

### What happens during Level 2 evaluation and screening?

The second level of the evaluation and screening process is a qualitative, comparative evaluation. The 12 build alternatives from Level 1 that were presented to the public in April were analyzed. The project team evaluated the alternatives based on how each one meets the project Purpose and Need, goals, and criteria compared to each of the other alternatives. The process resulted in retaining four build alternatives for further study because they were considered to be comparatively better than the other alternatives. In addition to these alternatives, the No-Action Alternative will be fully evaluated in the EA process.

### What criteria were used to evaluate the alternatives?

For Level 2, the project team used the project Purpose and Need, project goals, and the criteria shown below. These were developed through technical and public input related to feasibility and design, transportation, and community and environmental impacts.

Purpose & Need Criteria
<b>Purpose &amp; Need Element #1: Improve Connectivity</b>
Between Downtown and Hot Springs
For Through Traffic
<b>Purpose &amp; Need Element #2: Address Functional, Structural, Emergency Service, Reliability</b>
Relative ability to minimize risk of bridge closure
Relative ability to address structural deficiencies
Relative ability to improve emergency access
Relative ability to address functional deficiencies
Relative bridge life
Additional Criteria
<b>Design and Feasibility</b>
Relative cost of alternative
Relative ability of alternative to meet design standards
Relative ability to construct
<b>Environmental</b>
Relative impacts to historic resources
Visual/aesthetics - General-from river, pool, etc.
Visual/aesthetics - Cooper and/or Colorado
Visual/aesthetics - Grand Avenue
Relative noise and air quality impacts
Relative impacts to parks and recreation resources
Relative impacts to water and aquatic resources
<b>Community</b>
Relative harmony with community
Consistent with City Planning
Relative ability to reduce and minimize construction impacts
Relative ability to minimize private property impacts
Relative ability to incorporate sustainable elements into design
<b>Transportation</b>
Relative ability to safely accommodate transportation users
Relative ability to reduce and minimize construction impacts
Relative ability to maintain and improve multimodal connections
Relative ability to maintain or improve transportation operations

### **Why not just fix the existing bridge?**

Fixing the existing bridge was evaluated as one of the alternatives – the Rehabilitation Alternative. While many of the known functional and structural deficiencies of the bridge can be repaired or replaced, some deficiencies cannot be fixed without rebuilding the bridge. For example, while the bridge can be widened to allow for standard lane widths on the bridge, the piers that create safety hazards for I-70 traffic and river runners cannot be replaced without taking out the piers and, therefore, the bridge. As a result, the rehabilitation alternative would not address the project Purpose and Need as well as other build alternatives.

Rehabilitation of the bridge may not actually save money. Because so much of the bridge needs work, the rehabilitation would be a complicated project. It is also likely that the rehabilitation may uncover other needs making the costs highly variable. In addition, the rehabilitation alternative would have the most disruptive traffic impacts during construction of all the build alternatives. There are no easy ways to replace parts of the deck and some of the girders without closing lanes for long periods of time. Finally, the rehabilitation alternative would still result in an older bridge with a shorter design life than a new bridge and would provide the least opportunity for incorporating bridge aesthetics that are in context with Glenwood Springs. For these reasons, the Rehabilitation Alternative was screened out as being comparatively worse than other build alternatives.

### **For the couplet alternatives, does Cooper Avenue work for outbound SH 82 traffic?**

A one-way/northbound Cooper Avenue alignment for the bridge would have several impacts that are generally worse than a Grand Avenue alignment, including:

- The new alignment would be much closer to historic resources – the train depot and the Hot Springs pool.
- Cooper has many driveways and other access points that would increase safety and operational issues as drivers interface with the additional SH 82 traffic.
- The 75-foot right-of-way on Cooper is narrower than the 100-foot right-of-way on Grand Ave. This reduces the distance from the road to businesses, residences, and walkways, creating increased noise and air quality impacts.
- Residential areas on Cooper are not as compatible with higher traffic volumes.
- The addition of “S” curves for southbound traffic increases the potential for accidents at intersections.
- There would be increased traffic circulation requirements for some businesses and the new library for access, adding to traffic movements downtown.
- Parking for businesses along Cooper would be lost.

### **What are the advantages of couplets?**

Although there are a number of additional impacts to Colorado Avenue under all the couplet alternatives and Cooper Avenue under Alternatives 10 and 11, couplets reduce SH 82 traffic on Grand Avenue, creating potential advantages. Less traffic on Grand Avenue would mean fewer travel lanes and the creation of additional parking. Less traffic would create an improved pedestrian environment and result in a lower level of noise.

For phased construction, the couplet alternatives would reduce construction impacts. The southbound couplet bridge would be built first without directly affecting traffic on the existing Grand Avenue bridge. Then, traffic could be moved onto the southbound couplet bridge while the existing Grand Avenue bridge is replaced with a new northbound couplet bridge.

### **Should there be one bridge or two?**

Couplets would require building two bridges. While two bridges would provide some constructability advantages, they would also be more expensive, both to build and maintain. From an aesthetic perspective, two bridges may compete with each other, whereas a single alignment would present an opportunity to design an more aesthetic bridge.

### **Where should the bridge land on the north?**

There are three options for where the bridge could land on the north side:

1. Landing at Pine (the current location)
2. Landing at Maple
3. Landing near the I-70 interchange (at Laurel)

The current location would be the least expensive option and would require no additional property. However, SH 82 traffic would still need to make two turns to and from the bridge.

The Maple location would not provide any traffic benefits compared to the other locations. The location would result in more property impacts than a Pine landing because it would require the acquisition of two properties, and it would be more expensive.

Landing near the I-70 interchange would also be more expensive than at Pine and would require either a partial or full acquisition of the Shell Station depending upon the alternative. However, it would provide better traffic operations in the 6th Street area. Landing near the I-70 interchange would affect existing businesses on 6th Street because traffic would be diverted and not pass in front of these businesses. A tradeoff would be the potential for longer-term land use changes and redevelopment in this area. This configuration would also generally improve the ability of pedestrians to walk between the Hot Springs area and hotels to the west along US 6.

### What type of intersections work at 6th and Laurel?

If the future bridge lands near 6th and Laurel, three Intersection Options were considered.

#### Option A

This option would make SH 82 the through movement from the interchange to the bridge, and would include local circulation via two signals and a roundabout at 6th and Laurel.

Option A was carried forward with Alternative 3 because it:

- Provides better traffic efficiency than Option B.
- Moves all SH 82 traffic away from 6th Street and pedestrian corridor.
- Has fewer impacts/detours during construction compared to Alternative B.

Option A also allows for variations that could further improve pedestrian and vehicle access and operations.



#### Option B

This option would create a large roundabout.

Option B was screened because:

- Having all outbound traffic go through the roundabout would require three lanes, and heavy SH 82 traffic would make the entire roundabout inefficient.
- Pedestrian signals and metering signals would be required on most legs of roundabout
- It has more difficult and impactful construction phasing and detours than Option A.



There was also negative public input concerning the complexity of large roundabouts for motorists and the increased difficulties for pedestrian traffic at large roundabouts.

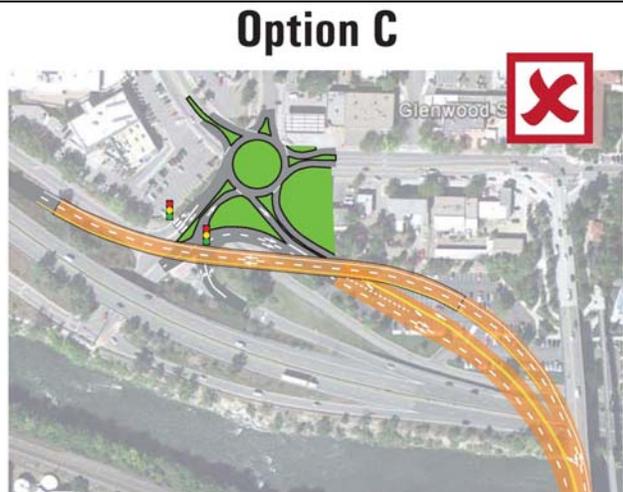
### Option C

This option would provide an overpass ramp for Grand Avenue to I-70 westbound traffic, and provide a roundabout for other movements.

Option C was screened out because:

- It is likely the most expensive of all the options.
- Has an obvious traffic flow benefit, but Option A meets traffic flow needs.

There was also negative public input about using a suburban/urban solution (interchange with stacked bridges) for Glenwood Springs.



### So, which alternatives were screened out?

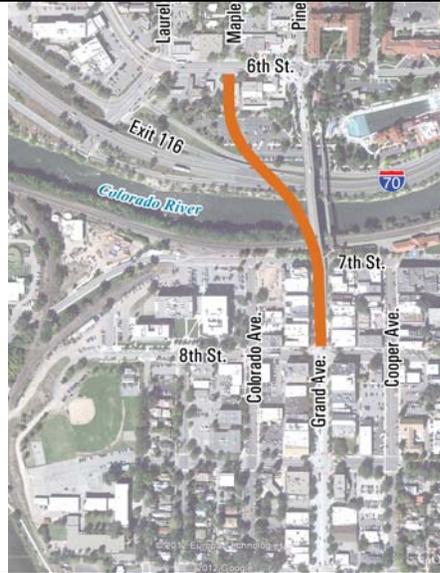
In general, alternatives that do a worse job at meeting the project Purpose and Need and other project criteria were screened out. For example:

- The Rehabilitation Alternative was screened out because some major issues cannot be fixed without replacing large parts of all of the bridge. It may actually cost more and have more construction impacts than a new bridge replacement.
- Alternatives that use Cooper Avenue were screened out because they would have additional negative impacts and would provide worse traffic operations than Grand Avenue alternatives. (Alternatives 10 and 11 screened out.)
- Alternatives that land at Maple Avenue on the north side were screened out because they would not provide traffic benefits and would have additional right-of-way impacts. (Alternatives 2 and 7 screened out.)
- All but one of the Colorado Avenue/ Grand Avenue couplet alternatives were screened out because these alternatives have many identified impacts as a result of adding new traffic on Colorado Avenue with few resulting benefits. (The best of the couplet alternatives was retained to provide a comparison of the couplet benefits to the remaining alternatives.)

Alternatives 2, 5, 7, 8, 9, and 10 met one or more of these criteria, as detailed below.

### Alternative 2

- Greater property impacts than Alternative 1, yet no improvement in traffic flow.
- Phasing opportunities for Alternative 2 are no better than Alternative 3.
- Fewer aesthetic opportunities than Alternative 1.



### Alternative 5

- Steep climbing grade (6%) for inbound alignment to get over I-70 and railroad.
- April 4 public meeting and other public input showed limited support for couplet alternatives.
- Partial right-of-way impact to Shell station, more impacts than Alternative 6
- Parking and property impacts along Colorado Avenue.
- Worse traffic flow than Alternative 4.



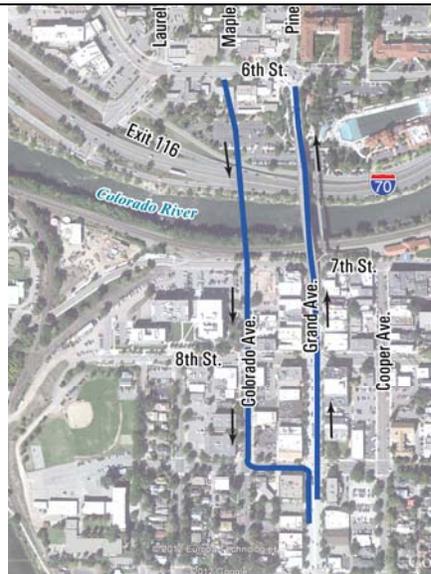
**Alternative 7**

- Has greater property impacts compared to Alternative 6.
- No traffic flow advantages compared to Alternative 6.
- Parking and property impacts along Colorado Avenue.
- April 4 public meeting and other public input had limited support for couplet alternatives.



**Alternative 8**

- Has greater property impacts compared to Alternative 6.
- Minimal traffic flow advantages compared to Alternative 6.
- Parking and property impacts along Colorado Avenue.
- April 4 public meeting and other public input had limited support for couplet alternatives.



### Alternative 9

- Steep climbing grade (6%) for inbound alignment to get over I-70 and railroad.
- Likely the 2nd highest cost of all the alternatives (Alternative 11 appears highest).
- Parking and property impacts along Colorado Avenue.
- Impacts to existing businesses along 6th Street.
- April 4 public meeting and other public input had limited support for couplet alternatives.



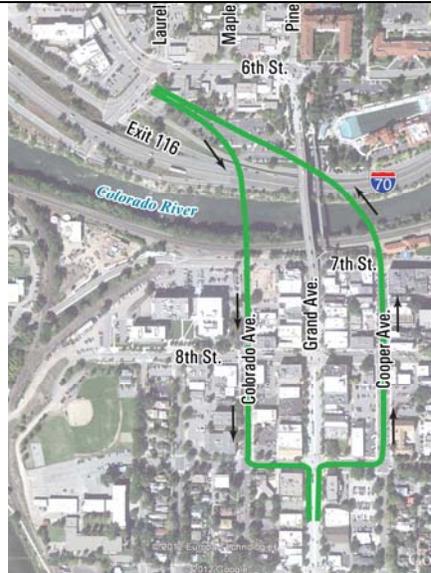
### Alternative 10

- Both directions of traffic on SH 82 have S-curves, worst for traffic flow efficiency.
- Substantial business impacts on Cooper Avenue.
- Concerns for moving SH 82 closer to neighborhoods on both east and west.
- Parking impacts along Colorado Avenue.
- Need to remove existing pedestrian bridge and rebuild or provide links to road bridges.



**Alternative 11**

- Steep climbing grade (6%) for inbound alignment to get over I-70 and railroad.
- Likely the highest cost of all the alternatives.
- Both directions of traffic on SH 82 have S-curves, worst for traffic flow efficiency.
- Substantial business impacts on Cooper Avenue.
- Parking impacts along Colorado Avenue.
- Concerns for moving SH 82 closer to neighborhoods on both east and west.
- Need to remove existing pedestrian bridge and rebuild or provide links to road bridges.



**Which alternatives are still being considered?**

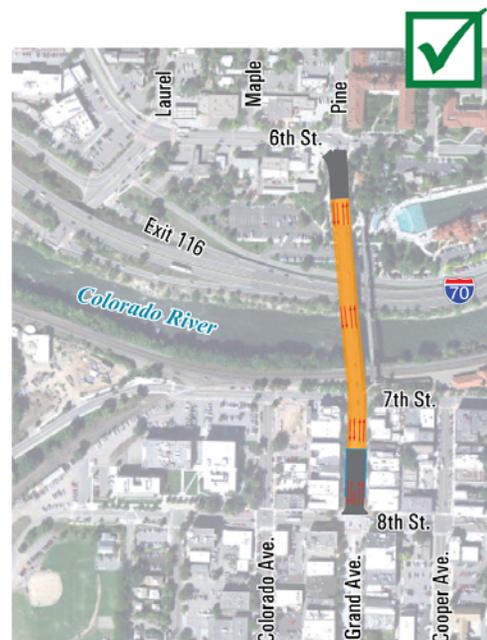
Four build alternatives are still being evaluated – Alternatives 1, 3, 4, and 6.

**Alternative 1** would utilize the existing alignment and would have the following benefits, compared to the alternatives that were screened out:

- Better downtown circulation than couplet alternatives, particularly those that use Cooper
- Fewer property impacts than alternatives that use Colorado, Cooper, Maple, and Laurel
- Less impact on noise and air quality than alternatives that use Colorado and Cooper.
- Better turning movements for trucks and buses
- Better opportunities for aesthetics than alternatives with two bridges
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**Alternative 1**

**Single bridge at existing location aligned to Pine**



**Alternative 3** would utilize the existing landing at Grand and would land near the I-70 interchange on the north side and would have the following benefits, compared to the alternatives that were screened out:

- Better downtown circulation than couplet alternatives, particularly those that use Cooper
- Improved traffic operations on the north side
- Fewer property impacts than alternatives that use Colorado, Cooper, and Maple
- Less impact on noise and air quality than alternatives that use Colorado and Cooper.
- Better turning movements for trucks and buses
- Better opportunities for aesthetics than alternatives with two bridges
- The intersection option at Laurel provides sufficient traffic operations at a reasonable cost

**Alternative 3 with Intersection**

**Option A**

Full bridge aligned to Exit 116/  
Laurel/6th with small  
roundabout



**Alternative 4** would utilize the existing landing at Grand and would land near the I-70 interchange for inbound traffic and at Pine for outbound traffic. This alternative would have the following benefits, compared to the alternatives that were screened out:

- Better downtown circulation than couplet alternatives, particularly those that use Cooper
- Improved traffic operations on the north side
- Fewer property impacts than alternatives that use Colorado, Cooper, and Maple
- Less impact on noise and air quality than alternatives that use Colorado and Cooper.
- Better turning movements for trucks and buses
- Hot Springs Pool parking could remain under the new bridges

**Alternative 4**

Two bridges, aligned to Laurel and  
Pine with a single connection to  
Grand Ave.



**Alternative 6** would include two bridges between Pine on the north side and Colorado and Grand on the south side and would have the following benefits, compared to the alternatives that were screened out:

- Better downtown circulation than couplet alternatives that use Cooper
- Fewer property impacts than alternatives that use Maple and Laurel
- Less impact on noise and air quality than alternatives that use Cooper
- Better vertical profile than other alternatives using Colorado
- Reduces traffic and increases parking on Grand Avenue

**Alternative 6**  
**Couplet using Grand Ave. and Colorado Ave.**

