

**WEEKLY INFORMATION PACKET  
MEMORANDUM**

To: Mayor Shaun McGrath and Members of Council

From: Frank Bruno, City Manager  
Stephanie Grainger, Deputy City Manager  
Ned Williams, Director of Public Works for Utilities  
Robert Harberg, Utilities Project Engineering Coordinator  
Eric Lessard, Engineering Project Manager

Date: November 29, 2007

**SUBJECT:** Information Item: **Fourmile Canyon Creek & Wonderland Creek Major Drainageway Planning Document**

**EXECUTIVE SUMMARY:**

The Fourmile Canyon Creek and Wonderland Creek Major Drainageway Planning - Phase A Report - Alternatives Analysis (Phase A Report) focuses on the development, evaluation, and recommendations of alternatives to mitigate future flooding in both the Fourmile Canyon Creek and Wonderland Creek flood hazard areas within the City of Boulder (City) and Boulder County. The work was jointly sponsored by the Urban Drainage and Flood Control District (UDFCD) and the City of Boulder, Colorado. The Phase A Report was prepared by the consultant Love & Associates. The Phase A Report presents information regarding flood mitigation planning and investigates a number of strategies to be evaluated by staff, the public and City review boards. Staff has coordinated the flood mitigation planning with other objectives of the Greenways Program and presented the report to the Greenways Advisory Committee (GAC). An open house for affected citizens was conducted in addition to a presentation of the document to the Water Resources Advisory Board (WRAB) in October. Staff is preparing the recommended alternatives to be presented to WRAB in December. A presentation of this information shall occur to Council and Planning Board early next year.

The Phase A report evaluates a number of alternate drainageway planning concepts to mitigate existing flood damages, taking into consideration the impacts of the spill flows from Fourmile Canyon Creek to Wonderland Creek. The study is divided into two phases. The first phase (Phase A) is the initial report that covers the hydrologic, hydraulic, and alternate evaluation aspects of the project. The future, second phase (Phase B), will cover the preliminary design of the selected alternates.

A complete copy of the Phase A report is available at [www.boulderutilities.net](http://www.boulderutilities.net), under “Projects and Programs.”

**COUNCIL FILTERS:**

- **Economic:** The Phase A report recommends a number of flood mitigation strategies that will help protect life and property. As part of the report, a cost-benefit analysis was completed to find the most economically viable floodplain management approach.
- **Environmental:** The Phase A recommendations will have a positive impact upon transportation. A number of new culvert crossings will include underpasses that provide additional alternative transportation opportunities. The crossings will also keep the streets from being flooded as frequently, thereby ensuring better automobile traffic during storm events.
- **Social:** As mentioned above, the new facilities will allow alternate forms of transportation. This is a valuable resource for non-automobile traffic.

### **BACKGROUND:**

The study area includes the Fourmile Canyon Creek floodplain from the mouth of the canyon to its confluence with Boulder Creek and the Wonderland Creek floodplain from downstream of Wonderland Lake to its confluence with Goose Creek. Additionally, the Fourmile Canyon Creek spill floodplain, located between Fourmile Canyon Creek and Wonderland Creek, upstream of Broadway to approximately 19th Street, is also included. Major drainageway planning documents were previously developed for Fourmile Canyon Creek and Wonderland Creek by Greenhorne & O'Mara, Inc in the mid 1980s. Due to development that occurred in the floodplain and improved floodplain information, the City of Boulder commissioned a re-study of the Fourmile Canyon Creek floodplain and the Wonderland Creek flood hazards. The study was based on detailed 2003 aerial mapping and new hydrologic analysis techniques. Love & Associates was retained by the City to prepare a Letter of Map Revision (LOMR) submittal to FEMA for these two streams. The LOMR was developed during 2004-2005 and approved by various City Boards and the City Council in early 2006. The LOMR was submitted to FEMA in March, 2006 and approved in November, 2006. The new flood hazard areas became regulatory following the end of the public appeal period in late March, 2007.

The flood analysis for these two creeks indicated significant differences from the original FEMA regulatory studies, resulting in additional properties being located within the two floodplains. Of particular importance, the re-study identified reaches of Fourmile Canyon Creek west of 19th Street where, once the channel capacity is exceeded, flood flows overtop the south bank of the creek and flow in a southeasterly direction towards Wonderland Creek. These "spill flows" result in a reduction of flows in Fourmile Canyon Creek downstream of 19th Street but also result in an increase in the flows in Wonderland Creek. A broad range of alternates were identified and screened following an analysis of each stream and detailed discussions held during progress meetings on a reach basis, for each stream. A wide array of options were looked at as potentials for mitigation of the flooding, ranging from a status quo alternate to construction of a 100-year flood channel for each stream thereby confining the spill from Fourmile Canyon Creek.

Love & Associates, Inc. has recommended a combination alternate for both Fourmile Canyon Creek and Wonderland Creek. For each creek, the recommended alternate consists of a combination of the 100-Year Channel, High Hazard Containment, Floodproofing and Maintain Status Quo. The recommended alternates were developed utilizing a reach approach. The

UDFCD has developed a draft selected plan. It endorses the Love & Associates recommendations and provides additional direction to be considered.

Utilities Planning and Project Management staff have responded to solicited input received from other internal city departments and work groups including consideration of Greenways objectives. Staff presented the Phase A report to the GAC on Sept. 19. Staff then solicited input and received a number of comments from a public open house, held on Sept. 27. In addition, based on the number of similar questions asked during the Open House, staff prepared a Frequently Asked Questions document and a newsletter to facilitate the public process and provide citizens with a quick summary of activities related to the Phase A report. This information was then presented to WRAB on Oct. 15.

**NEXT STEPS:**

Staff is currently preparing responses to questions from the Oct. 15 WRAB meeting and is developing several new alternatives in cooperation with Love & Associates. It is likely that staff will be making some minor adjustments to the consultant recommendations, including endorsing a different alternative along Wonderland Creek that will not require the purchase of three existing structures. These recommendations will be presented at the Dec. 17 WRAB meeting, at which time staff will request WRAB to provide its recommendations to Planning Board and City Council. A public hearing with the Planning Board and City Council are anticipated in early 2008. Following this process, the Phase B – Preliminary Design will be initiated and should be completed in 2008. The preliminary design will be reviewed as part of the city's Community and Environmental Assessment Process (CEAP). Money has been budgeted in the 2008-2013 Capital Improvement Program (CIP) budget to begin to fund selected flood mitigation work. It is likely complete implementation of the selected flood mitigation plan will take several decades and may occur in cooperation with redevelopment projects.

For more information on the Fourmile Canyon Creek and Wonderland Creek floodplain study, please contact Eric Lessard at 303-441-4232 or [lessarde@bouldercolorado.gov](mailto:lessarde@bouldercolorado.gov)