

# THE OPEN CHANNEL

## REFLECTIONS ON . . . 2001 -- A DRAINAGE ODYSSEY CASFM's 12<sup>th</sup> ANNUAL CONFERENCE

By *Cindy Thrush*

If you weren't at the Sheraton Steamboat Resort on September 19-21, 2001, then you missed all the fun! (Whoops, I really mean the continuing educational opportunity.) Please give a round of applause to all the volunteers who put this conference on for us, especially Jamie Cribbs, Conference Chair, who wasn't even able to participate in the fun, too busy giving birth to her third child.

Steamboat was beautiful, the Sheraton elegant (not under construction this year!), and many thanks goes to Mark Glidden for coordinating accommodations.

We appreciate Chris Pletcher's efforts in registering everyone and manning the registration booth.

Thanks to Robert Krehbiel for coordinating an excellent technical program. It started off on Wednesday with an informative keynote address by Dennis Mileti of the Natural Hazards Center in Boulder. Following lunch, we had a Plenary Session on Public Notification versus Public

Participation, Which Would You Rather Do? (Whoops, I mean *Which Are You Doing?*) A panel of speakers shared its insight on this much-debated issue.

Later in the afternoon, Award Finalists gave their presentations. Because there were no special effects shows this year, we were out in time for happy hour, and that made everyone happy!

We had a good attendance early the next morning for the breakfast meeting, and several good ideas were discussed for the upcoming year.

The technical sessions in the morning fueled everyone's needs for continuing education -- we had nine presentations.

After lunch, participants had their choice of workshops -- either the UDFCD's new Criteria Manual, Vols. 1 & 2 or a field trip (via bicycle) to study Riparian Zone Plant Species. The third choice, the FEMA Workshop, had to be cancelled at the last minute and many

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# CASFM 12<sup>th</sup> ANNUAL CONFERENCE



*AWARD WINNERS: Dennis Krock from the City of Northglenn (second from left) accepts the grand award (fake plaque) from John Doerfer (left). With him is Bruce Behrer and Wendi VanWoerkom from Muller Engineering.*

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disappointed people had to spend the afternoon doing whatever they wanted. Thanks go to Debbie Haferman and Dave Bennetts who coordinated the afternoon activities.

One of the highlights of the conference each year is the CASFM Association Dinner and Project Awards Presentation. The cocktail hour and viewing of the vendor exhibits held prior to the dinner helped gear everybody up for the evening's activities. The vendors help sponsor this activity (pay), and we appreciate Doug Williams' assistance in getting these people to attend (pay).

For the past five years, John Doerfer has kept us wondering what he will come up with next for the awards presentation. Whoever thinks engineers aren't funny needs to attend one of John's presentations.

However, it wasn't funny when he announced that this awards presentation was his last Hurrah. John feels it is time to retire and let someone else try his or her hand at this routine. Those are big shoes to fill but who knows what comedic talent is lurking out in the State's Floodplains.

The Grand Award this year went to the Grange Hall Creek Channel Improvements Project by City of Northglenn, Urban Drainage & Flood Control District, Muller Engineering and Wenk Associates. Watch out, shotcrete drops are back in style! It was a close vote as all the project presentations were excellent. The projects that received honor awards were:

- Jewell Wetlands Project by the City of Aurora, Urban Drainage & Flood Control District, and ICON Engineering and Design Concepts
- Otero County Flood Response Plan by the Colorado Water Conservation Board and HDR Engineering
- Stormwater Public Education Program in Colorado Springs by the City of Colorado Springs

A special thanks goes to John Pflaum who helps put the Awards together and always takes pictures for us.

Kevin Gingery and John Doerfer both received the "CASFM Lifetime Achievement Award" for their many years of dedicated service. CASFM awards two raffle prizes (a \$250 gift certificate for early registration and visiting vendor booths). This year's winners were Susan Hayes and Cindy Thrush (go girls!). It was a wonderful evening that wound down as soon as the bar closed (don't ask which bar!).

A little advice for next year, if you want the Continental Breakfast in Foyer on the last day of the conference, get there before 8 a.m. even though it says it lasts until 8:30 a.m.

We tried a little different format this year and had the conference closing remarks first thing in the morning hoping more than three or four people would still be around, and it

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# CASFM 12<sup>th</sup> ANNUAL CONFERENCE

*(cont. from page 2)*

worked! Following the closing remarks, seven technical presentations were made on watershed and river restoration and floodplain and stormwater management. Appreciation goes to those who stayed for these last few papers.

Some people then went over to the Sheraton Steamboat Golf Club for the annual tournament. Thanks to Mike Bartusek for his many years of coordinating this activity.

If you made it this far, then you must have had fun reliving the memories of the conference. If you didn't make it this year, plan on it next year.

## DRCOG TRAINING ON PHASE II STORMWATER PERMITS

The Denver Regional Council of Governments received a grant from EPA to do training on Phase II Stormwater Permits. The dates and locations for training are:

January 8	Denver
January 14	Grand Junction
January 22	Colorado Springs
January 30	Ft. Collins

For more information, call Russ Clayshulte at DRCOG at 455-1000.



*TUGBOAT -- No music this year, hard to stay awake without some dancing.*



*WINNING TEAM -- Winners of the annual CASFM Golf Tournament held at the Steamboat Sheraton. Did you see any of these guys at the conference?*

## GOLFERS COMPETE, HAVE FUN AT 2001 GOLF TOURNAMENT

*By Mike Bartusek*

On Friday September 21, 20 intrepid golfers approached the Sheraton Golf Course with clubs in their hands and hope in their hearts. The weather was beautiful, the scores very close and a great time was had by all.

The winning team, with a score of 68, was comprised of Vince Demaio, John Wannigman, Jon Larson, and James Fitzgerald.

Although Tiger Woods did not show up, we did have Mark "Tigger" Glidden who won the prize for Longest Drive and Longest Putt. Stuart "Dead-Eye" Gardner won the Closest to the Pin prize.

The traveling trophy, given to the team for Most Use of the Course ( at one over par), was won by the following group: Bill Degroot, Cindy Thrush, John Plaum, and Dave Hollingsworth.

We also were able to distribute door prizes including golf umbrellas, golf balls and Rockies tickets, thanks to the generosity of Amcor Precast and Carder Concrete.

# CASFM ASSOCIATION NEWS

## LETTER FROM THE CHAIR

*By Stuart Gardner*

Greetings from the Western Slope! These are unusual words to appear in the chairman's letter, as this is the first time that the organization has had a chair from this side of the Divide. It is indeed my privilege to serve in this capacity, and I will do my best to fulfill the obligations of the office.

I want to take this opportunity to thank Kevin Gingery for not only serving as the CASFM chair for the past two years, but also for his dedication and long service to the organization, serving as vice chair, regional representative, and secretary.

What a great conference we had this year! Each one I attend seems better than the last. It's getting harder to choose among the excellent concurrent sessions that are offered. And if that isn't enough, it's likely that we will have *three* concurrent sessions at future conferences, up from the current two sessions. It is a real testament to the strength of our organization that we have enough people willing and able to put together enough technical sessions and other presentations to offer that much.

One of the major issues we have struggled with as an organization over the past several years is the Certified Floodplain Manager (CFM) program, which is administered by the Association of State Floodplain Managers (ASFPM). A few years ago, there was little support in CASFM for the program for a variety of reasons including cost, administration problems, and concerns regarding local applicability of national standards.

Today, the support within Colorado is much stronger. Currently, we now have 11

CFMs in the state, and interest in certification is growing. Other states with CFMs include Illinois with 62, Oklahoma with 55, North Carolina with 31, Arizona with 30, and all the way down to a number of states with two or less.

What this means to Colorado is that we will spend less time inventing the program and more time implementing it. We now have a standing CFM committee that will explore where we want to go with the CFM program in the state. For instance, the state of New Mexico has recently enacted legislation requiring its counties or municipalities with a floodplain ordinance to designate a CFM as the floodplain manager. What is CASFM's opinion of similar legislation in Colorado? This is an issue the CFM committee should address.

“We now have our own Internet domain, [www.casfm.org](http://www.casfm.org)”

A big thank you to John Liou with FEMA, Mark Matulick with the CWCB, Mike Meinginger with Mesa County, and Kallie Sampish with Applegate Group for agreeing to be the inaugural committee members. All four of these individuals are CFMs and represent a good cross section of professional, regulatory, and regional points of view.

If you feel strongly about the CFM program one way or another, you may want to start attending the regular CASFM meetings or join the committee to have your voice heard. It would be helpful to have one or two

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# CASFM ASSOCIATION NEWS

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non-CFM perspectives on the committee. For more information, ASFPM has good coverage of the program at [www.floods.org](http://www.floods.org) under the certification link.

We now have our own internet domain, [www.casfm.org](http://www.casfm.org). The domain name has been registered and we will soon have our very own website where we can post meeting information, newsletters, policies, bylaws, minutes, conference information, and other news.

Our Reaching Out to Communities committee also is moving forward. In 2002, CASFM plans to have a booth and/or a presentation at the Colorado Municipal League conference in Breckenridge. This will help dozens of small communities across the state become acquainted with us. Floodplain and stormwater management issues are rapidly growing in importance in rural areas, and we need to help educate and assist in these matters. (See detailed article on page 6.)

And last, but certainly not least, I want to give a huge thanks to everybody who made the 2001 conference such a success. Not only to the folks who scheduled the programs, arranged the facilities, and took registrations, but especially to everyone who spoke, put on presentations, and took the time to compete for the annual excellence in engineering awards.

CASFM is barely 12 years old, but we are strong, vibrant, and growing. We have a terrific history, and our best years are surely yet to come.

## 2002 GENERAL MEETING SCHEDULE

All meetings start at 9 a.m. and finish about 11 a.m. All members are encouraged to attend.

<u>Date</u>	<u>Location</u>
January 10	UDFCD
March 7	Applegate Group, Ft. Collins
May 9	near Glenwood Springs
July 11	Sandstone Ranch, Longmont
September 11-13	Annual Conference at Steamboat Springs
November 14	Boyle Engineering

A notice will be sent through e-mail to all members prior to the meetings. The notice will include directions.

## IT'S MEMBERSHIP RENEWAL TIME

In the next month, all 2001 CASFM members should be receiving membership renewal letters via e-mail. Please take the time to renew your membership as early as possible. Membership dues remain the same from last year, a great bargain! Rates are:

Student	\$10
Individual	\$30
Corporate	\$150
Agency	\$150

Corporate and agency memberships allow for up to 10 people per membership. Checks and membership forms should be returned directly to Barb Meier, 2319 Shadow Ct., Loveland, Colorado, 80538.

# CASFM ASSOCIATION NEWS

## REACHING OUT TO OUR COLORADO COMMUNITIES

*By Chris Carlson*

In the spring of 2001, CASFM established an outreach committee to investigate new ways for CASFM to assist Colorado communities and counties. After several brainstorming sessions, the committee recommended that CASFM become an associate member of the Colorado Municipal League (CML), which is an organization that represents and assists communities through numerous different means.

One such means is the annual CML conference, which was held this year in Snowmass. Over 130 municipalities were represented at this conference. Through our contact with CML and with recent contacts with Colorado Counties, Inc. (CCI), the groundwork is being laid for CASFM to achieve its goal of providing education and training opportunities to the public sector, particularly small communities and counties.

The Outreach Committee currently is preparing recommendations for 2002 that are based primarily upon how to best use CML and CCI for outreach. Several ideas being investigated include:

- Having a booth at the 2002 CML conference
- Conducting a workshop at the CML conference
- Using CML and CCI mailing lists to direct CASFM information to people involved in stormwater management
- Provide workshops to CML and CCI at their Denver offices. Possible topics might include an introduction to drainage planning, floodplain administration, funding

- mechanisms, creating a stormwater utility, etc.
- Invite CML and CCI membership to the CASFM annual conference in Steamboat
- Write articles for the CML magazine
- Provide information of drainage/floodplain awards that recognized local communities
- Advertising the CASFM website
- Introducing a partnering/mentorship program between CASFM members and CML/CCI members

The Outreach Committee would certainly appreciate additional ideas, input, or others interested in learning more about the committee. Currently, Chris Carlson, Debbie Haferman, Kallie Sampish, Roy Vestal, and Anna Lenahan are involved in the committee. For more information please contact Chris Carlson at 970-223-5556 or by email at [carlsonc@ayresassociates.com](mailto:carlsonc@ayresassociates.com)



*2002 CASFM OFFICERS – (From left) John Hunt (secretary), Debbie Haferman (NE Rep), Doug Stewart (Metro Rep), Stuart Gardner (chair), Cindy Thrush (vice chair), and David Hollingsworth (treasurer). See roster of new officers on page 7.*

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# REGIONAL NEWS

## NORTHWEST REGION SOCIAL

Date: Thursday, November 29  
Time: 4 - 7 p.m.  
Where: CB Potts in Ft. Collins  
Topic: Kevin Gingery will present  
"Rundown Failures".

## METRO DENVER HAPPY HOUR

Date: Thursday, November 29  
Time: 4:30 p.m. to whenever  
Where: Baby Doe, 23<sup>rd</sup> Ave. Exit  
off I-25

## MEET YOUR 2002 REGIONAL REPS!

### NORTHEAST

Debbie Haferman works at Sear-Brown in the Ft. Collins office. She is in her second year as the regional representative. Last year Debbie put on several happy hour socials, a field trip, a FEMA workshop, and assisted with the workshops at the annual conference.

### NORTHWEST

Rick Dorris is a Development Engineer with the City of Grand Junction. He has degrees from CSU and CU and is a PE. Rick has spent approximately eight years consulting and 10 years in either City or Federal government arenas. Rick lives in the country with his wife and 8-year-old daughter. They like to spend their spare time riding horses and boating. Lake Powell is a favorite spot.

Rick has always been interested in stormwater from early memories of flash floods and canal breaks in Arizona as a child.

As the new representative, he hopes to increase the consulting community's awareness of storm water and insurance requirements, create new ways (new to the western valleys, anyway) of controlling erosion without rip rap (they don't have any), facilitate better communication and sharing among engineers, and learn.

### SOUTHEAST

Joe Napoleon is the Planning Director for the City of Woodland Park. He has worked for them since 1994, with a short stint in between on the East Coast. Joe enjoys the outdoors and all activities that come with it.

His goals for the region include developing stronger ties with the Pikes Peak Council of Governments, the Fountain Creek Watershed Group, and CDOT.

### SOUTHWEST REGION

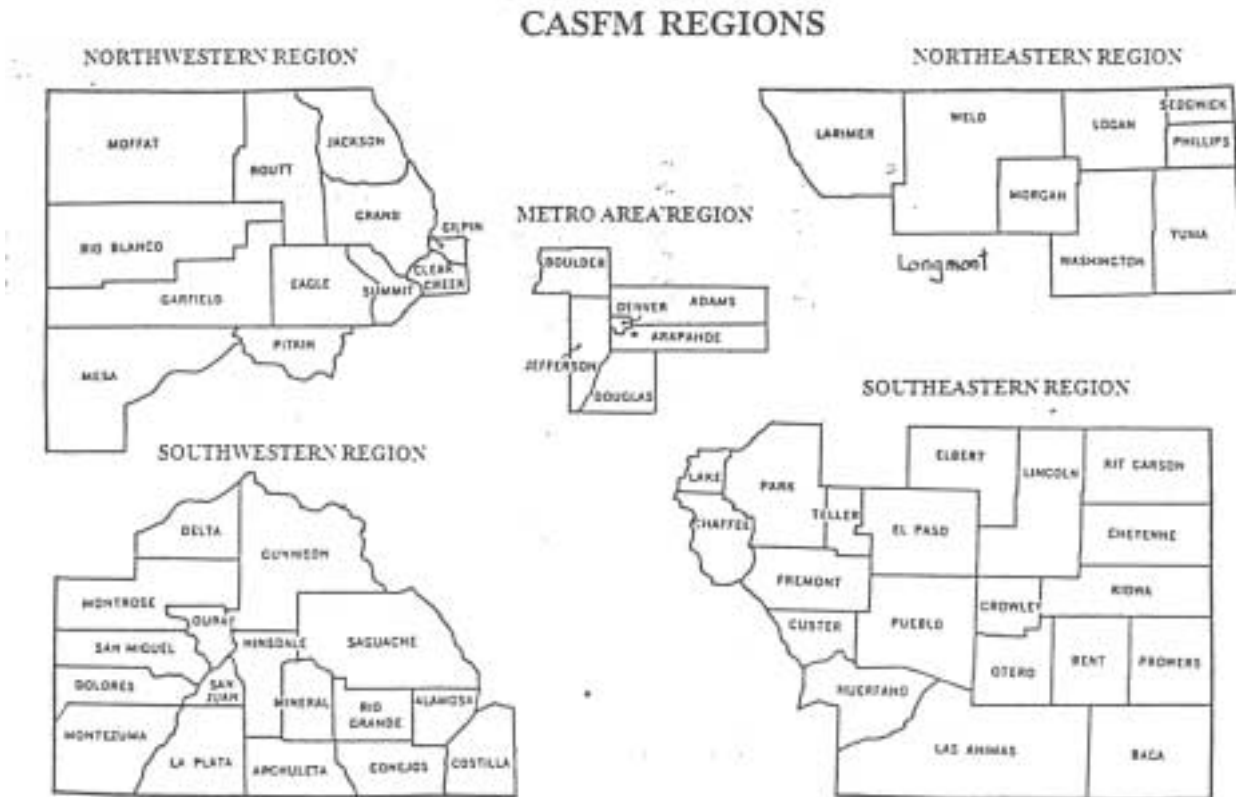
Steven C. Harris is the southwestern representative for CASFM. He has his own consulting engineering firm in Durango, specializing in water resources since 1983. In addition to flood and stormwater engineering, his firm is involved in water rights, domestic water supplies, irrigation systems, endangered fish species recovery in the San Juan River, and water quality reviews.

Steve accepted the position as southwestern representative to ensure that the rural area of Colorado is represented in CASFM. Though it is difficult to arrange meetings and other events in rural areas, he will attempt to schedule worthwhile events for CASFM members in southwest Colorado.

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# REGIONAL NEWS



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## METRO DENVER

Doug Stewart is a senior engineer/project manager at Boyle Engineering Corporation, located in Lakewood. Doug started his career with Boyle in 1988 in the Tampa, Florida, office.

His first task was to design a detention pond at the highest point of a piece of property, as directed by the client. He's been trying to make water flow uphill ever since.

In 1992, he transferred to the Lakewood office and learned that there was quite a difference between the flash floods of flatland Florida and the mountainous monsoons of Colorado.

He lives in Denver, just a quick 10-minute bike ride to downtown and is familiar with most of the drainage structures located along the Cherry Creek and the S. Platte River bike paths. Doug's wife says, "Look at that beautiful river" and he says, "check out that grouted boulder drop!"

When he's not obsessing about rainfall and flood control, Doug plays a round of golf on the weekends and attends local charity events with his wife. He also tutors calculus to a DU High School student and is planning his next cultural sabbatical to a foreign country, such as Italy or Japan. Of course, when the pictures are developed, there's usually one or two of a dam, canal, or medieval drainage system.

# FLOOD PAGE

## CALL FOR PARTICIPATION

*By Doug Trieste, Chair, Flood Committee*

With the beginning of the new CASFM 2001-2002 season, I would like to ask for your help and ideas for Flood Committee activities. In the past we have had meetings, presentations, workshops, and socials to bring people together for exchanging information, ideas, concerns, and to simply socialize.

I have often had members tell me what the Flood Committee should have done. I would appreciate the “should haves” now. Would you like meetings regarding topics of interest? Are there any training/workshop requests that would benefit many of our members?

Should we keep having the socials at regular intervals? If so, do you have speaker suggestions or would you like to speak on a topic? Would you like to showcase one of your projects to the membership? Would you offer your company facilities to do so? Etc, etc, etc. In addition, would you be willing to take the lead on a workshop, meeting, presentation, etc?

I would sincerely appreciate input and participation from our membership. The committees, and CASFM in general, are only as good as you, the membership, make it. Please feel free to call or e-mail me regarding your ideas and participation Call 970-547-3823 or e-mail suggestions to FTI@colorado.net

Thank you!

## MEET YOUR COMMITTEE CHAIR

Doug Trieste has been active as Chair of the CASFM Flood Committee since 1996. Doug is a registered Professional Hydrologist and owner of Flow Technologies. Doug has a

Master of Science Degree in Watershed Science from Utah State University.

Flow Technologies was formed in Lakewood in September 1996 and moved to Breckenridge in September 2000. Flow Technologies specializes in river hydraulics, hydraulics of large floods (including dam failure/inundation studies), hydrology with emphasis on large floods, flood control planning and design, drainage, dam safety analyses, dam hydraulics, hydraulic structure design, and sediment and erosion control.

Prior to Flow Technologies, Doug worked with the Bureau of Reclamation as a hydraulic engineer. He specialized in dam safety focusing: dam break/inundation analyses, river hydraulics, and hydrology. Doug also worked with the U.S. Geological Survey as a research hydrologist specializing in rainfall/runoff modeling and the Bureau of Land Management as a District Hydrologist involved with watershed management and non-point source pollution control.

### *ASFPM HAPPENINGS*

The national chapter of the Association of Stormwater and Floodplain Managers is busy this year with several initiatives. ASFPM continues to further develop the Certified Floodplain Manager Program and is investigating ways to assist State Chapters in implementing the program.

ASFPM also continues to lobby in Washington, D.C., for floodplain-related programs. One program that is of special concern is the “No Adverse Impact” Program.

# FLOOD PAGE

## ASFPM NEW PHILOSOPHY

### NO ADVERSE IMPACT

By Mark Matulik, CWCB

The Colorado Association of Stormwater and Floodplain Managers is a affiliated chapter of the Association of State Floodplain Managers. At the recent annual CASFM conference in Steamboat Springs, Mark Matulik delivered a presentation on the No Adverse Impact (NAI) strategy currently being promoted by ASFPM.

NAI strives to ensure that “the adverse impacts of all current and future development in the nation’s watersheds are prevented or fully mitigated”. He summarized the current NAI initiative and outlined ASFPM’s future approaches to implementing the concept.

ASFPM is asking its Board of Directors and Policy Committee Chairs to begin dissemination of the NAI message. I currently serve as Chair of the ASFPM Flood Mitigation Committee. Using the NAI “tabloid” that was handed out at the CASFM conference and by making power-point presentations when possible, ASFPM hopes a broad delivery of the message will occur.

FEMA Headquarters and the Office of Management and Budget (OMB) are both pressing ASFPM to describe how NAI can be implemented. In response, ASFPM has developed a **draft** Strategic Plan for NAI. As described in the draft plan, there are two visions for the initiative.

- Communities with comprehensive planning approaches to flood loss reduction have incorporated NAI principles into the broader community fabric of economics, environment, social concerns planning, development, management programs and policies.

- The rest of the communities in the nation have adopted and have adequately enforced national flood loss standards and programs, which have been revised to incorporate basic principles that account for the adverse impacts of development.

The three primary goals set for the strategic plan are:

- **Goal 1** – Achieve flood loss reduction.
- **Goal 2** – Empower state programs and local communities.
- **Goal 3** – Effect change in programs and standards.

To achieve these goals ASFPM proposes the following:

**Goal 1** – Refine the NAI initiative, responding to feedback from partners, agencies and policy experts. ASFPM will also maintain involvement and provide feedback on federal efforts to:

- a) *evaluate* programs and policies for effectiveness,
- b) *measure* program success, and
- c) *modify* programs and policies accordingly.

**Goal 2** – Develop and disseminate tools for local communities to implement the NAI initiative. Inform target audiences about the NAI initiative and its implication for the audience. Develop and promote appropriate incentives and cost sharing to encourage state and local adoption of NAI approaches.

**Goal 3** – Effect change in federal policy to implement NAI techniques. Assist to effect change in state and local laws/policies/-programs to implement NAI techniques.

ASFPM has outlined several tasks under each of the goal statements listed. For more information contact Mark Matulik at 303-866-3441, ext. 301, or [mark.matulik@state.co.us](mailto:mark.matulik@state.co.us)

# STORMWATER PAGE

## URBAN DRAINAGE & FEMA SIGN CTP AGREEMENT

*By Bill DeGroot*

UDFCD and FEMA have executed a Cooperating Technical Partners (CTP) agreement that allows the District to assume the responsibility of reviewing requests for Conditional Letters of Map Revision (CLOMRs) and Letters of Map Revision (LOMRs).

The District reviews requests for the 32 communities within the District that are participating in the National Flood Insurance Program. Until now, all requests for CLOMRs and LOMRs from the Denver area have been reviewed by Michael Baker, Jr., a Virginia-based consultant hired by FEMA.

The agreement is for a period of one year that began July 1, 2001. It is a pilot project that will assist FEMA in determining the feasibility of allowing other qualified local agencies around the nation to assume similar responsibilities for reviewing requests for CLOMRs and LOMRs.

Applicants will continue to submit a copy of their requests and appropriate fees to FEMA in Washington, D.C., but also should submit a copy of their requests to the District. After reviewing the requests, the District is making recommendations to FEMA regarding changes to the Flood Insurance Rate Maps. ICON Engineering, a Denver consulting firm, has been retained to assist in reviewing these requests.

The project is being managed by Bill DeGroot, Chief of the District's Floodplain Management Program and Chair of NAFSMA's Floodplain Management Committee.

## NEW UDFCD PUBLICATION AVAILABLE

The Urban Drainage & Flood Control District has revised Volumes 1 and 2 of the *Urban Storm Drainage Criteria Manual*. Both volumes, along with a CD that gives examples and details, are available from Urban Drainage offices by calling (303) 455-6277. Cost is \$100 for new owners and \$65 for existing owners.

Know of other good drainage related publications or conferences? Please contact newsletter editors Cindy Thrush 303-455-6277 or Ron Degenhart 303-739-7308



*Kevin Gingery and John Doerfer exchange awards.*

LIFETIME  
ACHIEVEMENT  
AWARD  
WINNERS

**CONGRATULATIONS!**

# STORMWATER PAGE

## MEET YOUR NEW COMMITTEE CHAIR

My name is Kevin McBride and I am looking forward to acting as CASFM's Stormwater Chair. Although there is no way to fill the shoes of outgoing Stormwater Chair John Doerfer, I'll do my best to represent stormwater issues facing our profession.

For the past several years, I've been representing CASFM on the non-point source task force, looking at 319 grant requests and talking up stormwater issues as the EPA and State set priorities for funding. You'll be hearing more on 319 grants and non-point issues in upcoming newsletters.

I work as the senior stormwater engineer on the City of Fort Collins' stormwater quality program. It has been a great 10 years developing programs for the City, prior to regulatory requirements and having the opportunity to work with many creative engineers, hydrologists and biologists on urban stream issues.

Like many of you, we will be soon working more closely with the State on implementation of the Phase II stormwater program. While we know the task at hand there is plenty of room for creativity in this program. CASFM will be a great forum for all of us to share our ideas, both within the CASFM community and with other interested professionals.

In that regard, we see an excellent opportunity to work with others through the upcoming workshops with the Colorado Municipal League. Regardless of whether one works in the flood management or stormwater arena, having greater outside understanding and support for the work we do will make us all more productive.

True to my profession, I like water -- to ski on it in the winter, hike along it and fish in it in the summer. This keeps me busy outside of work. Our family likes these outings, too (well maybe the girls don't *really* like to handle fish).

Please send any thoughts you have about the stormwater group, how you would like to be involved, and your favorite secrete fishing holes, to [kmcbride@fcgov.com](mailto:kmcbride@fcgov.com)

## WQCD TO PUBLISH PHASE II GUIDANCE DOCUMENT

*by John Doerfer*

The Water Quality Control Division (WQCD) will soon be publishing a guidance document directed at operators of Phase II municipal storm sewer systems (MS4s). The document is targeted to 40 cities, towns, and counties in urbanized areas of Colorado with less than 100,000 population that are defined as Phase II sources.

Also, there are several special districts located within these same areas that have MS4s as well as drainage responsibilities. These districts will likely be required to obtain stormwater discharge permits, although the WQCD has not made final determinations.

The federal regulations for Phase II were published on December 8, 1999. These included requirements for municipal stormwater programs such as public education, public involvement, illicit discharge detection and elimination, construction site controls, permanent controls in new development and redevelopment, and pollution prevention for municipal operations.

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# STORMWATER PAGE

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The EPA regulations also included additional guidelines for municipalities to consider when developing a proposed program. The state's Attorney General determined that if this language was included in state regulations, it would be mandatory rather than discretionary. So, these provisions were not included in the Colorado Discharge Permit System Regulations (Regulation No. 61) finalized in December 2000.

It was decided that a separate guidance document would be helpful for preparing permit applications due in March 2003. Although some of the federal recommendations are included, the guidance document has been customized for Colorado and includes detailed methods as well as descriptions of potential program elements.

In February, about 50 volunteers from throughout the state started to write and review the document. This group effort was completed just recently and should be posted by mid-November on WQCD's Permits Unit website

<http://www.cdphe.state.co.us/wq/PermitsUnit/wqcdpmt.html>



*CONFERENCE FUN -- CASFM members just heard happy hour has been extended.*

## GRANT APPLICATIONS DUE

Non-point 319 grant applications are due January 31, 2002, to the Colorado Department of Public Health and Environment. Call Kevin McBride at the City of Ft. Collins for more information.

## DO YOU KNOW CASFM'S PURPOSE?

The purposes and objectives for which CASFM were formed are:

- 1) To provide a means of local representation on a statewide basis regarding policies and activities dealing with stormwater and floodplain management within the State of Colorado.
- 2) To unite in a common organization those professionally engaged in stormwater and floodplain management within the State of Colorado.
- 3) To engage generally in professional, educational, social and trade association related activities for stormwater and floodplain managers within the State of Colorado.
- 4) To promote the mutual interest of the Corporation members.

The Corporation shall not be involved in nor shall it participate in, or intervene in any political campaign on behalf of any candidate for public office. No substantial part of the activities of the Corporation shall be engaged in carrying on propaganda, or otherwise attempting to influence legislation.

# CASFM FIELD TRIPS



*LEYDEN DAM -- During the tour, CASFM members watched granular bedding being placed on the embankment.*

## DAM FIELD TRIPS ATTRACT CASFM MEMBERS

*By Chris Pletcher, P.E.*

I had the pleasure of attending two CASFM-sponsored field trips this fall to observe the construction of Leyden Reservoir in Arvada and the dam and reconstruction of the north dam at Horsetooth Reservoir in Fort Collins.

### LEYDEN DAM

Mike Miller and Monica Bortolini of URS Corp organized and conducted the Leyden Dam tour on Aug. 20. URS provided design and construction management services for this project. Roller compacted concrete (RCC) is being used to protect the embankment because of its tolerance of high shear stresses and economy of installation. Concrete was batched on-site, with a batch cycle time of about 15 minutes.

Although RCC was not being placed at the time of the tour due to the weather, we were able to see granular bedding being placed on the embankment. We also

also observed the continuous quality control procedures being used by URS to ensure uniform quality and strength of the RCC.

This project was still in the permitting phase, even while under construction, so the detention pool upstream of the dam was required to be fully drained with temporary outlets until it is approved and constructed.

The URS staff was very informative and provided a great opportunity to see RCC being used in a suburban setting.

### HORSETOOTH RESERVOIR

CASFM Northeast Regional Representative, Debbie Haferman, organized the Horsetooth Dam tour on August 23. This project was designed and managed by the Bureau of Reclamation, owner of the dam. After collecting all the participants at Vern's Place (restaurant) in Laporte, we carpooled to the construction site at the north end of Horsetooth Reservoir.

Two major project components were presented during the tour. First, subgrade material at the downstream base of the

*(cont. on page 16)*



*HORSETOOTH DAM – Members learn about installing a grout curtain centered in the existing embankment extending down more than 100 feet.*

# GENERAL INTEREST



*HORSETOOTH DAM – The north dam at Horsetooth Reservoir is being reconstructed in two major phases.*

*(cont. from page 15)*

embankment was being replaced. This involved significant dewatering and moving and compacting massive amounts of material. This portion of the project was nearing completion.

The second major portion of the project will involve installing a grout curtain centered in the existing embankment extending down more than 100 feet. Construction of such a concrete wall without being able to see what is happening will be quite impressive!

The trench will be maintained with a clay slurry, which gets displaced as the concrete is poured into the trench. Quality control and quantity control will be made by measuring the volume of concrete used and also by spot checking the grout curtain with test holes on the upstream side of the dam. This process would make another great tour for next year!

## CASFM NEEDS YOU

There has always been a floodplain and stormwater committee, but often times it has been a committee of one. We would like to get the general membership more involved in committees this year.

Last year we formed the Community Outreach committee headed by Chris Carlson, and this year we are forming the Certified Floodplain Manager committee headed by Kallie Sampish.

We would like to encourage any members to become involved in the committee of their choice. There is also an opportunity for someone to take over the annual project awards process.

Remember, our organization is only as strong as our volunteers, and everyone was only given 24 hours each day.

## CALENDAR OF NATIONAL CONFERENCES

International Erosion Control Association's 33<sup>rd</sup> Annual Conference and Expo, February 25 – March 1, 2002, Orlando, Florida

ASCE, EWRI 2002 Conference on Water Resources Planning and Management, Managing Extremes – Floods and Droughts, May 19-22 in Roanoke, Virginia

ASFPM Annual Conference, June 23-28 in Phoenix, Arizona



# PROJECT PAGE

*THE OPEN CHANNEL will be featuring at least one or two projects (depending on how many articles we get!), in each edition of THE OPEN CHANNEL. Please keep this in mind next time the announcement for articles is made. Don't wait for the annual conference to get recognition for an outstanding project.*

## CHANNEL REHABILITATION FOR WATER QUALITY IMPROVEMENT REGULATORY ISSUES

*Bob Neal, P.E.<sup>2</sup> and Ted Johnson, P.E.<sup>3</sup>*

The Metro Wastewater Reclamation District (District) provides wastewater transmission and treatment services for most of the Denver metropolitan area. The District's 185 mgd Central Treatment Plant, consisting of the 70 mgd North Complex and 115 mgd South Complex, discharges effluent at 64th Avenue, near the beginning of Segment 15 of the South Platte River. This reach of the river extends 26 miles north to Fort Lupton, Colorado.

The Colorado Water Quality Control Commission (WQCC) has classified Segment 15 as an Aquatic Life Warm Water Class 2 stream with a dissolved oxygen (DO) standard of 5.0 mg/L from May to July and 4.5 mg/L from August to April. Water quality studies conducted over the past decade indicate that portions of Segment 15 failed to meet this standard with the Central Plant effluent identified as the primary reason.

As a result, the District constructed nitrification facilities at the North Complex to reduce ammonia as a potential oxygen-demanding substance in the plant's effluent. Although this facility has reduced the amount of ammonia discharged, the standard for DO was still exceeded. Further study was

conducted to determine the scope, nature and cost of nitrification/denitrification facilities for the South Complex, estimating \$112 million in construction costs and \$45 million in annual operating and maintenance costs, which would impose a significant financial burden on the District.

A second study was commissioned to investigate "non-traditional" treatment techniques that could be used to meet the DO standard. Water quality modeling predicted that DO, and not ammonia, is the limiting water quality parameter and is most critical during the warm weather months of July



through September. Modeling also predicted that even with the implementation of full nitrification of the Central Plant DO deficiencies could still be expected in Segment 15.

Several methods for meeting the DO standard were investigated, including:

- 1) Flow equalization – the river experiences a diurnal fluctuation in flow rate determined by Central Plant discharge characteristics. Equalizing discharge could provide additional dilution and reduce oxygen demand from treated wastewater effluent.

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# PROJECT PAGE

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2) Active aeration – pumping oxygen into river flow to increase DO concentrations.

3) Passive aeration – implementing channel modifications that increase river flow reaeration characteristics.

Although the District continues to pursue flow equalization as a possible methodology, passive aeration techniques were determined to be the most feasible and least costly. Active aeration, in addition to being costly, also met regulatory resistance due to the perception that use of mechanical aerators would be the first step to turning the river into a linear treatment plant.

Passive aeration techniques focus on increasing flow turbulence through the use of drop structures designed to optimize the air/water interface in the river flow. Oxygen transfer efficiency is directly proportional to the degree of contact between air and water -- the more air bubbles that are added to the flow and the longer they can be kept submerged in the flow, the more oxygen is transferred from the air to the water. Several drop structure configurations were investigated, and it was determined that a vertical drop with a free flowing nappe provides the greatest aeration benefit.

Water quality modeling predicted that six reaeration structures placed at specific locations between the Central Plant and the confluence of Big Dry Creek south of Fort Lupton would be required to meet the DO standard. To date, four structures have been designed, two of which have been built: one, 4,000 feet upstream of 88<sup>th</sup> Avenue, and the second, 3,600 feet of 104<sup>th</sup> Avenue. A third structure has been designed and is located 2,500 feet downstream of 88<sup>th</sup> Avenue, but is not needed at this time due to above-standard

DO concentrations in this reach of the river. Construction on a fourth structure, 7,200 feet downstream of Henderson Road, is expected to be complete December 2001. Two planned structures are located between the Brighton Ditch and Lupton Bottoms ditch diversions, to be constructed in 2003.

The Metro District has consulted with the State of Colorado Water Quality Control Division and Division of Wildlife and the U.S. Environmental Protection Agency to discuss and obtain approval for passive



reaeration modifications to the river. In addition to obtaining approval from water quality agencies, it is necessary to obtain local and federal approval for modification of the river channel including the Clean Water Act Section 404 permit and the Floodplain Development Permit.

Obtaining individual 404 and floodplain development permits were straightforward. Although potential threatened and endangered species habitat was identified, no habitat mitigation was necessary. Jurisdictional wetlands mitigation has been required at each reaeration structure site. The ratio of wetlands mitigated to wetlands disturbed has varied according to the value of the disturbed wetlands.

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# PROJECT PAGE

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Wetlands with a high value (e.g., backwater, non-scour area exhibiting high diversity of native species supporting a varied fauna) were replaced at a ratio of 2:1, while wetlands of low value (e.g., scoured regularly, non-native species composition) were replaced at a ratio of 1:1. This resulted in an overall replacement ratio between 1 and 2.

The U.S. Army Corps of Engineers, Colorado Division of Wildlife and U.S. Fish and Wildlife Service also have migratory bird and natal (rearing) den concerns. The Migratory Bird Act states that the nests of birds that migrate across international borders cannot be disturbed during nesting season. The State of Colorado prohibits the disturbance of dens in use for natal purposes.

As part of the 404 application process, a survey of potential dens and nests was conducted near the disturbance area and action taken to discourage use of identified nests and dens. At one site, cliff swallow nests were found in an eroded cutbank slated to be eliminated during construction. Fox dens also were identified.

To discourage the use of these nest and dens, burlap was hung along the cutbank and stuffed into the dens. To determine if a den was in use, the ground was smoothed around the den and then inspected periodically for spoor.

To date, channel improvements have cost the District less than \$10 million. In turn, the District has saved its customers tens of millions of dollars and achieved its dual goal of enhanced quality of river flow and increased recreational opportunities as well as enhanced riparian and aquatic habitat on the river.

## AUTHOR NOTES

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## FLOOD MYTHS

- Floods only happen to other people.
- It has never flooded here, so it never will.
- There was a flood problem, but it has been fixed.
- If flooding were a problem, someone would have told us. That's why we pay local taxes.
- It's only water. It's no big deal to be flooded.
- The government will bail me out.
- My homeowner's policy will cover any flood damage.
- We just had what the TV reporter called a "100-year flood." So my family will be safe from future floods for the rest of their lives.

## FEMA HOSTS WEB SITES

The FEMA Semi-Annual Regulatory Agenda is now posted on its web site at [www.fema.gov/library10.htm](http://www.fema.gov/library10.htm)

The Hazard Mitigation Grant Program Desk Reference is now on the FEMA web site at [www.fema.gov/mit/grant.htm](http://www.fema.gov/mit/grant.htm)

The FEMA Technical Support Division is located at [www.fema.gov/mit/tsd](http://www.fema.gov/mit/tsd)



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