

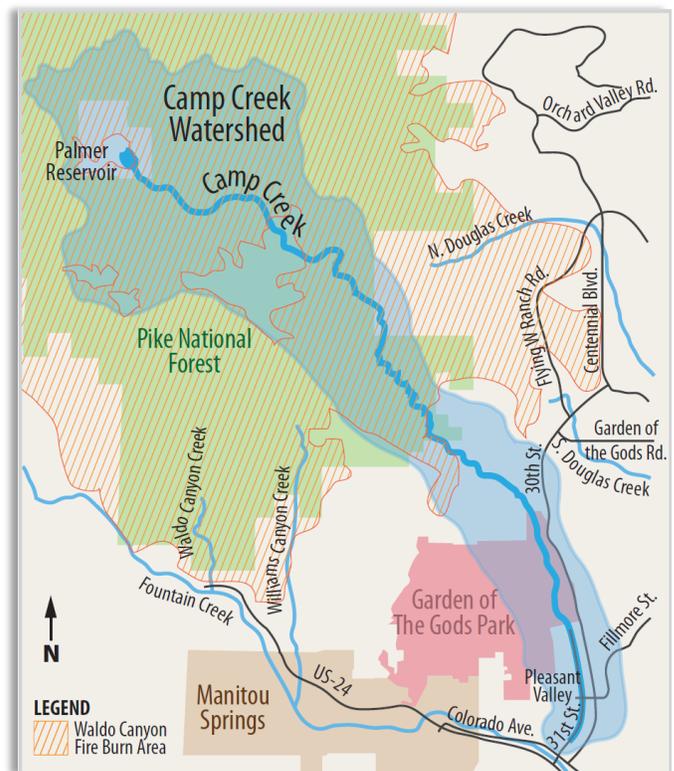
## A Look Back...

In the fall of 2013, the City of Colorado Springs launched the Camp Creek Drainage Improvement Project. The purpose of the Project was to thoughtfully plan short-term and long-term solutions to protect the Camp Creek corridor from flooding and erosion to improve public safety.

Through an eight-month planning process involving some 250 residents, the City, Wilson & Company project consultants, and the community worked together to come up with solutions that are both technically sound and responsive to community needs and values.

Key elements of the final approved plan include:

- \* A detention / sediment collection pond in the northern portion of Garden of the Gods Park
- \* Naturalistic channel stabilization in Garden of the Gods Park and Rock Ledge Ranch
- \* Replacement of the Camp Creek bridge and widening the pavement at Gateway Road
- \* Re-alignment of Camp Creek near the chapel in Rock Ledge Ranch
- \* Replacement of culverts and bridges with larger bridges to minimize restrictions in the 31st Street channel
- \* Replacement of the existing concrete and rock-lined channel in 31st Street with a wider channel with a rock and boulder-lined, low-flow channel and flatter, grass and small shrub-lined upper side slopes
- \* A paved extension of the Foothills Trail within the 31st Street channel section
- \* Extension of the underground portion of Camp Creek from Bijou Street/Echo Lane to West Platte Avenue.



## Newsletter Topics

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# Camp Creek Studies Likely to Result in Welcome Floodplain Changes

Lower 100-year flow rates through the Camp Creek drainage corridor were determined through a detailed hydrologic study that was completed during the Camp Creek Drainage Improvement Project planning process in 2014. As a result, the City will soon submit a Letter of Map Revision (LOMR) to the Federal Emergency Management Agency (FEMA) that requests that floodplain designations along Camp Creek be revised.

The LOMR will request FEMA to revise the mapped FEMA regulatory floodplains for Camp Creek between Glen Eyrie and Fountain Creek to reflect a recent hydraulic analysis based on detailed topographic mapping and lower 100-year flow rates than the current FEMA maps are based on.

The FEMA regulatory floodplain designates the approximate area that would be flooded in a flood event that has a 1 percent chance of occurring in a one-year time period (100-year flood). If a property falls within the FEMA regulatory floodplain, mortgage companies must require property owners to purchase flood insurance on the mortgaged property in accordance with a federal law.

The ultimate reconstruction of the 31<sup>st</sup> Street corridor will increase the conveyance capacity of the 31<sup>st</sup> Street drainage channel which is expected to allow 100 percent of the properties along the 31<sup>st</sup> Street corridor to be removed from the FEMA regulatory floodplain...

The requested Camp Creek map revisions will narrow the 100-year regulatory floodplain throughout most of the corridor due to the revised flow rates being less than those used to define the current or effective floodplain. However, there are some areas along the corridor that the revised floodplain will be mapped at a higher elevation based on the results the recent hydraulic modeling. These increases can generally be attributed to existing conditions in the corridor that were not reflected in the previous hydraulic model. These conditions include channel and street elevations that are higher than previously reflected and the two pedestrian bridges across the channel which restrict the flow of drainage in the 31<sup>st</sup> Street channel.

If accepted by FEMA, the LOMR will lower the regulatory flood elevations along approximately 72 percent of the 31<sup>st</sup> Street corridor and raise them up to 0.81 feet along the other 28 percent of the corridor. The change will result in about 60 residential properties being removed from the regulatory floodplain and about 6 properties added to the regulatory floodplain.

A copy of the floodplain mapping prepared for the application will be posted to the Camp Creek Drainage Improvement Project web site (<https://coloradosprings.gov/resident-services/public-works/city-engineering/camp-creek>) at the time that the application is submitted to FEMA around the end of October. It is anticipated that the full FEMA review and approval process will take approximately six months.

The owners of the properties that will be added to the regulatory floodplain or are at locations in which the regulatory flood elevation will rise will be notified by mail by Wilson & Company during the month of October.

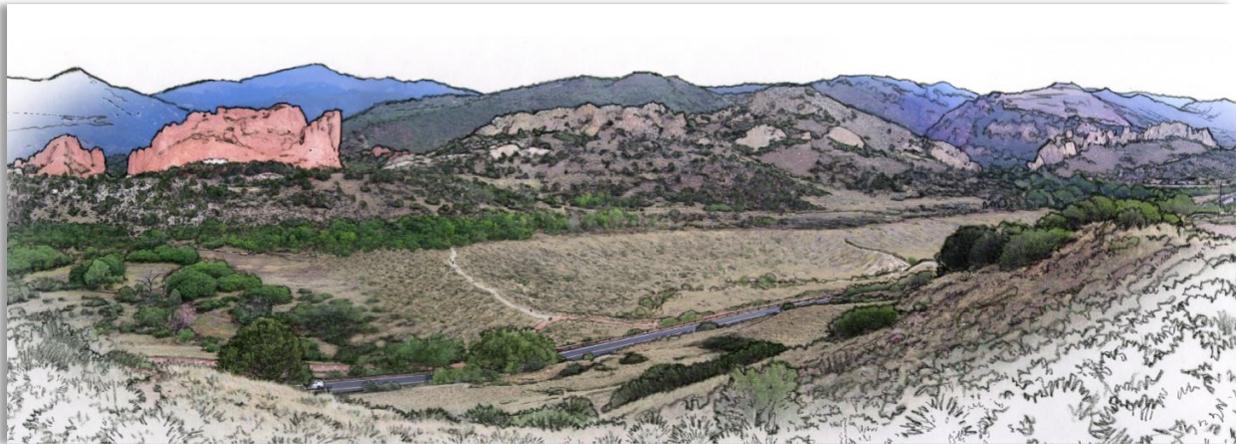
The next FEMA floodplain map revision planned for Camp Creek will reflect the impact of construction of the proposed Garden of the Gods detention facility planned adjacent to 30<sup>th</sup> Street near the northern boundary of Garden of the Gods Park. The detention facility will significantly reduce the 100-year depth and width of the floodplain in 31<sup>st</sup> Street. After construction of the detention facility is completed, it is expected that all but about 30 of the properties along the 31<sup>st</sup> Street corridor can be removed from the regulatory floodplain with a LOMR again submitted and processed through FEMA.



**Bank erosion along Camp Creek**

# FEMA Considers Funding of Proposed Detention Facility

Completion of the facility will significantly reduce the potential for flood damage and life safety hazards from flooding along the Camp Creek corridor downstream of the dam.



The large stormwater detention and sediment collection facility that is planned for construction in the northeastern portion of Garden of the Gods Park has been identified as a project that FEMA is considering funding through its Hazard Mitigation Grant Program. The detention pond is the initial large project of the multi-phase Camp Creek Drainage Improvement Project.

The City applied for a grant for the stormwater detention facility in late summer of 2014 and recently received notice that the project is under final consideration. FEMA has requested that the City prepare an Environmental Assessment (EA) as a final step in the funding process. Wilson & Company, the project consultant for the City, is in the process of preparing the EA. A notice of intent to prepare the EA has been advertised in local publications and is posted on the City's Camp Creek project web site.

If awarded, the FEMA grant is expected to allow construction of the detention facility to begin late next fall and be completed in the first part of 2017. Completion of the facility will significantly reduce the potential for flood damage and life safety hazards from flooding along the Camp Creek corridor downstream of the dam. The project will also pave the way for downstream projects and reduction of the FEMA regulatory floodplain along Camp Creek.

A future project that will construct naturalistic stabilization features along Camp Creek through Garden of the Gods Park and Rock Ledge Ranch will also be included in the EA. While funding has not yet been secured for the stabilization project, including it in the current EA will help to position the project for efficient implementation if federal funding for it can be secured.

## Spring and Summer Rains Confirmed Need for Project

The spring and summer rains of 2015 have reinforced the need for drainage improvements along the Camp Creek corridor. Approximately 12½ inches of rain was recorded by the U.S. Geologic Survey gage in Garden of the Gods Park during the month of May. Much of this rain fell in short periods of time, resulting in significant peak flows in Camp Creek.



An intense rainfall on August 10 resulted in even higher peak flows in Camp Creek. A good portion of the rain was absorbed into the watershed soils and was then released to the Creek over an extended period of time and kept it flowing at rates that were well above average throughout most of the summer.

The well-above-normal flows in the Creek also damaged portions of the Foothills Trail in the northern end of Garden of the Gods Park and caused Camp Creek to widen in several locations through the Park and Rock Ledge Ranch.

# Glen Eyrie's Actions Have Reduced Drainage Impacts

Camp Creek runs through the Glen Eyrie Conference Center located at the northern side of Garden of the Gods Park. The upper portion of the campus is located at the mouth of Queens Canyon, making it subject to the full brunt of floodwater, sediment, and debris from the Canyon.

As most readers are aware, the flow of water, sediment, and debris in Camp Creek has increased significantly since the 2012 Waldo Canyon fire. Glen Eyrie has been very proactive in constructing mitigation. In the year after the fire the organization partnered with the Natural Resource Conservation Service and the City to construct large



debris-catching nets across the Canyon to remove large debris from flow in the Creek. It also installed improvements and performed seeding in the upper portion of the Camp Creek watershed to improve stability in areas that had burned. Additionally, it increased the capacity and constructed improvements to mitigate erosion along Camp Creek in front of Glen Eyrie Castle.

In 2014, Glen Eyrie made changes to the campus road system to reduce the number of crossings over Camp Creek and reconstructed the Creek channel and remaining bridges through the Campus to increase the capacity to convey runoff, sediment and debris. The channel was lined with large boulders and the bridges were faced with natural stone to compliment the natural beauty of the Campus while providing durable protection against erosion. The channel and bridges performed well through the abnormally high runoff experienced in spring and early summer of 2015.

## Interim Sediment Basin Effectively Doing Its Job

An interim sediment basin was constructed in the northeast corner of Garden of the Gods Park on Camp Creek in the summer of 2014. The purpose of the basin is to collect sediment that is conveyed in Camp Creek from the Waldo Canyon burn scar. The basin is accessible for cleanout by the City through a cooperative agreement with Glen Eyrie. The City has removed approximately 12,000 cubic yards of sediment from the basin this summer.

While the southern end of the basin has taken a beating with the well-above-average flows in Camp Creek this year, it has been successful in reducing the amount of sediment deposited in downstream portions of Garden of the Gods Park and has reduced the amount of abrasive sediment in the 31<sup>st</sup> Street channel.

Construction of the temporary sediment basin was funded by the National Resource Conservation Service and the City of Colorado Springs.



## Interim Repairs Worked Well on 31st Street Channel

After many years of service and heavy storm runoff in September 2013, sections of the Camp Creek channel located in the median of 31<sup>st</sup> Street were in very poor condition. There was concern that if repairs were not implemented very soon further significant damage to the channel and adjacent 31<sup>st</sup> Street were very likely.

As a result, the City hired a contractor in 2014 to make interim repairs to the channel to help it last until funding can be secured to reconstruct the channel and adjacent 31<sup>st</sup> Street, as proposed in the final Camp Creek Drainage Improvement Project plan. While something of a “Band-Aid,” the repairs appear to have held up fairly well under the abnormally high runoff that occurred in the spring and summer of 2015.



## Underground Culvert Cleaned Up and Assessed for Future Use

On the southern end of the 31st Street corridor, the Camp Creek Project work includes assessing the condition of the existing 1,200-foot-long culvert that carries Camp Creek below ground between Echo Lane and Fountain Creek. Work in this area also includes evaluating alternative designs for future reconstruction of the underground culvert as well as preparing preliminary design plans for the most favorable design.

Work began last winter with a contractor cleaning sediment out of the culvert to make the bottom visible for inspection. Approximately 1,200 cubic yards of sediment were removed from the culvert and hauled away by the contractor. That volume would cover a standard basketball court nearly 7 feet deep. With the sediment removed, engineers performed an assessment of the culvert. It was found that culvert which was constructed in the 1960s is showing its age but with some interim repairs should have over another decade of service life left. Work is underway on the development and evaluation of concept designs for the future replacement of the culvert.



## 31st Street Corridor Planning and Design Is Underway



The City has secured funding for planning and design of improvements in the 31<sup>st</sup> Street corridor through a federal grant. Wilson & Company is under contract to perform this work which extends from Chambers Way south to Fountain Creek.

Development of preliminary plans for the roadway and channel improvements in the 31<sup>st</sup> Street corridor between Echo Lane and Chambers Way is underway. This work will culminate with the production of nearly final construction plans. These plans will help the City to better define the project construction costs, put the project in a good position for future grant opportunities, and streamline construction start-up once funding is secured.

## So What's Next?

Within the coming months, some homeowners along 31<sup>st</sup> Street may be contacted to discuss special design issues associated with the street adjacent to their properties.

At the completion of the preliminary design phase for the 31st Street corridor, an open house will be hosted by the City so that the community can view the preliminary design. The open house is expected to be held late this fall. A future newsletter will be published to announce the date and time of the open house.

If you have any questions about the project, please contact Project Manager Mike Chaves at (719) 385-5408 or [mchaves@springsgov.com](mailto:mchaves@springsgov.com).

To view a copy of the notice of intent to prepare the Environmental Assessment for the stormwater detention and sediment collection facility, visit the Camp Creek Drainage Improvement Project web site at <https://coloradosprings.gov/resident-services/public-works/city-engineering/camp-creek>. The floodplain mapping prepared for the application for FEMA floodplain review will be posted on the Camp Creek project web site near the end of October.