

## **Massey Draw Stream Improvement Project**

Massey Draw is a notable source of phosphorus and sediment loading to Chatfield Reservoir, a popular recreational reservoir located near Denver. The drainage became a greater problem after much of the Massey drainage was developed, increasing runoff and erosion. Lockheed Martin Astronautics Operations, in cooperation with the U.S. Army Corps of Engineers (USACE), initiated the Massey Draw Stream Improvement Project to meet multi-objectives. The project reduces erosion, decreases reservoir sedimentation, enhances habitat along the channel, improves the quality of water flowing from Massey Draw into Chatfield Reservoir, increases recreation and education opportunities, serves as a total phosphorus trade project, and has become a memorial site. The project involved contouring and stabilizing eroded banks, installing several enhanced drop structures, wetland and riparian habitat improvements and installation of shrubs, trees and ground cover. Structures were designed and colored to blend in with the natural landscape. The project is located on land open to the public. Trails to and along Massey Draw were improved or added and two interpretative signs and seating areas were added. The signs explain the purposes of the project, sources of phosphorus, how streams change when watersheds are developed, and the important functions of wetland ecosystems. The Chatfield Basin Authority has been collecting water quality data before and after project construction to determine the effectiveness and efficiency of the project in reducing sediment and nutrient loading to Chatfield Reservoir. The project now attracts more human visitors and wildlife.

The project achieved many objectives in a timely, cost-effective fashion, meeting all of the CASFM judging criteria.

Numerous stakeholders were involved in implementing the project, including the following:

- Lockheed Martin—grant application support, cash contributor
- USACE—landowner, 404 permit
- Denver Botanic Gardens/Chatfield Nature Preserve—lessees, supporters
- Jefferson County—sponsor, cash contributor, grant application support
- Urban Drainage & Flood Control District—cash contributor, maintenance, grant application support
- Chatfield Watershed Authority—support, approval, pre and post-construction water quality monitoring, planting vegetation, installation of memorial benches, and maintenance
- Denver Regional Council of Governments—support and approval,
- Volunteers for Outdoor Colorado—trail construction, planting of vegetation
- Colorado State Parks—support.

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