAN BE MADE AVAILABLE TO DEVELOPERS, CONTRACTORS AND LANDSCAPERS:* A training program was established in 2006 and continues to be implemented in 2007 with all inspection staff.
- *DEVELOP A DATABASE FOR TRACKING INSPECTIONS AND ENFORCEMENT ACTIONS THAT CAN ASSIST US IN IMPROVING THE CONSTRUCTION BMP PROGRAM DURING THE TERM OF THE PERMIT:* A database of inspections was established during the period 2005 to 2006 and continued to be updated in 2007. Additionally, a separate



Construction site grading requiring GESC permit and sediment controls

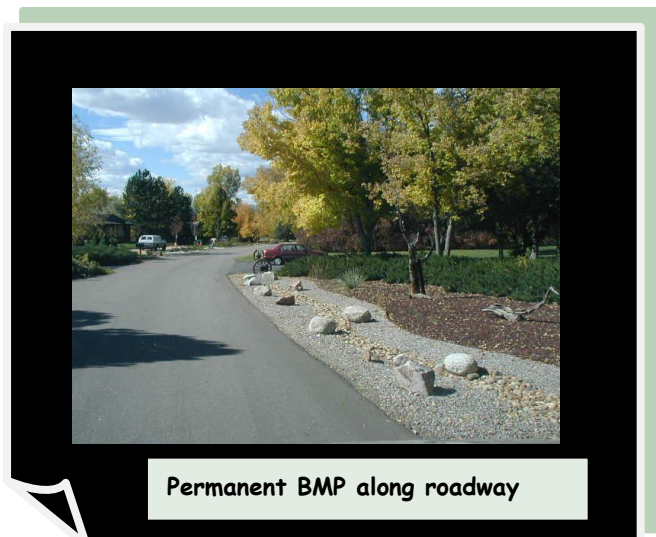
complaint-instigated Maintenance Request database is updated to keep track of citizen input on GESC issues from the public.

- *ESTABLISH CITIZEN COMPLAINT NUMBER AND PUBLICIZE. TRACK AND ADDRESS CITIZEN COMPLAINTS:* SEMSWA Maintenance staff continues to receive referrals from the County hotline that was established for the City and County citizen concerns, 720-8754-ROAD. SEMSWA published its 303-858-8844 number as a customer service hotline number for citizen concerns as part of the public outreach process during SEMSWA formation.

Post-Construction Runoff Control Program

During 2007, SEMSWA staff continued efforts to implement control measures for Program 5, Post-Construction site controls utilizing the City's and County's Stormwater Management Manual, Chapter 15 on Water Quality, as well as their respective land use codes. SEMSWA and its partners have accomplished the following activities during 2007 in order to provide for an effective program that will reduce pollutants in any stormwater runoff from post-construction activities:

- *UPDATE THE STORMWATER MANAGEMENT MANUAL TO REFLECT THE REQUIREMENTS FOR PERMANENT BMPs CONTAINED IN THE CHERRY CREEK RESERVOIR CONTROL REGULATION, INCLUDING GUIDANCE ON PLAN REVIEW PROCEDURES:* The Stormwater Management Manual, approved by both the City and County early in 2007, is utilized in order to enforce Program 5 requirements.
- *DEVELOP A MORE FORMALIZED INSPECTION PROGRAM FOR PERMANENT BMPs, INCLUDING ENFORCEMENT PROCEDURES:* During 2007, SEMSWA conducted a total of 28 permanent BMP construction inspections at 6 sites in the City and 96 permanent BMP construction inspections at 14 sites in the County. Also, 19 permanent BMP annual Operation and Maintenance (O&M) inspections were conducted in the City, and 21 permanent BMP annual O&M inspections were conducted in the County.
- *DEVELOP AN EDUCATION AND TRAINING PROGRAM FOR MS4 STAFF THAT WILL BE MADE AVAILABLE TO DEVELOPERS, CONTRACTORS AND LANDSCAPERS:* This was accomplished previously and continued to be implemented in 2007.
- *DEVELOP A DATABASE FOR TRACKING INSPECTIONS AND ENFORCEMENT ACTIONS THAT CAN ASSIST US IN IMPROVING THE POST-CONSTRUCTION BMP PROGRAM DURING THE TERM OF THE PERMIT:* This was accomplished previously and continued in 2007. Additionally, a separate complaint-instigated Maintenance Request database is kept to track citizen input on any permanent BMP issue from the public.



Permanent BMP along roadway

Good Housekeeping/Pollution Prevention Program

During 2007, SEMSWA staff continued efforts to implement control measures for Program 6, Good Housekeeping/Pollution Prevention for municipal operations. SEMSWA and its partners have accomplished the following activities during 2007 in order to provide for an effective program that will reduce pollutants in stormwater runoff from municipal operation activities:

- EVALUATE CITY AND COUNTY MUNICIPAL OPERATIONS TO DETERMINE COMPLIANCE TO POLLUTION PREVENTION AND GOOD HOUSEKEEPING GOALS:* During 2007, SEMSWA staff participated in the final design for water quality improvements to the County's Road and Bridge facility (contracted during 2007 to provide City municipal operations services).
- Prepare runoff control plans (RCPs) for those City and County facilities identified as posing a risk for potential stormwater impacts:* RCPs were prepared for all County and City facilities previously, and updates continued as needed in 2007.
- REVIEW AND/OR DEVELOP STANDARD OPERATING PROCEDURES (SOPs) FOR REPETITIVE CITY AND COUNTY OPERATIONS:* A TOTAL OF 22 SOPs were prepared for municipal operations previously, and updates continued as needed in 2007.
- CONDUCT TRAINING AND EDUCATION FOR MS4 STAFF ON POLLUTION PREVENTION AND GOOD HOUSEKEEPING PRACTICES:* SEMSWA prepared training Fact Sheets for all SOPs and continued training in 2007.



MS4 Permit Transfer

The Permit Transfer effort consists of coordination with the four IGA parties that desire to transfer their permits, as well as coordination with the State, and development of procedures to ensure that the permit requirements can be met by SEMSWA.

Activities completed during 2007 on permit transfer efforts include the development of SOPs for coordination of land use projects; development of land use referral, review and approval processes; coordination of review and inspection fees; the transfer of stormwater review, inspection and permitting of active development projects from the City to SEMSWA; coordination of the City's municipal operations activities with regard to MS4 regulations; and transitioning activities associated with the MS4 permit and other stormwater management functions.

In order for the permit holders to transfer their MS4 permits to SEMSWA, and for SEMSWA to assume the responsibility for the implementation of other stormwater programs, an agreement is necessary to provide for authorization to SEMSWA to allow it to carry out the permit responsibilities that normally would have been the responsibility of the entity. The State requires that an implementing intergovernmental agreement (IIGA) be executed between each of the four entities and SEMSWA, and submitted as a requirement of SEMSWA's permit application to transfer the MS4 permit to SEMSWA.

An IIGA has been formalized with the City and is in the process of being formalized for each of the three special district permit holders. The IIGA provides for the Implementation of the Original IGA that formed SEMSWA, and further defines the roles and responsibilities for the permit holders and SEMSWA with regard to stormwater management. Highlights of the IIGAs include:

- Authorization of the City enforcement abilities to SEMSWA to enable SEMSWA to administer and enforce the Illicit Discharge regulations;
- Authorization of the City enforcement abilities to SEMSWA to enable SEMSWA to administer and enforce the Grading, Erosion and Sediment Control Ordinance and Manual;
- Authorization of the City enforcement abilities to SEMSWA to enable SEMSWA to administer and enforce the Stormwater Management Manual and certain chapters in the Land Development Code of the City's Municipal Code, and the City's Zoning Regulations within the Land Development Code;
- Provisions associated with stormwater fees, including SEMSWA's reimbursement of MS4 permitting fees to the City, and the transfer of drainage basin fees from the City to SEMSWA; and the establishment of system development fees within the special districts for new development;
- Coordination of specific activities with the permit holders in each of the MS4 program areas; including Public Education and Outreach; Public Participation and Involvement; Illicit Discharge Detection and Elimination; Construction Runoff Control; Post-Construction Stormwater Management and Pollution Prevention/Good Housekeeping; and
- Transfer of MS4 permit responsibility and liability to SEMSWA.

MS4 Permit Annual Report to State

The MS4 Stormwater Quality Permit has a 5-Year term, with calendar year 2007 being the 5th year of the first permit term. An Annual Report is due to the State each year on March 10th to report on activities conducted the previous calendar year. The report ending December 31, 2007 was the final Annual Report for the IGA parties for the first permit term. All the IGA parties made arrangements to prepare their own Annual Report for Year 5 of the 1st permit term in order to complete their permit requirements. SEMSWA prepared the Annual Report for the City of Centennial. SEMSWA will be responsible to complete the Year 1 Annual Report for the 2nd permit term, due March 10, 2009, for the City. The three special districts will continue to prepare their Annual Reports until their permits are transferred to SEMSWA. However, SEMSWA will assist the special districts in the preparation as needed.

Floodplain Management Program

The SEMSWA Floodplain Management program currently manages approximately 35 major drainageways and many additional tributaries. Not all the drainageways are mapped and regulated by the Federal Emergency Management Agency (FEMA), but SEMSWA regulates and manages them all. The program utilizes corrective and preventative measures to reduce flood damage to public and private properties through a variety of components, including No Adverse Impact education, floodplain regulations, flood control improvements, floodplain studies, and emergency response procedures.

SEMSWA, in cooperation with UDFCD and other local jurisdictions, develops and updates drainageway master plans that mitigate flood hazards for existing and future development. SEMSWA's Capital Construction, Remedial Construction, and Maintenance programs, as well as the UDFCD Maintenance and Capital Construction programs, compliment the Floodplain Management Program with construction and maintenance activities within the floodplain. These efforts include construction of flood control structures, stormwater conveyance improvements, and drainageway stabilization projects, the subsequent maintenance of these improvements, and routine maintenance of the drainageways.

SEMSWA advocates sensible development using floodplain management regulations and criteria. For appropriate uses of the floodplain areas, SEMSWA follows the newly updated Arapahoe County Stormwater Management Manual, adopted in early 2007. In order to evaluate the impact of development on the floodplain, SEMSWA cooperates with UDFCD, the Colorado Water Control Board (CWCB), and FEMA to keep Flood Insurance Rate Maps (FIRMs) and Flood Hazard Area Delineation (FHAD) studies updated, and revisions reviewed and accepted. SEMSWA also participates in the National Flood Insurance Program (NFIP) with FEMA. FEMA grants the citizens and businesses in SEMSWA's jurisdiction access to affordable flood insurance as long as SEMSWA regulates and manages the floodplains. Participating in the NFIP also allows SEMSWA access to emergency Federal funds and Federal grant programs.



Arapahoe County and the City of Centennial currently have many miles of perennial and seasonal drainageways, most of which have defined 100-year floodplains. The 100-year standard of practice adopted by FEMA and the City and County requires implementation of floodplain management criteria based on the 100-year storm event, defined as the estimated peak rainfall event that has a 1% probability of being equaled or exceeded in any given year. The 100-year flood event, then, is defined as the peak discharge that occurs as a result of the 100-year storm event. Not all areas subject to the 100-year storm event flooding have been studied or mapped via a Flood Insurance Study, FIRM, or FHAD studies. Because of this, the City and County define a regulatory floodplain as any drainageway with a drainage tributary area of 130 acres or more. These regulations apply to all properties that meet this definition, whether currently mapped or not. In addition, the County and City have adopted the minimum NFIP requirements and have imposed additional requirements into its Zoning Regulation Codes to provide a higher level of floodplain management than required by FEMA.

Components of the SEMSWA Floodplain Management Program include:

- ✚ Floodplain Development Permit Review and Approval;
- ✚ Floodplain Criteria Enforcement Action, including responding to floodplain zoning violations;
- ✚ Floodplain Modifications Studies, including Letters of Map Change, such as Conditional Letters of Map Revision, Letters of Map Revision, and Letters of Map Amendments;

- ✦ Citizen, bank, surveyor, real estate agent, and other jurisdiction inquiries regarding floodplain information;
- ✦ Floodplain Review Referrals from other governmental agencies;
- ✦ Special projects, including FEMA's updated Digital Flood Information Rate Maps (DFIRMs); and
- ✦ Maintenance of the community's participation in the NFIP including the Community Rating System (participation reduces floodplain insurance premiums), Community Assistance Visits by the CWCB to review the implementation of a community's floodplain management program, biannual reports to FEMA, and Hazard Mitigation Plans.

2007 Floodplain Program activities

50 Floodplain inquiries from the public

91 Floodplain referrals from other jurisdictions

8 FDPs reviewed and approved

19 Letter of Map Revisions reviewed

19 Floodplain Modeling studies reviewed

Additionally, with the assistance of specialized consulting services, several projects have been undertaken during the transition of floodplain management duties to SEMSWA, including the following:

- ✦ Letters of Map Change inventory for Arapahoe County, Aurora and Centennial;
- ✦ SEMSWA/Arapahoe County Drainage Basin Summary Information;
- ✦ DFIRM source data table; and
- ✦ Two-foot contour topography from LiDAR data.

Floodplain Development Permit Review and Approval

The Floodplain Development Permit (FDP) is the mechanism SEMSWA will utilize to evaluate any and all impacts associated with projects and development activities proposed in floodplains. Arapahoe County and the City of Centennial are participating communities in the FEMA NFIP and, as such, must require permits for all proposed construction or other development in designated Special Flood Hazard Areas. In addition to these national regulations, SEMSWA also requires FDPs for all proposed activities in major drainageways, as defined in both the County and City Stormwater Management Manuals. All activities proposed in FEMA-regulated floodplains and major drainageways must be in compliance with both the NFIP regulations and their respective Stormwater Management Manual floodplain criteria. The following are development activities typically proposed for the regulated floodplains and major drainageways that require an FDP:

- ◆ Floodplain encroachment associated with Land Development Proposals
- ◆ Floodplain filling associated with construction or grading operations
- ◆ Any grading in floodplain
- ◆ Drainageway crossings, including pedestrian bridges
- ◆ Recreational trails and maintenance access paths
- ◆ Recreational facilities, including parks, ball fields, driving ranges, and tot lots

- ◆ Channel improvements
- ◆ Roadway crossings
- ◆ Utility crossings
- ◆ Parking lots

In general, no residential development is permitted in SEMSWA's regulated floodplains. In addition, fences and other permanent structures are not allowed in floodplain areas.

During 2007, FDP approvals have been requested for **8** new development or new construction project sites, including:

- ✚ Greenwood Gulch upstream of Monaco Way stream stabilization construction project
- ✚ Inverness Pipeline construction project
- ✚ Happy Canyon Wastewater Treatment Plant site development plan
- ✚ Big Dry Creek Crossing construction project
- ✚ Piney Creek Drops construction project
- ✚ Cherrywood Bridge construction project
- ✚ Sewer Line Rehabilitation along Little Dry Creek construction project
- ✚ Cherry Creek Business Center Fence Permit



An FDP is required for a utility crossing

Floodplain Modification Studies

FIRMs are the official regulatory maps published by FEMA, and therefore must be used when reviewing existing floodplain information and for complying with floodplain regulations for a FEMA-designated floodplain. However, FIRMs do not account for future development conditions, and changes may have occurred in the drainageway subsequent to their preparation. FIRMs are required to be updated when the drainageway is modified by development, and the process for such updating is called a Letter of Map Change (LOMC). A LOMC provides revised floodplain information for a particular area, and when approved by FEMA, becomes a part of the regulatory map, superseding previous information. The approval process for a LOMC includes submittal of an initial Conditional Letter of Map Revision (CLOMR) or Amendment (CLOMA) to allow FEMA to review the project objectives before construction to assure consistency with FEMA's regulations and that the project will not impact additional property.

Development in the floodplain is generally discouraged; however, it is recognized that there may be circumstances where it is appropriate to modify the drainageway. The decision to alter a floodplain in any way should be thoroughly studied, as natural watercourses that have evolved over time are typically stable, have established vegetation and grade to help reduce erosion, have developed adequate carrying capacities for significant storm events, and are generally more aesthetic than an improved channel.

During 2007, **19** CLOMRs, Letters of Map Revision (LOMR), Letter of Map Amendment (LOMA) and other floodplain modification studies have been reviewed for new development or new construction project sites. These include the following:

- ✚ Cornerstar site development plan
- ✚ Broncos Parkway @ Cherry Creek construction project (Trail and Tagawa Access Road)
- ✚ Goddard School site development plan
- ✚ Vermillion Creek site development plan
- ✚ Verona Estates site development plan
- ✚ Little Dry Creek @ Arapahoe construction project
- ✚ Kiowa Creek construction project
- ✚ Waterstone site development plan
- ✚ Centennial Center site development plan
- ✚ L-1 and L-2 Ponds @ Lone Tree Creek construction
- ✚ W-4 Pond @ Windmill Creek construction D-1 Pond @ Dove Creek construction
- ✚ Trails at Strasberg site development plan
- ✚ First Creek construction project
- ✚ Cherry Creek Business Center site development plan
- ✚ Comanche Creek – Wilburn Property site development plan (LOMA)
- ✚ Murphy Creek estates site development
- ✚ Kiowa Creek Ranch Estates site development plan
- ✚ Comanche Crossing construction project

Floodplain Modeling Reviews

During the floodplain modification study CLOMR, LOMR and LOMA review process as discussed above, it is necessary to review not only the mapped conditions as compared to FEMA data, but also the modeling data that has been submitted in support of the modification request. During 2007, approximately **19** floodplain modeling reviews have been performed for several site development plans and construction projects.



Downstream improvements will require a floodplain modification study for this reach



Flooding problems on Arapahoe Road require a CIP project for Little Dry Creek flows

Floodplain Inquiries from the Public

Because determining floodplain limits is more than the average property owner is equipped to handle, SEMSWA responds to many public inquiries requesting assistance in defining floodplain limits and consequences for property. These inquiries can come from citizens, surveyors, real estate professionals, banks, and insurance representatives. During 2007, over **50** requests have been made by the public for assistance in determining floodplain conditions for a piece of property.

Floodplain Referrals from County and City

Because floodplain property has certain use limitations and maintenance responsibilities, and may have hazards and liabilities associated with it, the County and City have established zoning and easement policies to recognize the nature of a floodplain. All property within the 100-year floodplain will be zoned as F, Floodplain, allowing only uses compatible with floodplain restrictions. There have been approximately **91** inquiries from Arapahoe County Public Works Building Department to resolve floodplain use limitation questions during the building department permit inspection and approval process. Additionally, there were approximately two requests per month from the Arapahoe County Zoning Department to assist in determining zoning violations.

Floodplain Management Special Projects - DFIRMS

Draft Digital Flood Information Rate Maps (DFIRMs) have been prepared for Arapahoe County by UDFCD as a cooperative technical partner of FEMA. These paper maps were reviewed by staff during 2007. Several problem areas were noted during the preliminary review stage, including Cherry Creek at Arapahoe Road, Greenwood Gulch upstream of Orchard, and Little Dry Creek at Arapahoe Road. These three areas will be revised and included in the final Draft DFIRMS for public review. A schedule for Public Review of map revisions will be established sometime in January, 2008. SEMSWA staff will have 30 days to make comments, and the public will have an additional 90 days to comment. It is anticipated that the DFIRMS will be finalized in December 2008, and SEMSWA will have a primary role in making sure the maps are correct and ready for public use.

LiDAR Data

SEMSWA has been in negotiations with the USGS to cooperatively participate in the aerial photo imagery project that DRCOG conducts for the Denver Metro area every two years. LiDAR (Light Detection and Ranging) data are being collected in addition to the aerial imagery for three priority areas in support of the security for the Democratic National Convention (DIA, downtown and Centennial Airport). The USGS asked local jurisdictions if they wanted to participate in the project and expand the project boundaries. SEMSWA has agreed to be a partner in the project and will receive 2 ft contour topography of the SEMSWA service area and outside of the service area in September of 2008, once all invited participants are on board. The City of Centennial was already in agreement with DRCOG to participate in the aerial photo project which will be available to the partners in October of 2008. SEMSWA and the City are planning to share these resources.

Master Planning Program

Master Plans have been prepared in conjunction with UDFCD for approximately half of the major drainageways in the SEMSWA service area to ensure that appropriate facilities are constructed for current and future development, as well as identifying regional solutions to watershed infrastructure

needs. These plans are critical tools in ensuring there is adequate flood control and urban storm drainage systems within the City and County.

Completed UDFCD Master Plans

Several Master Plans have been completed during 2007, including the following:

- ✦ Dutch Creek Master Plan documents, including the Flood Hazard Delineation Study (FHAD) and Phase A of the Master Drainageway Plan;
- ✦ Murphy Creek FHAD and Master Drainageway Plan;
- ✦ Cottonwood Creek Maintenance Needs Assessment (MNA); and
- ✦ Willow Creek MNA



Willow Creek MNA-identified remedial project in the Willow Creek subdivision

On-going UDFCD Master Plans

Several master plan studies have been initiated in 2007, as follows:

- ✦ Lower Cottonwood Creek Outfall Systems Plan (IGA signed with UDFCD, Consultant under contract)
- ✦ Windmill, Dove, and Lone Tree Creek FHAD and Master Drainage Plan (IGA signed with UDFCD; project mapping under review)
- ✦ Willow Creek, Little Dry Creek, and Greenwood Gulch Master Drainageway Plan (IGA signed with UDFCD; Consultant selected)
- ✦ Dutch Creek – Selected Improvements (Phase B)

Other Master Planning Activities

SEMSWA has been asked to be a referral on the Centennial Airport Master Plan, being done by the Centennial Airport Board, and the First Creek Master Drainage Plan being done by UDFCD with Aurora.

Land Development Program

The purpose of the Land Development Program at SEMSWA is the coordination of land development decisions with the County and City to meet the SEMSWA objectives of comprehensive, efficient, and effective stormwater management. The objectives of the program are as follows:

- to provide referral input on stormwater management infrastructure that the SEMSWA Maintenance Program will ultimately maintain (from both land development infrastructure construction and CIP construction projects);

- to support existing Centennial and Arapahoe County land use criteria and zoning regulations as they pertain to stormwater management within the SEMSWA service area;
- to assist in obtaining UDFCD Maintenance Eligibility for public drainage improvements in the SEMSWA service area; and
- to ensure that permanent stormwater facilities for the purpose of water quality within the MS4 permit areas are planned for and installed appropriately to ensure long-term functionality.



Planning for appropriate stormwater features

These functions ensure the community a well-planned, adequate, and long term stormwater infrastructure for the development in their area. SEMSWA Land Development Program staff have been reviewing referrals from the County and City since June 2007.

Review for MS4 Permit Requirements

A primary component of the Land Development Program is the coordination of the water quality controls required for land development construction and CIP project construction activities, as well as the planning for adequate post-construction permanent water quality facilities for all construction efforts. Both the City and County's construction Grading, Erosion, and Sediment Control (GESC) program, defined by their respective GESC Manuals, is administered by SEMSWA as part of the land development coordination process during development design and construction, and CIP project construction. In addition, the City and County's respective Stormwater Management Manuals and Land Development Codes contain requirements of the Post-Construction water quality program that is also administered by SEMSWA as part of the land development coordination process, to ensure that water quality requirements for all manner of construction in the MS4 permit areas are met.

Land Development Case Reviews

Land development cases are referred to SEMSWA by Arapahoe County and the City of Centennial. In addition, County and City CIP construction projects are referred for review. The land development review process encompasses several phases of review and action items, including:

- ✚ Pre-submittal meetings to lay out in advance SEMSWA stormwater requirements;
- ✚ Initial or Preliminary Plan review;
- ✚ Site Plan review;
- ✚ Phase III Drainage Report review;
- ✚ Construction Drawing review and approval;
- ✚ Engineer's Cost Estimate review;
- ✚ Utility Plan review and approval;
- ✚ GESC Plan review and approval;
- ✚ Operation and Maintenance Manual review and approval; and
- ✚ Variance recommendation and approval.

During 2007, the following referrals for land development project were reviewed by SEMSWA Land Development Program staff:

- ✚ **50** Arapahoe County referrals;
- ✚ **52** Centennial referrals; and
- ✚ **1** Douglas County referral.

During 2007, the following referrals for capital improvement projects were reviewed by SEMSWA Land Development staff:

- ✚ **4** Centennial CIP projects;
- ✚ **2** Arapahoe County CIP projects; and
- ✚ **2** SEMSWA CIP projects.

Coordination of Land Development Permitting Responsibilities

Activities completed in 2007 include the development of Standard Operating Procedures (SOPs) for the following:

- coordination of land use projects;
- development of land use referral, review and approval processes;
- coordination of review and inspection fees;
- transfer of stormwater review, inspection and GESC permitting for active development projects from the City and County to SEMSWA;
- development of SEMSWA drainage easements and process;
- development of SEMSWA Phase III Drainage Report, Stormwater Construction Plans, Operations and Maintenance Manuals, and GESC plan and report approval process;
- development of permanent Best Management Practices (BMP) inspection checklists;
- development of Subdivision Improvement Agreement and Letter of Credit for City of Centennial Stormwater Public Improvements;
- creation of SEMSWA GESC permit and process in the County, and SEMSWA GESC permit and process, and Stormwater Public Improvements in the City of Centennial;
- inspection and acceptance of stormwater public improvements, including probationary and final acceptance recommendations;
- inspection for initial close out and final close out of GESC BMPs; and
- acceptance procedures for permanent water quality BMPs.

Technical Review Committee Variances

SEMSWA's Technical Review Committee (TRC) meets each week to review and discuss projects and to approve or reject variances for land development site plans and for CIP projects. Of the discussion items, **39** were variance requests, and of these requests, **27** were recommended for approval. The

SEMSWA Land Development Review

- 50 County referrals**
- 52 Centennial referrals**
- 1 Douglas County referral**

SEMSWA CIP Construction Project Referrals in 2007

- 4 Centennial projects**
- 2 County projects**
- 2 SEMSWA projects**

SEMSWA TRC Meetings

27 Variances approved

variance requests were generally of the following type: easement widths, pond retaining wall height, pond side slopes, storm pipe minimum slopes, and inlet types.

SEMSWA Transition Projects

Property Transfer

As part of the MS4 Permit Transfer process (see Water Quality Program), drainageway and stormwater infrastructure property associated with both the MS4 permit and drainage and flood control will be transferred to SEMSWA from the IGA parties once the IIGA's are finalized between the parties. This process requires a detailed legal description, ownership evidence, associated reports, inspections, and other documentation, and written disclosure of any known environmental conditions for the land interest and/or the stormwater infrastructure improvement. SEMSWA will accept all the responsibility, obligation, liability and duty with respect to the transferred property or improvements associated with the MS4 Permit once ownership of property and improvements are transferred.

Property within the three District service areas will be transferred to SEMSWA if and when each District's permit is transferred to SEMSWA. City public use easements will be transferred to SEMSWA during this same period. The County will retain its ownership, as it will be renewing its permit with the State and not transferring the liability.

SEMSWA Stormwater Fee Development

A consultant was hired to assist SEMSWA staff in the development of Basin/System Development Fees, Permit Fees, and Review Fees. Highlights of the project include:

- ✚ Comparative analysis of how other entities set up their fee structure;
- ✚ Development of options for charging fees, including basin fees proportional to cost of new facilities, system buy-in, or a hybrid of all of the above;
- ✚ Recommendation for fees;
- ✚ Modeling of recommended fee to determine revenue generated; and
- ✚ Facilitation of a task force of stakeholders to assist in the final formation of SEMSWA fees.

The initial task force meeting was held in November 2007, with over 15 stakeholders in attendance. The fee development special project should be completed during the first half of 2008.

Drainage Inventory

A Drainage Inventory is underway for the SEMSWA service area using the best available information, including past field survey efforts, drainage system maps, as-built drawings, and data from ACWWA, ECCV, IWSD, the City, and the County. An initial data collection and incorporation effort was required to develop an understanding of the level of detail, quality, and sources of best available data for each section of the SEMSWA service area. Some highlights of the Drainage Inventory effort that began in 2007 include:

- ✚ Drainage system maps were geo-referenced in order to accurately display them in the GIS database as a background layer;
- ✚ Field data previously collected by Arapahoe County were incorporated into the GIS system;
- ✚ As-built drawings previously collected by Arapahoe County were inventoried and scanned; and

- Data from ACCWA, IWSD, and ECCV were incorporated as-is and merged into the GIS database.

Once the initial data collection and incorporation effort is completed in early 2008, a summary of the data will be documented in a Technical Memorandum that summarizes the data, source, coordinate system, quality and level of detail, as well as the framework of the GIS database in terms of file structure, component summary, and attribute information. The scope for the next phase of the Drainageway Inventory, anticipated to be completed in late 2008, is as follows:

- Locate and incorporate as-built drawings from the drainage system east of I-25, which has been primarily developed after the last update to the drainage system maps in Arapahoe County, including conversion of as-builts to electronic files, geo-referencing the as-builts, and creating a map of the data gap areas;
- Develop the GIS nodes, lines, and attributes for the database, including building the background layers of aerial imagery, roads, parcels, boundaries, and drainageways using existing field data and any as-built drawings; and
- Develop an asset inventory and valuation to estimate the asset value of the stormwater components in the drainage inventory, including estimating stormwater components in the data gap areas, determining the quantity of assets, estimating the unit costs, converting the cost data at the time of installation, and determining a depreciation approach.

The final report will outline the process taken to develop the drainage system inventory, and will lay out needs for the next phase of the inventory, including an asset valuation for the drainageways, updating GIS components, create a process and specification SOP for outside agencies to use when providing data to SEMSWA, develop standards for survey and GPS collection by SEMSWA staff, and incorporating additional query, reporting and other features to the GIS database to streamline the efforts. This phase will be funded at the discretion of the Board.

Public Relations Program

The SEMSWA Public Relations program consists of optimizing opportunities to disseminate information pertinent to stormwater management in the SEMSWA service area. Public Relations components include:

- Informational Events;
- Public Meetings;
- Presentations at Conferences;
- Technical Committees;
- Press Releases;
- Articles for Publication;
- Coordination Meetings with the IGA parties; and
- SEMSWA Website.

Informational Events

Several public events were utilized to communicate and distribute informational



SEMSWA poster exhibit at 2007 Annual Cherry Creek Conference in November

materials about the new SEMSWA organization in 2007, including:

- ✚ SEMSWA Open House, August 8, 2007;
- ✚ Western Welcome Week Festival Day booth, August 18, 2007;
- ✚ Cherry Creek “Run for the Watershed” Aid Station, September 29, 2007;
- ✚ World Monitoring Day Booth @ Littleton/Englewood Wastewater Treatment Plant, October 18, 2007; and
- ✚ Cherry Creek Stewardship Partners 9th Annual Conference poster exhibit, November 2, 2007.

Public Meetings

The following meetings with the public, including agency representatives and interested parties, were held by SEMSWA to disseminate stormwater information about a construction project or to answer floodplain, maintenance or watershed inquiries, and include:

- ✚ Southwood Outfall, CIP Project: Public Input Meeting (Slaughterhouse Gulch);
- ✚ Valley Country Club HOA, Floodplain Review: affected property owners (Cherry Creek);
- ✚ Little Dry Creek @ Arapahoe Road, CIP Project: Public Input Meeting with Sturbridge HOA;
- ✚ Willow Creek HOA Board Tour of HOA properties, Maintenance Project: review of easements;
- ✚ Cornerstar Development, Floodplain Review: affected property owners from Cherry Creek Business Park;
- ✚ Village @ Centennial HOA, Floodplain Review: affected property owners (Lone Tree Creek);
- ✚ County Line Road CIP construction project, Colorado to Holly (Big Dry Creek); and
- ✚ Arapahoe/University Intersection CIP construction project (Big Dry Creek).

SEMSWA staff also routinely prepared backup material for SEMSWA Board Public Meetings held the 4th Wednesday each month, and open to the public. Updates on program area progress are presented on a regular monthly basis (CIP and Remedial Programs), or on a regular quarterly basis (Maintenance Program), or whenever a special project within a program area requires a status report. These reports to the Board are accompanied by a PowerPoint presentation and associated discussion.

Presentations at Conferences

Several SEMSWA staff gave presentations at regional and national conferences during 2007, including:

- ✚ Association of State Floodplain Managers, June 2007 (“Losses Avoided”);
- ✚ Colorado Association of Stormwater & Floodplain Managers, September 2007 (“Establishing a Stormwater Utility”); and
- ✚ Colorado Association of Floodplain Managers, September 2007 (“CASFM Grand Award Finalist presentation for the Cherry Creek Stabilization and Crossing @ 17-Mile House Park project”).

Technical Committees

SEMSWA staff participated in several Technical Committees within the stormwater management community and watershed resource groups, including:

- ✚ Colorado Stormwater Council, Technical Committee and Permit Compliance Committee;
- ✚ UDFCD MS4 Committee;
- ✚ Cherry Creek Basin Water Quality Authority, Technical Advisory Committee;
- ✚ Arapahoe County Open Space Technical Committee;
- ✚ UDFCD Waterway Protection Task Force;
- ✚ UDFCD Whole Life-Cost of Permanent Proprietary BMP Task Force;
- ✚ Cherry Creek Trail Providers Group; and

- ✦ Cherry Creek Stewardship Partners Executive Committee.

Press Releases

Press Releases were distributed for the following events:

- ✦ Open House, August 8, 2007; and
- ✦ Formation of Stormwater Fee Task Force, October 2007.

Articles for Publication

Articles were written for various publications, including:

- ✦ SEMSWA Web Site;
- ✦ Colorado Water Conservation Board newsletter "Floodstage"; and
- ✦ "The Villager" newspaper.

Awards

SEMSWA was the recipient of a Colorado Association of Stormwater and Floodplain Managers (CASFM) Grand Award for Engineering Excellence for the Cherry Creek Stream Stabilization and Crossing @ 17-Mile House Park project in September 2007. The project has been submitted for the national award, the James L. Witt award given at the National Association of Floodplain and Stormwater Managers conference in May 2008.

Coordination Meetings with the IGA Parties

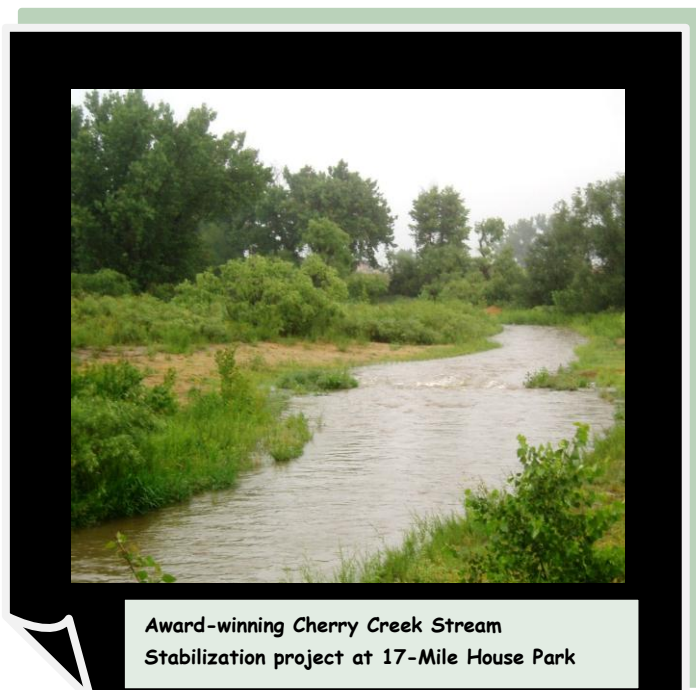
Coordination efforts were on-going with the IGA parties during several established meeting opportunities, including:

- ✦ Weekly Design Review Committee (DRC) Meetings (City);
- ✦ Weekly Technical Review Committee (TRC) Meetings (County);
- ✦ Weekly Pre-Submittal Meetings (City and County); and
- ✦ MS4 Permit Transfer Meetings (City, Arapahoe County, Douglas County, and Districts).

SEMSWA Website

The SEMSWA website was utilized for information sharing purposes, including:

- ✦ SEMSWA Board meeting postings;
- ✦ CIP, Remedial and Maintenance Project Updates;
- ✦ Fee calculation information;
- ✦ Press releases;
- ✦ Job opportunities
- ✦ Recycling Resources;
- ✦ Highlighting public events for information dissemination; and
- ✦ Illicit Discharge Hotline number for citizen reporting.



Award-winning Cherry Creek Stream Stabilization project at 17-Mile House Park

SEMSWA Financials

SEMSWA is a political subdivision and a public corporation of the state, falling under the guidelines of Colorado state statute for a “drainage authority” (29-1-204.2 C.R.S.). This Colorado State statute permits collection of stormwater fees, which are considered fees for service, and not a tax. Pursuant to Resolution 1, Series of 2006, the Board established SEMSWA as an enterprise as defined in Article X, Section 20 of the State of Colorado Constitution, and as further authorized by 37-45.1-101 C.R.S. *et seq.* As an enterprise, the SEMSWA Board is not subject to the revenue limitations of the aforementioned provision of the State Constitution. As an enterprise, SEMSWA has the ability to set fees and charges to fund facilities, infrastructure and services. There are two standard methods of charging for stormwater services that SEMSWA will utilize, and are used by others in metro Denver and Colorado as well as across the country:

1. Stormwater utility fees: annual charge to residential & non-residential property owners (based on impervious area per property); and
2. New development fee (System Development Fee per acre, paid by developers).

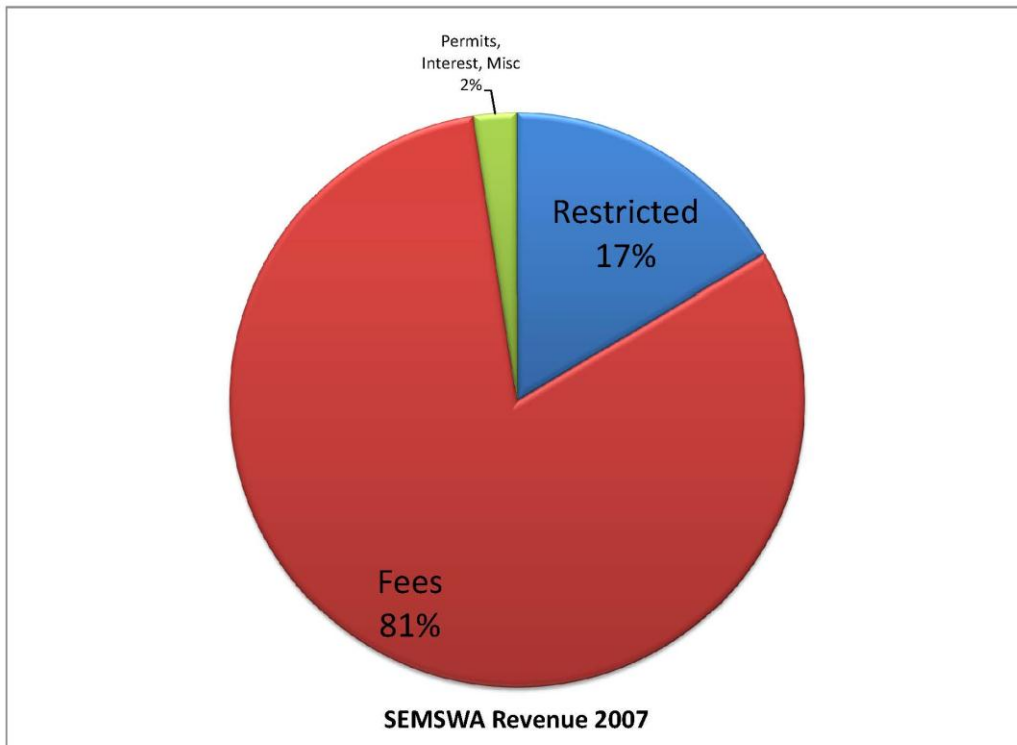
Stormwater utility fees are charges imposed on parcels of property within SEMSWA’s service area that are designed to defray the overall cost of the services that SEMSWA provides. SEMSWA began billing an annual stormwater utility charge to residential and non-residential property owners for stormwater management services in January 2007. The stormwater fee is based on the amount that each property contributes to stormwater runoff. Aerial photos and Assessor records are used to determine the fees. The fees provide an equitable assignment of costs, because customers will pay fees in proportion to the demand placed on the drainage system by their property’s runoff. The stormwater fees that are collected will be used across SEMSWA’s service area. Over time, the funding will be spent in the same areas from which it was collected.

System development charges are typically one-time charges levied by SEMSWA against new development to generate revenue for the construction of infrastructure and capital facilities needed to offset the impacts of the new development. A Stormwater Development Fee Task Force started meeting in November 2007 to begin to evaluate the System Development fee structure. This fee structure should be completed during the first quarter 2008. The level of stormwater management service provided by SEMSWA will affect the fee level. SEMSWA must set the fees to levels such that there are funds available to properly manage stormwater and to meet NPDES regulatory requirements.

2007 Revenue Collections

The 2007 revenue collected by SEMSWA, included stormwater utility fees, system development charges, and intergovernmental revenues. Revenues for 2007 have been graphed, utilizing the following revenue categories:

- Restricted revenues collected from intergovernmental agreements;
- Fees; and
- Permits, interest and miscellaneous revenues.

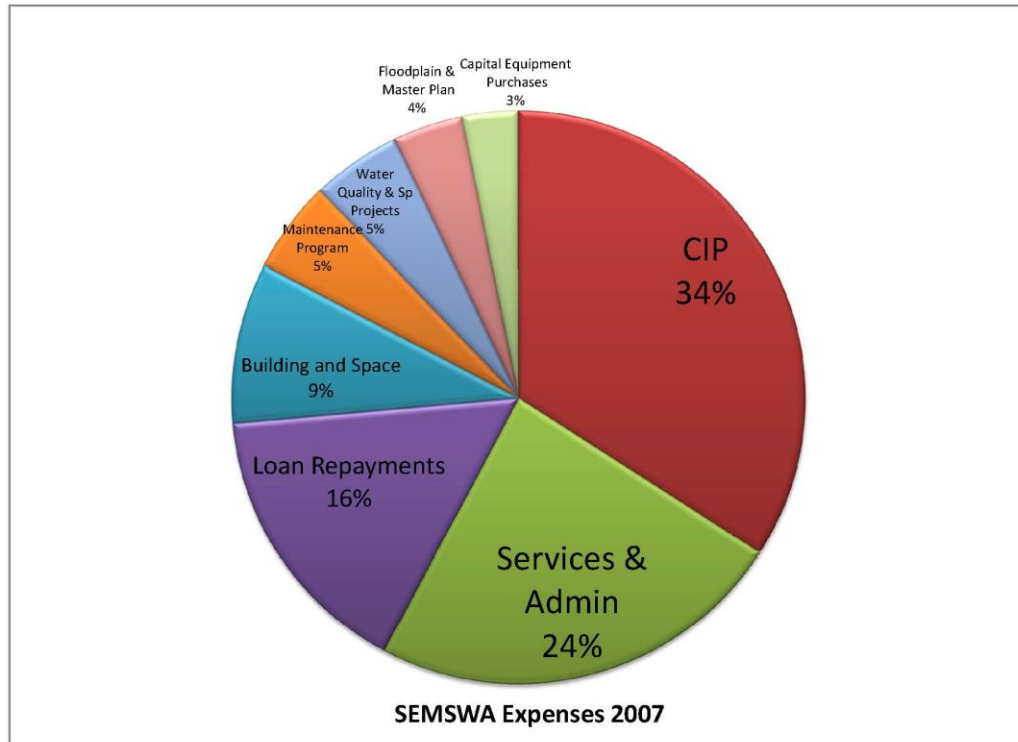


Revenues collected for 2007 totaled \$9,306,095

2007 Expenditures

Preparation of the 2007 Budget began with an initial comparison of resources and requirements. Resources for 2007 included user fees, interest, city/county contributions, system development charges, and fund balances carried forward from the previous fiscal year. Expenditures for 2007 were projected based on the best available estimates for the first full year of operations. SEMSWA budgeted for the following relating to the provision of stormwater services during the 2007 budget year: business startup, administration, field operations, maintenance, and capital projects. Also included were principal and interest payments relating to a \$3.5 million operating loan incurred in 2006 for business startup.





Also, part of the effort in 2007 was the establishment of formalized financial procedures that could assist in the development of a budget that took into consideration the essential elements of financial planning, control and evaluation.



Expenditures for 2007 totaled \$8,535,861

Southeast Metro Stormwater Authority Service Boundaries

Legend:

-  Authority Boundary
-  City of Centennial
-  Arapahoe County
-  Unincorporated Arapahoe County

This map is a graphic representation only. For specific information please consult with the proper officials within the Southeast Metro Stormwater Authority.

