

## Fossil Creek Trail Extension & Underpass

Nominating Agency: City of Fort Collins

**Accomplishment:** In August 2011, the Fossil Creek Trail Extension and Underpass at County Road 38E opened to the citizens of Fort Collins. Throughout the construction phase, there were local news publications highlighting the positive aspects of this project to the local community. The trail connects Spring Canyon Community Park on the north to Cathy Fromme Prairie Natural Area on the south. The project completes a major segment of the Fossil Creek Trail on the west side of town while creating even greater connectivity within a community known for its trail systems.

The Fossil Creek Trail Extension leaves the south side of Spring Canyon Community Park and winds its way through open space at the base of Horsetooth Reservoir, cuts up through an easement obtained from local property owners before traveling east along County Road 38E (Harmony Road). The underpass allows pedestrians and cyclists to cross into additional open space within the Taft Canyon Home Owner's Association without having to cross a major arterial roadway. Once the trail exits the concrete box culvert underpass, it begins a steady climb to an elevation of 5172 feet to minimize the required excavation at the trail's high point. As the trail begins its descent to the south, it spans a major drainageway with a 100-foot-long pedestrian bridge. The project limits ended at Luther



Lane, hence completing the connection of the existing Fossil Creek Trail.

The Fossil Creek Trail Extension and Underpass has become a highly used trail within the City of Fort Collins trail system. The community is pleased that the decision was made to construct an underpass as County Road 38E has a posted speed of 45 mph and sees heavy traffic volumes.

The team consisting of City of Fort Collins, Atkins, and Interwest Consulting Group designed and constructed the Fossil Creek Trail Extension and Underpass at County Road 38E by means of multiple innovative concepts. Within the northern segment of the project, an approximate 12-foot cut was required. Large block gravity walls and site-specific grading were used to keep the construction within the 40-foot trail and 30-foot slope easements. Another right-of-way challenge the team faced was the limitation of constructing the segment of trail along County Road 38E with minimal impacts to local property and traffic. The design employed use of caisson walls along both the north and south trail edges as the trail descends to the concrete box culvert underpass.

**Innovation:** The team consisting of City of Fort Collins, Atkins, and Interwest Consulting Group designed and constructed the Fossil Creek Trail Extension and Underpass at County Road 38E by means of multiple innovative concepts. Within the northern segment of the project, an approximate 12-foot cut was required. Large block gravity walls and site-specific grading were used to keep the construction within the 40-foot trail and 30-foot slope easements. Another right-of-way challenge the team faced was the limitation of constructing the segment of trail along County Road 38E with minimal impacts to local property and traffic. The design employed use of caisson walls along both the north and south trail edges as the trail descends to the concrete box culvert underpass.



easements as well as maintaining mobility within project limits apply to most projects. The concept of looking at design and construction solutions for site specific challenges

is not new to engineering, but our team work and collaboration led to a final project that met the community's needs and project goals. One specific transferable scheme was the use of specifications to design the pedestrian bridge rather than designing it as part of the project. The City has used this in the past, and will use it in the future.

Once the caissons were drilled and poured, the trail could be excavated between the caissons, thus having minimal impact to local residences and traffic. Due to the long bridge span, cost of bridge design, and the City's experience with allowing contractors to build pedestrian bridges by project specifications, the decision was made to use this method during the project. The project team designed the abutments upon which the bridge would sit and the bridge manufacturer constructed it offsite. County Road 38E (Harmony Road) experiences high traffic volumes within the project limits as it is the main access to Horsetooth Reservoir, a major recreation area in northern Colorado. A project restriction was to minimize impacts to the roadway and have the concrete box culvert underpass construction completed prior to the Memorial Day holiday weekend, which is the busy, summer season kick-off. In order to complete this work as quickly as possible, precast segments were employed and the underpass was constructed, backfilled and the roadway paved in 10 days. These innovative design and construction methods followed the project objectives to minimize impacts to adjacent property and the roadway.

**Cooperation:** The trail extension and underpass crosses through many agency/local group jurisdictions including Fort Collins Parks Department, Fort Collins Open Space, Larimer County and Taft Canyon Home Owner's Association. Through cooperation between all parties, the connection was completed under budget and on time. The final plan set was a combination of both Atkins and Interwest Consulting Group plans into one construction package. With Fort Collins Park Planning and Development managing the construction site, the plans had to convey the different designs in a thorough and complete manner. This project also showed the willingness of two groups within the City to work together. Included in the plan package was additional grading work to be completed for the City engineering division. Approximately 3100 cubic-yards of excavation generated from the Fossil Creek Trail Extension was used to complete slope grading along East Harmony Road and eliminate the need for a guardrail adjacent to the roadway. Working together as a team focused on the community led this project to be a great success.

**Achievement:** The trail extension and underpass were the final link to complete the Fossil Creek Trail in western Fort Collins. The project was designed and constructed to stay within trail and slope easements purchased more than five years ago. Completing this segment of trail has opened up additional opportunities for the Fort Collins community to explore and visit more of the City while either walking or cycling. Continuing the City's goal of being pedestrian-friendly and creating connectivity is something that all of those involved can be proud.

**Transferable:** Many of the innovative methods used for the Fossil Creek Trail Extension and Underpass can be transferred and used to other projects and communities. The challenges associated with confining right-of-way and

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**Summary:** Through innovation and cooperation, the Fossil Creek Trail Extension and Underpass at County Road 38E connects communities. The trail was constructed with minimal impacts to the adjacent properties and roadways while creating a trail that will be enjoyed by the public for years to come. This project is a testament to Fort Collins' goal to continue to expand their world class trail network. ●