

Spring Creek Basin Master Drainage Plan Fort Collins, Colorado

Client: Ms. Susan Hayes/Mr. Matt Fater
City of Fort Collins Utilities
Stormwater Department
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Engineering Budget: \$341,225
Completion Date: 3/2004



ANDERSON CONSULTING ENGINEERS, INC.
Civil • Water Resources • Environmental

Anderson Consulting Engineers, Inc. (ACE) was contracted by the City to prepare the Master Drainage Plan for Spring Creek Basin. The primary purposes of the project were: (1) identify flooding problems within the basin, including delineation of 100-year floodplains along major drainage corridors; (2) identify existing habitat areas within the basin and possible areas where habitat could be enhanced; and (3) utilizing an integrated watershed plan, prepare a cost effective plan of drainage improvements for the basin which will eliminate, to the extent practicable, flooding for all events up to and including the 100-year event, while protecting and enhancing habitat where possible. In order to accomplish these goals, the following general tasks were completed by ACE:

- (a) a new hydrologic model for the nine square mile basin was prepared and utilized to estimate runoff response to a range of rainfall events for both existing development and fully developed conditions;
- (b) baseline hydraulic analyses were conducted along the main drainage corridors using HEC-RAS for a range of flood events, floodplain and floodway mapping for the 100-year event was prepared along these drainage corridors;
- (c) flood damages within the basin were estimated for a range of flood events;
- (d) conceptual alternatives for reducing flood damages and public safety hazards were developed;
- (e) projects intent on preserving/enhancing habitat within the basin were recommended, including erosion protection measures and water quality ponds;
- (f) a selected plan of drainage improvements was prepared, comprised of eleven identified projects, which included a combination of five regional detention ponds, irrigation ditch improvements, five local storm sewers, and erosion/overtopping protection for the BNR railroad embankment;
- (g) engineering and construction cost estimates for the selected plan of improvements totaled \$11 million; and
- (h) hydrologic and hydraulic models were refined to reflect master plan conditions, and residual flood damage estimates completed.

The drainage improvements identified in the Master Plan will be constructed over a period of years and will result in the removal of approximately 150 structures from the 100-year floodplain and a reduction in flood damages over a 50-year period from an estimated \$12 million to \$2.5 million.



**Spring Creek Looking Upstream
from College Avenue**



**Spring Creek Looking Upstream
from Taft Hill Road**