

Spring Creek Physical Map Revision for Flood Control Improvements Funded by a Pre-Disaster Mitigation (PDM) Grant from FEMA, Fort Collins, Colorado

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Civil • Water Resources • Environmental

Hydrologic modeling of the Spring Creek Basin and hydraulic modeling of the entire 7.9-mile reach of Spring Creek were completed in support of a Physical Map Revision (PMR) in the City of Fort Collins. Both the 100-year floodplain and ½-foot rise floodway were delineated, along all requisite flood profiles, annotated FIRM panels, and related documentation required for the PMR. The modeling and flood hazard delineation effort were conducted in support of **four projects constructed by the City of Fort Collins, three of which were funded by a Pre-Disaster Mitigation (PDM) Grant from FEMA.** The three most significant projects as they relate to Spring Creek hydrology and hydraulics are the Spring Canyon Community Park Detention Pond, the Taft Hill Detention Pond, and the Rolland Moore Park Detention Pond projects. **These projects have served to remove 170 buildings, including both homes and businesses, from the 100-year floodplain.** The staff of Anderson Consulting Engineers completed the following specific tasks for this project:

- an evaluation of the effective floodplain models and correction of several errors in the original models;
- adjust hydrologic models (both **UDSWM2000 and MODSWMM**) to reflect changes in Spring Canyon Community Park, and in the vicinity of the C&S Railroad Detention Pond and the Timberline Road Widening Project;
- coordination with the City of Fort Collins Park Planning and Development Department and Parks and Recreation Department concerning the design of the Spring Canyon Community Park and Rolland Moore Park Detention Ponds;
- hydraulic analysis using **HEC-RAS** of the diversion weir into the Spring Canyon Community Park Detention Pond;
- **hydraulic analysis and final design of Rolland Moore Park Pond and Taft Hill Pond improvements, including a channel flow restriction structure, pedestrian bridge, channel stabilization, sidewalk relocation, and pond embankment improvements;**
- **analysis of numerous divided flow paths** through the Hill Pond neighborhood, balancing flow splits between the main channel and divided flow paths to ensure that properties in Hill Pond/Shire Court will be removed from the regulatory 100-year floodplain by the project;
- hydraulic analysis using HEC-RAS along the main channel of Spring Creek and along divided flow paths modeled as street flow;
- **coordination of surveying** conducted at the Spring Creek Medical Park, as well as the Rolland Moore and Taft Hill Detention Ponds;
- **100-year floodplain evaluation and delineation for a 7.9-mile reach of Spring Creek, and divided flow paths** through the Hill Pond area for corrected effective, existing, and proposed conditions;
- **½-foot floodway analysis and delineation for a 7.9-mile reach of main channel, and multiple divided flow paths** for corrected effective, existing, and proposed conditions; and
- preparation of all **PMR application materials.**

The PMR has been approved by FEMA with final adoption pending completion of the appeals/compliance period.



Downstream Face of Shields Street Bridge



Spring Creek through Rolland Moore Park