# Tucker-Talk

**by L. Scott Tucker**

*Timely Comment from the District's Executive Director*

Three years ago in this column I discussed the evolution of multiuse drainage and flood control thinking from the early 1970's to 1990's. It was noted that the focus in the late 1990's was on water quality and preservation of stream corridors. The direction of drainage and flood control is still heading that way with subtle changes continuing to occur. A concern of the public in Colorado and elsewhere recently has been growth control. Some people simply do not want any more growth, others recognize a certain inevitability but want to somehow control its impacts, while others are willing to let things take their natural course with as little governmental control as possible. Drainage and flood control is a subset of the growth control issue as it is growth that drives the need for housing, roads, shopping malls, etc. which have such an impact on the environment including the drainageways.

The pressure for little or no impact of urbanization on the nation's water bodies continues to build. It is becoming more and more obvious, however, that it is very difficult or impossible to have development without impacts. Negative impacts can be mitigated to some extent, but the attainment of zero impact is virtually impossible. As an agency it has not been the District's role to weigh in on growth, such as whether to have more or less and where it should be directed. We have taken the position, however, that development should not take place in such a way as to be damaged by floods up to the 100-year event. Development in floodplains has been controlled for the past thirty plus years through regulations which have worked very well to keep new development out of the path of 100-year floods.

However, regulation does not prevent development from occurring in floodplain areas. The developer can provide a 100-year channel to reduce portions of the floodplains. This is not the best solution and the District has encouraged developers to stay out of defined 100-year floodplains. While this can be encouraged it cannot be required. The public today is beginning to recognize the value of riparian areas, and stream corridors are becoming popular areas for urban dwellers to hike, bike and get a little closer to nature. Some developers are responding to this in a market sense by preserving floodplains and integrating them into their developments as assets and they market them as such. I did say some and not all, but at least the recognition of the value of riparian corridors is beginning to be noticed. There are many developers, however, that still have the objective of developing the maximum amount of their property as possible and the space needed for drainage is an issue to them. This is particularly true in the areas where property values are very high.

It just seems to be good public policy when looking at the long term to preserve our natural drainage systems. However, such preservation has to take place in the context of private property rights. We still live in a democracy in which private property rights are important and protected. That is why we cannot prevent through regulation all development in floodplains. One way to address this issue is through the acquisition of floodplain properties when there is a willing seller. There is strong public support for open space acquisition in the Denver area and the District has worked with local governments to acquire floodplain areas, sometimes as part of the acquisition of larger parcels. In this way we can guarantee the long term preservation of floodplains. The District annually budgets monies for the purchase of floodplains that may unexpectedly become available during the course of the year. The District usually requires matching funds from local government which helps our money to go further. The District can also include right-of-way purchases for projects in its Capital Improvement Program that can include acquisition of floodplain areas.

Our focus is still on multiple use of drainageways, but that is shifting to more natural approaches. We must still pay attention to flood control, but that becomes just one consideration along with water quality, restoration, hiker/biker trails, flood storage, erosion control, habitat preservation and open space. To accomplish this vision of open natural like drainageways one must have patience to persist over a long period of time along with the availability of several important ingredients such as consistent long term funding, ability to buy floodplains, ability to plan and implement on a multiuse basis, ability to address water quality, ability to maintain, and ability to regulate.

The control of growth is a very difficult issue. It is difficult to see how growth itself can be controlled. Some cities in the Denver area have placed restrictions on the amount of new housing that can be built in a year, but this only pushes the new people that have moved here somewhere else. It has not controlled the growth into the metro area. Growth is basically a people issue. How can we stop people from moving to the Denver area? The issue that really is being addressed is how can we manage growth, and that too has a wide range of answers depending on one's philosophy. It is a political question and will not be decided by the District. How much do we force on people in terms of how they live? Do we require cluster type developments with high densities but

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space between clusters? Do we force people out of their cars and into mass transit? Do we prevent development outside defined growth areas? Do we require more dense infill development? Do we require sales taxes to be collected on a metro basis instead of by local governments, thereby removing the competitive nature of sales tax producing developments? Etc., etc. These are questions that policy makers will have to face.

In the meantime the District will continue to try to keep development out of floodplains, to preserve floodplains to the extent possible, continue to do projects that solve existing problems, continue to maintain the drainage facilities, continue to work on water quality improvements, and continue restoration efforts. Such efforts should provide future generations with drainageway corridors that are assets and not liabilities.

## CoCo RaHS Coming to District

by Nolan Doesken, Assistant State Climatologist, CSU Colorado Climate Center

What is CoCo RaHS? CoCo RaHS is an acronym for the "Community Collaborative Rain and Hail Study". This is a community-based research and education project designed to involve local citizens of all ages in helping scientists study the fascinating and remarkably localized rain and hail patterns from spring and summer thunderstorms. With the help of the Urban Drainage and Flood Control District, CoCo RaHS will be starting up in the Denver area during the spring and summer of 2002. Detailed precipitation maps will be produced for every day of the year to help examine rainfall patterns in the region.

CoCo RaHS was initiated by the Colorado Climate Center at Colorado State University following the devastating flash flood that struck Fort Collins in July 1997. At that time, hundreds of local citizens in Fort Collins and Larimer County assisted the Colorado Climate Center in documenting storm rainfall patterns. With the help of nearly 300 rain gauge reports, precise details of the storm were identified and mapped. The heaviest core of that storm was shown to be only about one mile across and centered over extreme southwest Fort Collins where 14.5 inches of rainfall was measured. This was the heaviest rain ever documented over an urbanized area in Colorado. Just three miles to the east, rainfall decreased to less than two inches and many citizens of Fort Collins had no idea that a raging flood was in progress. Local observations also showed another rainfall core of over 12 inches just northwest of Fort Collins near the town of Laporte.

Since that storm, the Colorado Climate Center has worked together with teachers, students, local utilities, the National Weather Service, and various other organizations to put together a network of hundreds of volunteers that measure rainfall and hail on a daily basis. High school students from Fort Collins created a webpage that allows volunteers to submit their daily observations over the Internet. Rainfall and hail maps are immediately created and displayed that show the data from all volunteers.

Project scientists and sponsors utilize these precipitation maps to help understand the localized nature of storms and their impacts. The maps also are proving to be a wonderful resource for students and teachers in learning about weather patterns here in Colorado. In Fort Collins, where CoCo RaHS has been active for only four years, a monitoring network of more than one station per square mile covers nearly the entire city and surrounding areas. This allows scientists and water managers to truly understand local rainfall patterns and their implications.

CoCo RaHS is becoming a huge help to the Colorado Climate Center, whose job is to accurately monitor Colorado's climate. The Climate Center has done well with only a few weather stations per county across the state, but has always known that precipitation patterns are highly variable and that statewide precipitation estimates have been crude. Since CoCo RaHS started, several hundred precipitation stations are now reporting routinely from northern Colorado and precipitation assessments are getting much better.

Measuring rainfall seems easy, but there is more to it than meets the eye. All volunteers will be equipped with high capacity rain gauges that meet National Weather Service accuracy requirements. The Climate Center will provide excellent training on where and how to set up rain gauges to get accurate readings, while trying to make this a fun and exciting educational experience for all participants regardless of age or background.

CoCo RaHS expansion into the District will begin this spring. A student intern from Metropolitan State College Department of Earth and Atmospheric Sciences will play an important role in the project. Efforts will begin immediately to recruit volunteers, equip them with quality rain gauges and hail measuring devices called "CoCo RaHS Hail Pads", and provide training to all volunteers.

The goal for 2002 will be 150 new volunteers in the Denver metropolitan area to supplement the existing network of over 130 automated rain gauges operated by UDFCD. Together, this should provide a greatly improved ability to track and understand local storms.

It only takes five minutes per day to be a CoCo RaHS volunteer. If you would like to help with this project, please contact the Colorado Climate Center, Department of Atmospheric Science, CSU, Fort Collins, CO 80523, phone: 970-491-8545, fax: 970-491-8449, email: nolan@atmos.colostate.edu.

To learn more about CoCo RaHS, a link has been provided to the website from alert.udfcd.org.