

Camp Creek Drainage Improvement Project

Alternatives Summary

Common Implications of Alternatives

All Alternatives Would...

- Reduce the area of Pleasant Valley that is at risk of flooding during large flood events
- Remove 224 residential properties and 13 commercial lots from the 100-year floodplain
- Reduce the amount of water flowing on 31st Street roadway during large flood events
- Provide sediment collection improvements at north end of Garden of the Gods. Removal of sediment from this area will need to be performed on an as-needed basis
- Improve pedestrian and traffic safety by providing guardrails, flattening side slopes and/or covering the channel
- Cover the channel between Echo Lane and West Platte Avenue
- Propose refinements to the existing bike route system near Camp Creek and to Gateway Road by widening the road to accommodate vehicles and bike lanes
- Improve emergency access by reducing the potential for water on roadways during larger flood events
- Not impact existing on-street parking
- Not require residential property acquisition
- Require Gateway Road to be raised at least 5 feet near Camp Creek and a larger bridge or culvert installed to reduce risk that Gateway Road would be over-topped by water during large storm runoff events
- Manage erosion of the natural channel in the Garden of the Gods
- Have an option to realign Camp Creek near the confluence with Fountain Creek in conjunction with adjacent properties
- Require relocation of portions of the trails within Garden of the Gods

Alternative	Hydraulic Approach	Unique Features	Unique Implications
<p style="text-align: center;">#1</p> <p>Channel Reconstruction Creek Stabilization</p> <p>Ballpark Cost Estimate: \$31 million</p>	<ul style="list-style-type: none"> • No upstream detention • Full 100-year Camp Creek flow contained and conveyed in the 31st Street channel 	<ul style="list-style-type: none"> • Enlarges the 31st Street channel by making it deeper to achieve increased capacity. • Replaces existing culverts and bridges with larger bridges to minimize restrictions in the 31st Street Channel. • Channel lining similar to existing lining with articulating block bottom. May support some grass vegetation on bottom (similar to existing). • Includes guardrails along the outside edges of the channel for traffic safety. Short walls below street level may be required to achieve required channel depth in limited areas. • Includes raising Gateway Road a minimum of 5 feet near Camp Creek and increasing the size of its bridge to improve safe public access during storm runoff events. 	<ul style="list-style-type: none"> • 100-year floodplain contained in channel through Pleasant Valley neighborhood. • No change to existing bike lanes. • No change to location of outside street curbs. • Provides improved emergency access to Pleasant Valley neighborhood during a 100-year rainfall event. • Requires less construction in Gardens of the Gods and Rock Ledge Ranch Historic Site than Alternatives #2 and #3.
<p style="text-align: center;">#2</p> <p>Grass-Lined Channel Creek Stabilization Detention</p> <p>Ballpark Cost Estimate: \$37 million</p>	<ul style="list-style-type: none"> • Upstream detention • All of the detained 100-year Camp Creek flow contained and conveyed in the 31st Street channel • Uses 31st Street for channel freeboard 	<ul style="list-style-type: none"> • Reconstructs the 31st Street channel section to be wider and have flatter side slopes than the existing channel. • Channel side slopes lined with native grasses and small shrubs. • Replaces culverts and bridges with larger bridges to minimize restrictions in the 31st Street channel. • Eliminates the bike lanes along 31st Street. Bike lanes relocated to 30th Street in the PPACG Non-Motorized Transportation Plan currently being developed. • Adds a paved trail within the channel section. • Channel bottom lined with rock which may support some vegetation (similar to existing). • Includes boulder walls within the channel section to achieve required channel depth and capacity and to provide protection from erosion in frequent runoff events. • Detention Option a. Includes one large, landscaped, earthen detention pond in the northern portion of Garden of the Gods Park created by constructing an up to 28-foot high earthen landscaped dam and excavation north of the dam. • Detention Option b. Includes two medium-sized, landscaped, earthen detention ponds. One created by raising Gateway Road to an elevation approximately 5 feet below adjacent 30th Street as it spans the Camp Creek Valley (14-foot maximum raise) and one by constructing an up to 19-foot high earthen landscaped dam and performing excavation in the northern end of the park. 	<ul style="list-style-type: none"> • 100-year floodplain contained in channel and streets through Pleasant Valley neighborhood. • More natural appearance for 31st Street channel than Alternatives #1 and #3. • Foothills Trail completed along 31st Street. The on-street bike lanes currently used for this link would be replaced by a trail within channel section. Trail to be constructed above the expected level of flow during a 5-year flood event. • Requires more construction in Garden of the Gods Park than Alternative #1. • Provides improved emergency access to Pleasant Valley neighborhood during 100-year flood event. • Requires moving street closer to sidewalks to implement without walls or guardrails. • Trail in channel crosses streets at street level at bridges.

#3	<ul style="list-style-type: none"> • Upstream detention • All of the detained 100-Year Camp Creek flow contained in the 31st Street box culvert 	<ul style="list-style-type: none"> • Replaces the 31st Street open channel with an underground box culvert. • Adds a trail and native landscaping in the 31st Street median area over the box culvert. • Eliminates the bike lanes along 31st Street. Bike lanes relocated to 30th Street in the PPACG Non-Motorized Transportation Plan currently being developed. • Detention Option a. Includes a landscaped, earthen detention pond in Garden of the Gods Park created by raising Gateway Road to an elevation approximately 5 feet below adjacent 30th Street as it spans the Camp Creek Valley (approximately 14-foot maximum raise). • Detention Option b. Includes a landscaped, earthen detention pond in the northern end of Garden of the Gods Park created by constructing an up to 19-foot high, earthen, landscaped dam and performing excavation north of the dam. 	<ul style="list-style-type: none"> • 100-year floodplain eliminated throughout Pleasant Valley neighborhood. • Foothills Trail completed along 31st Street. The on-street bike lanes currently used for this link would be replaced by a trail within native landscaped median. • No change to location of outside street curbs. • Provides emergency access to Pleasant Valley neighborhood during 100-year flood event. • Requires more construction in Gardens of the Gods Park than Alternative #1. • More natural median area appearance than Alternative #1. • Eliminates open channel safety risk along 31st Street.
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Note regarding Alternatives:

1. The community's comments on the three Alternatives will help guide the identification of a Preferred Alternative and further refinements of the Preferred Alternative.

February 25, 2014