

Old Town 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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Fort Collins, Colorado 80521
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Engineering Budget: \$444,670
Completion Date: 3/2004



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

Anderson Consulting Engineers, Inc. (ACE) was contracted by the City to update the Master Drainage Plan for the Old Town Basin. The primary purposes of the project were to: (1) finalize and consolidate baseline hydrology to include recent construction of 3 new storm drainage outfalls, master plan improvements to the Colorado State University (CSU) campus, and runoff generated within the Canal Importation Basin contributing to the Old Town Basin, including delineation of 100-year floodplains along major drainage corridors; (2) identify existing flooding problems within the basin and associated flood damages; 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 and associated damages for all events up to and including the 100-year event. In order to accomplish these goals, the following general tasks were completed by ACE:

- (a) a new hydrologic model for the over three 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 nine major drainage corridors using HEC-RAS, and floodplain 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 within the basin were developed, including the recommendation of floodplain/floodway regulation and enforcement, floodproofing of structures, acquisition of flood prone structures, on-site detention facilities, regional detention facilities, structural conveyance improvements, and water quality detention facilities, with the latter being located at the end of major storm sewer outfalls discharging to the Poudre River;
- (e) a selected plan of drainage improvements was prepared, comprised of seven identified projects, which included a combination of water quality ponds and structural conveyance improvements, with nearly 500 storm sewer inlets and almost 6 miles of storm sewers;
- (f) engineering and construction cost estimates for the selected plan of improvements totaling over \$50 million; and
- (g) hydrologic and hydraulic models were refined to reflect master plan conditions and residual flood damage estimates were completed.

The drainage improvements identified in the Master Plan will be constructed over a period of 25 years and will result in the removal of approximately 360 structures from the 100-year floodplain and a reduction in flood damages over a 50-year period from an estimated \$109 million to \$38 million.



**Intersection of Magnolia Street
and Canyon Avenue**



**Howes Street Outfall Inlets
along Laporte Avenue**