

SH 82

GRAND AVENUE BRIDGE

Summary of Impacts and Mitigation Measures

Mitigation Commitment #	Mitigation Category	Impact	Mitigation Commitment
1.	Visual	Visual changes from new bridges	Using the established Context-Sensitive Solution (CSS) process, CDOT has and will continue to work with stakeholders to identify opportunities for aesthetic treatments in the design of the bridge, roadway, and sidewalk elements to reflect the materials and architectural style of Glenwood Springs' small town character and historic structures, as well as the visual and aesthetic goals and objectives provided in the I-70 Mountain Corridor Aesthetic Guidance.
2.	Visual	Visual changes from new bridges	Use open rail type side barriers on the pedestrian bridge to preserve views from the bridge.
3.	Visual	Visual changes from vegetation removal to construct project	Preserve existing vegetation where practicable, and revegetate riverbanks with native species as soon as practicable upon construction completion.
4.	Visual	Visual changes from new bridges	Use materials and/or aesthetic treatments on bridges to blend with the historic and mountain context of the study area. This would include, but not be limited to, consideration of the following design elements: <ul style="list-style-type: none"> ◆ Use earth-tone paints and stains and select paint finishes with low reflectivity. ◆ Use natural appearing forms to complement landscape. ◆ Take advantage of natural screening.
5.	Visual	Visual changes from new lighting	Develop a lighting plan that balances sometimes conflicting needs, such as: <ul style="list-style-type: none"> ◆ Compliance with CDOT, Garfield County, and City of Glenwood Springs design standards. ◆ Incorporating lighting fixtures that minimize nighttime glare and sky glow. Where new light fixtures are added, use lamps and/or light shields that direct glare away from the street, buildings, or the sky to minimize glare and sky glow, in accordance with local ordinances. These measures will not preclude any aesthetic ambient lighting features that may be included in the project design. ◆ Incorporating bridge and highway lighting as part of aesthetic treatments.
6.	Visual	Visual changes at new roundabout intersection	Incorporate landscaping, monuments, entryways, and/or other aesthetic features into the design of the 6th and Laurel roundabout intersection areas to soften views of transportation facilities and create an urban visual environment.
7.	Visual	Temporary visual changes during construction	Minimize light glare during nighttime construction activities by taking measures to direct the light inward toward the construction site and minimize glare for motorists, pedestrians, and hot springs visitors in the vicinity of the construction site.
8.	Transit	Removal of bus stop at 6th and Maple or provision of new stop in the vicinity	During final design, CDOT will continue to coordinate with Roaring Fork Transit Authority (RFTA) to determine the best options.
9.	Transit	Removal of Grand Avenue Wing Street impacts RFTA bus service routing	RFTA has indicated that the connection can be rerouted to either Cooper Avenue to the east or Colorado Avenue to the west. CDOT will continue to coordinate with RFTA during final design and construction.
10.	Transit	Impacts to bus routes serving study area during construction	CDOT will coordinate with RFTA during design and construction to provide adequate detour routes for impacted bus routes and bus stops.
11.	Transportation	Temporary transportation impacts during construction	CDOT has designed detour routes in coordination with City of Glenwood Springs and stakeholders to reduce travel demand and provide other means of accommodating transportation needs during construction.
12.	Transportation	Temporary access and connectivity impacts during construction	CDOT will maintain access and local connectivity throughout construction activities as much as possible.
13.	Transportation	Temporary railroad closure during construction detour	CDOT will coordinate with the Union Pacific Railroad (UPRR) and RFTA on details of the Aspen Branch railroad temporary closure and will restore the railbed and track after the new Grand Avenue Bridge is reopened.

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14.	Transportation	Temporary access impacts during construction	Access will be maintained to businesses and properties along both sides of Grand Avenue.
15.	Transportation	Temporary roadway impacts during construction	7th Street will be fully closed during the approximately 90-day full bridge closure. To maintain access on 7th Street during other times of the construction period, 7th Street will be converted to either one-way westbound or alternating direction one-way operations that will be controlled by flagging or other traffic control measures.
16.	Transportation	Temporary safety and mobility impacts during construction	Midland Avenue. Install traffic signals at either end of the detour route to meter traffic volumes, providing gaps for local traffic turning to/from Midland Avenue. In residential areas along Midland Avenue, particularly the denser residential areas between 8th and 27th Streets, CDOT will monitor traffic during the full bridge closure and respond with appropriate measures to mitigate traffic impacts. These measures could include temporarily reducing the number of accesses onto Midland Avenue from neighborhoods with more than one access, and/or using flaggers or intersection controls during peak travel periods.
17.	Transportation	Temporary traffic impacts during construction	As part of the SH 82 Detour, 8th Street will be temporarily extended to connect to the 8th Street Bridge over the Roaring Fork River during the approximately 90-day full bridge closure.
18.	Transportation	Temporary traffic impacts during construction	During the approximately 90-day full bridge closure, a "square about" would be implemented as part of the SH 82 Detour that would consist of a temporary one-way loop on 8th Street, Colorado Avenue, 9th Street, and Grand Avenue. A temporary signal will be installed at the 8th Street and Colorado Avenue intersection to facilitate pedestrian crossings and address higher traffic volumes. A temporary physical barrier will be placed at the 9th Street and Colorado Avenue intersection to force detour traffic to turn east toward Grand Avenue and keep detour traffic from continuing south on Colorado Avenue.
19.	Transportation	Temporary road closures during construction	At the 6th and Laurel intersection, when closures are required, the date and time will be widely communicated through the construction phase public information program and signage so motorists can plan. If needed, alternate route information also will be provided.
20.	Transportation	Temporary traffic impacts during construction	Travel Demand Management Measures. Implement a full public information campaign to educate travelers on travel demand management measures that will maximize the use of the detour route. CDOT will work with local and regional organizations and employers to promote the campaign. The public information campaign will inform the organizations, employers, and the general public about the upcoming closure and how to plan trips accordingly. The information campaign will include: <ul style="list-style-type: none"> ◆ Timeframe for full closure. ◆ Best and worst times to travel. ◆ Best routes to travel. ◆ Alternative modes of travel available.
21.	Transportation	Temporary mobility impacts during construction	Specific travel demand measures could include: <p><i>Bicyclists/Pedestrians</i></p> <ul style="list-style-type: none"> ◆ Maintain a pedestrian connection over the river during construction. ◆ Provide additional information about bicycle and pedestrian routes to commuters and the general public. ◆ Provide bike facilities and services – these could include bike depots, bike lockers, and bike rental/sharing services. ◆ Provide free – or low fare – pedicab (bicycle taxi) service across the new pedestrian bridge, connecting to roads on either end.

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22.	Transportation	Temporary mobility impacts during construction	<p><i>Regional and Local Motorists</i></p> <ul style="list-style-type: none"> ◆ Inform commuters, recreationists, and tourists, so they could adjust their travel/work schedules during the closure period. ◆ Offer incentives for commuters to shift their travel times to off-peak periods, carpool, or use alternative modes, including public transportation, walking, and biking. ◆ Provide information targeted to commercial vehicles and companies, such as delivery trucks, on the detour route and less congested travel times. <p><i>Transit Users</i></p> <p>Work with RFTA and the City to:</p> <ul style="list-style-type: none"> ◆ Modify transit routes and increase frequency of operation along those routes to provide a reliable transit alternative during construction. ◆ Communicate transit service/schedule information to commuters, tourists, and the general public. ◆ Extend the VelociRFTA BRT service or other regional service along the detour route temporarily and/or into downtown, where the stop will be within walking distance of the north side of the river. ◆ Provide transit subsidies to commuters and recreationists. ◆ Work with local businesses and tourism organizations to distribute passes and/or coupons. ◆ Provide a regularly scheduled, free – or very low fare – shuttle along the detour route.
23.	Social and Environmental Justice (EJ)	Temporary traffic impacts during construction	Provide advance notice to emergency service providers, community facilities, local schools, and local businesses of upcoming construction activities that are likely to result in traffic disruption, rerouting, and changes in access.
24.	Social and EJ	Temporary detours during construction	Develop and implement a public information plan for the construction phase. This plan will include information on construction activities and the established detours and associated signage.
25.	Social and EJ	Temporary noise impacts during construction	Offer hotel vouchers to downtown residents most impacted by construction activities during nighttime hours.
26.	Relocation/Right-of-Way	Property Acquisition and Relocation (commercial and private)	All acquisition and relocation shall comply fully with federal and state requirements, including the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.
27.	Relocation/Right-of-Way	Property Acquisition (commercial and private)	CDOT will provide all impacted property owners notification of its intent to acquire an interest in their property, including a written offer letter of just compensation specifically describing those property interests being sought. CDOT will provide all displaced persons advisory services and notification of relocation eligibility, as applicable. A Right-of-Way Specialist will be assigned to each property owner to assist them with this process.
28.	Economic	Impacts to business access	Design the Build Alternative to maintain and, where possible, improve access to existing businesses.
29.	Economic	Impacts to businesses acquired for right-of-way	Comply fully with federal and state requirements, including the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act), for all acquisition and relocation.
30.	Economic	Impacts to parking	As part of the right-of-way process, coordinate with the Glenwood Hot Springs to identify a solution to compensate for parking impacts.
31.	Economic	Impacts to business access	Using the established context sensitive process, work with stakeholders to incorporate design features to enhance business and tourism opportunities.
32.	Economic	Impacts to business access	Coordinate with the Downtown Development Authority (DDA) to develop signage that directs visitors to the 6th Street businesses.
33.	Economic	Impacts to business access during construction	Maintain access to all businesses at all times.
34.	Economic	Impacts to businesses during construction	Target the approximately 90-day full bridge closure during the traditionally slower traffic times during the year.

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35.	Economic	Impacts to businesses during construction	Use Accelerated Bridge Construction techniques to minimize bridge closure time.
36.	Economic	Impacts to business access during construction	Keep pedestrian access across the river open at all times.
37.	Economic	Parking impacts during construction	Continue to coordinate with the Glenwood Hot Springs and other businesses to mitigate temporary impacts to parking. To lessen the level of impact, conduct public outreach to inform visitors of the construction activities and options for parking in the area.
38.	Economic	Impacts to businesses during construction	Communicate regularly with businesses about the construction schedule.
39.	Economic	Impacts to businesses during construction detours	Provide additional signage to clarify detour and access changes.
40.	Economic	Impacts to businesses during construction detours	Conduct public outreach to let the local community and region know that the area is open for business.
41.	Economic	Impacts to businesses during construction	Participate with local business organizations (e.g., the DDA, the Glenwood Springs Chamber of Commerce, Downtown Market, Colorado Mountain College, and others) to identify other mitigation measures the project could incorporate to mitigate business impacts.
42.	Economic	Impacts to businesses during construction	CDOT's outreach team will coordinate and work closely with the Glenwood Springs Chamber of Commerce and other local organizations and groups and support additional outreach.
43.	Economic	Noise and air quality impacts	See mitigation measures under Air Quality and Noise.
44.	Air Quality	Air pollutants released during construction	CDOT and its contractor will comply with the fugitive dust permitting and control requirements of the Colorado Air Quality Control Commission (CAQCC), and obtain a general construction Air Pollutant Emission Notice. These requirements are documented in Regulation 1, Emission Control Regulation for Particulate Matter, Smoke, Carbon Monoxide, and Sulfur Oxides for the State of Colorado, effective August 30, 2007 (CAQCC, 2007), and Regulation 3, Air Pollutant Emission Notice Requirements, effective April 14, 2014 (CAQCC, 2014).
45.	Air Quality	Fugitive dust during construction	Apply water and chemical stabilizers in active construction areas and on haul roads.
46.	Air Quality	Fugitive dust during construction	Post speed limit signs and enforce speeds in active construction areas and on haul roads.
47.	Air Quality	Fugitive dust during construction	Water, perform soil compaction, and revegetate disturbed areas, as needed and appropriate for site conditions.
48.	Air Quality	Fugitive dust during construction	Temporarily curtail earthmoving activity during extreme wind or dust conditions.
49.	Air Quality	Fugitive dust during construction	Cover haul trucks, as appropriate, to reduce dust.
50.	Air Quality	Fugitive dust during construction	Limit haul truck speeds in unpaved areas.
51.	Air Quality	Vehicle emissions during construction	CDOT will review the plans for construction truck routing and hauling, in order to reduce the number of trips and periods of avoidable extended idling.
52.	Noise	Noise impacts	If future substantial changes are made to design elements of the Build Alternative from what has been analyzed for this EA, the noise analysis will need to be reassessed to evaluate the impact of those changes.
53.	Noise	Temporary impacts from construction activities	Adhere to the City of Glenwood Springs Code Article 100.070, Regulation of Noise. Obtain a construction noise work permit or waiver for construction activities occurring outside of the hours allowed by the Code. The Code allows construction activities to commence between the hours of 7:00 a.m. and 8:00 p.m. Monday to Friday, and 8:00 a.m. to 6:00 p.m. Saturday and Sunday.
54.	Noise	Temporary impacts from construction activities	Offer hotel vouchers to downtown residents most impacted by construction activities during nighttime hours. These are anticipated to be R17 and the second-story residence on 7th Street (not included in this noise analysis since there is no outdoor use).

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55.	Noise	Temporary impacts from construction activities	The contractor will conduct preliminary noise monitoring during the noisier nighttime construction periods. These are expected to be in the summer and fall of 2015 and from spring to fall of 2016 when girders for the new bridges would be erected. If noise levels exceed 66 dBA during construction (the threshold that CDOT typically uses for nighttime noise levels), hotel accommodations would be made available for persons residing within eligibility zones.
56.	Noise	Temporary impacts from construction activities	Limit construction activities adjacent to noise-sensitive receptors when they are most sensitive, as practical and feasible.
57.	Noise	Temporary impacts from construction activities	Use noise blankets or other muffling devices on equipment and quiet-use generators at noise-sensitive receptors as needed.
58.	Noise	Temporary impacts from construction activities	Use well-maintained equipment and inspect equipment regularly.
59.	Noise	Temporary impacts from construction activities	Locate stationary equipment and haul roads away from noise-sensitive receptors, as practical and feasible.
60.	Noise	Temporary impacts from construction activities	If pile driving for bridge piers is used, limit activities to daytime hours.
61.	Noise	Temporary impacts from construction activities	Minimize pile driving through use of drill shafts. Limit pile driving activities, if needed, to workday off-peak hours.
62.	Noise	Temporary impacts from construction activities	Minimize back-up alarm noises on construction vehicles in construction areas where practical and feasible.
63.	Noise	Temporary impacts from construction activities	Turn off idling equipment and vehicles when not in use.
64.	Noise	Temporary impacts from construction activities	The contractor will only use equipment that, operating under full load, meets manufacturer specifications. If the equipment falls out of compliance, the contractor will take remedial action to comply with the specifications.
65.	Noise	Temporary impacts from construction activities	For the nighttime I-70 closure detour that would occur several times during safety critical construction activities, coordinate detour nights and times with local hotels (e.g., Hotel Colorado and Glenwood Hot Springs). This will help hoteliers to move patrons to rooms farther from detour noise.
66.	Water Resources and Water Quality	Impacts to water quality	Incorporate design measures into the Build Alternative to mitigate for potential water quality impacts. The design will improve upon the current condition where stormwater runoff drains from the bridge directly into the Colorado River.
67.	Water Resources and Water Quality	Impacts to water quality	<ul style="list-style-type: none"> ◆ Construct one permanent water quality basin north of the Colorado River to improve water quality and reduce impacts from sediments. The basin will be located between the I-70 westbound off ramp, Grand Avenue, and North River Street. This basin will help provide water quality treatment for runoff from increased roadway pavement and to provide treatment of some existing roadway runoff, thereby improving surface water quality over the No Action Alternative. ◆ The water quality basin will treat the volume of stormwater generated from impervious area on the project's north side, as well as stormwater from the existing impervious area. Because of concerns regarding the visual impact of the basin, an underground vault system could be used instead. This vault will be designed to provide the same water quality benefit as the basin. ◆ Because of its highly visible location, the basin is being designed to include a series of walls to create an attractive gateway feature through landscaping and other techniques. The grading for the pond would impact most of all of the pervious area between the roads. ◆ The detention basin will require a new outfall to the Colorado River near Two Rivers Park. An additional outfall may be required near the existing highway and pedestrian bridges.

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68.	Water Resources and Water Quality	Impacts to water quality	Provide stormwater management infrastructure south of the Colorado River to treat runoff. Because of space limitations, an underground best management practice is proposed. This best management practice will capture and treat runoff from additional impervious areas (e.g., pavement, sidewalks, and retaining walls) from the Build Alternative and outfall into the Colorado River. The City of Glenwood Springs will assume inspection and maintenance responsibilities for the underground best management practice, which will be included in the Intergovernmental Agreement between CDOT and the City. Additional stormwater on the south side will be routed via existing inlets and storm sewers to the Colorado River.
69.	Water Resources and Water Quality	Impacts from stormwater runoff	Sign inlets to inform public they drain to river.
70.	Water Resources and Water Quality	Temporary storm water impacts during construction	Provide stormwater management infrastructure prior to construction that would treat runoff from the SH 82 detour. An underground best management practice is proposed, the use of which will be verified during final design. This best management practice will capture and treat runoff from additional impervious areas from the detour and outfall into the Roaring Fork River.
71.	Water Resources and Water Quality	Temporary erosion and sediment impacts during construction	Implement standard erosion and sediment control best management practices in accordance with CDOT's Erosion Control and Stormwater Quality Guide (CDOT, 2002) and established sound engineering practices in final design plans.
72.	Water Resources and Water Quality	Temporary erosion and sediment impacts during construction	Develop and implement a site-specific stormwater management plan (SWMP). The best management practices will be designed, installed, and maintained per the SWMP.
73.	Water Resources and Water Quality	Temporary erosion and sediment impacts during construction	Perform all work in conformance to Section 107.25 (Water Quality Control) and Section 208 (Erosion Control) of the CDOT Standard Specifications for Road and Bridge Construction.
74.	Water Resources and Water Quality	Temporary erosion and sediment impacts during construction	<p>Use best management practices from CDOT's Erosion Control and Stormwater Quality Guide for water resources and water quality, as appropriate. best management practices must be maintained for the duration of the project. Specifically:</p> <ul style="list-style-type: none"> ◆ Phase construction to limit the acreage exposed (cleared) at any given time during project construction. ◆ Revegetate all disturbed areas with native grass and forb species, or appropriate landscaping as required. Apply seed and mulch in phases throughout construction. This will help stabilize the disturbed areas upon completion of the project even during multiple years of potential drought and low precipitation conditions. ◆ Temporarily stabilize disturbed areas, including areas where permanent seeding operations are not feasible due to seasonal constraints (e.g., summer and winter months), and use CDOT-approved methods to prevent erosion. ◆ Use erosion control blankets or other suitable methods on steep, newly seeded slopes to control erosion and to promote the establishment of vegetation. Use erosion control blankets with natural fibers and bio-photodegradable mesh. ◆ Use erosion logs, silt fence, diversion ditches, temporary berms, sediment traps, temporary detention ponds, and other sediment control devices to divert, control, and filter sediment-impacted water in order to protect surface water and inlets to the storm sewer system. ◆ Use check dams and other velocity dissipation devices, where appropriate, to slow the velocity of water through roadside ditches and within swales. ◆ Limit disturbed areas as much as possible to minimize construction impacts to vegetation. ◆ Use permanent structural best management practices, such as grass swales and grass/vegetative buffers, to limit sediment and roadway pollutants resulting from winter sanding, chemical deicing, and normal traffic operations from entering waterways. ◆ Use non-structural best management practices, including litter and debris control, and surface roughening on slopes, landscaping, and vegetative practices. ◆ Implement temporary and permanent best management practices for erosion control, sediment control, and drainage way protection as required by local and state permitting requirements. Design best management practices to protect waterways from various potential pollutant sources, such as construction materials, fuels and other fluids, sediment, and trash. Best management practices will be maintained for the duration of the project.

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75.	Water Resources and Water Quality	Impacts from dewatering during construction	CDOT or its contractor will file a notice of intent with the Colorado Department of Health and Environment (CDPHE) Water Quality Control Division for groundwater dewatering, if dewatering is required for construction. A discharge permit would also be required if groundwater is discharged to a water body (e.g., the Colorado River). The CDPHE may require that water proposed for discharge be analyzed, and that the discharged water be treated to meet the surface water quality standards applicable to that river segment. The project will comply with all CDPHE dewatering and/or discharge permit requirements. In the event that discharged water cannot be treated to meet the surface water quality standards, discharged water will be stored and transported off site for disposal.
76.	Water Resources and Water Quality	Impacts to water quality during construction	Locate construction staging and materials stockpiling farther than 50 feet from the edge of the Colorado River, when possible. In specific circumstances, if this buffer is not achievable, CDOT will consider the placement of materials closer to the edge of water and identify appropriate additional best management practices that would be required.
77.	Water Resources and Water Quality	Impacts to water quality during construction	Refuel equipment within designated refueling containment areas, located away from the Colorado River. During refueling operations, the receiving hose will be connected and all valves will be checked to ensure delivery of product to the proper receptacle. The transfer will be constantly monitored to prevent overfilling and spilling, and the delivery hose and lines will be checked for leaks. The transport driver will remain on hand until product delivery has been completed. Following product delivery, all appropriate valves will be shut off, hoses will be disconnected, the transport driver will check for leaks, and the receptacle will be gauged to verify receipt of product. Spill response materials (spill kits) will be available, and personnel will be aware of the storage location of such kits.
78.	Water Resources and Water Quality	Impacts to water quality during construction	Place best management practices and containment structures for work conducted within and adjacent to the floodplain and the Colorado River to prevent concrete washout and other potential pollutants from reaching the river.
79.	Water Resources and Water Quality	Impacts to water quality during construction	In the event that equipment malfunctions during demolition or construction, any release that may impact waters of the state, no matter how small, must be reported immediately to the Colorado Department of Health and Environment by telephone. Written notification to the Colorado Department of Health and Environment must follow within five days. Measures of containment will be followed as included in the spill prevention, countermeasure, and control plan of the stormwater management plan.
80.	Water Resources and Water Quality	Impacts to water quality during construction	Remove the two causeways used during bridge construction at the end of construction and return all areas of disturbance to existing conditions.
81.	Water Resources and Water Quality	Impacts to geothermal resources during construction	Design foundations to stay above the confining layer of the Belden Shale, which will avoid any penetration of the primary bedrock aquifer, the Leadville Limestone.
82.	Water Resources and Water Quality	Impacts to geothermal resources during construction	Use spread footings where practicable to minimize the depth of excavation.
83.	Water Resources and Water Quality	Impacts to geothermal resources during construction	Drill test holes to determine the subsurface conditions at the locations of foundation structures.
84.	Water Resources and Water Quality	Impacts to geothermal resources during construction	Consider foundation grouting to improve groundwater conditions near caisson foundations to minimize the depth of the excavation.
85.	Waters of the United States	Temporary waters of the United States impacts	CDOT's Regional Wetland Specialist will obtain Section 404 permit authorization from the U.S. Army Corps of Engineers for placement of temporary and permanent fill material in the Colorado River.
86.	Waters of the United States	Temporary riparian impacts	Protect riparian areas during construction activities through placement of temporary and/or construction-limit fencing.
87.	Waters of the United States	Temporary waters of the United States impacts	Closely monitor all work within and near the Colorado River to ensure compliance with the U.S. Army Corps of Engineers Section 404 Permit.
88.	Waters of the United States	Temporary waters of the United States impacts	Following construction, causeways will be removed, restoring all disturbed areas according to riparian mitigation requirements specified in the Guidelines for Senate Bill 40 Wildlife Certification.

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89.	Floodplains	Potential increase in flood elevations from a 100-year flood	CDOT will evaluate the following avoidance and minimization measures during final design to reduce floodplain impacts: <ul style="list-style-type: none"> ◆ Design construction causeways to protect I-70, Glenwood Hot Springs, and similarly positioned infrastructure from a 10-year flood event. ◆ During construction, monitor snowpack data, river flow data, daily temperature forecasts, etc., to predict 10-year flood events. In the case of a potential flood event, the contractor will remove portions of the causeways to prevent flooding. ◆ Remove riprap previously placed in the river to protect the existing highway bridge pier from erosion. This measure will require coordination with resource agencies. CDOT will perform a detailed hydraulic analyses. If this shows no increase in flood elevations, no further mitigation will be required.
90.	Floodplains	Potential increase in flood elevations from a 100-year flood	CDOT will continue coordinating with the City of Glenwood Springs' Floodplain Administrator regarding the City's floodplain ordinance requirements as the design and hydraulic analyses are refined.
91.	Floodplains	Potential increase in flood elevations	CDOT will comply with all applicable floodplain design criteria, FHWA's floodplain regulations, and Executive Order 11988, "Floodplain Management."
92.	Vegetation	Temporary impacts to vegetation during construction	To the extent practicable, CDOT will avoid disturbance to existing trees, shrubs, and vegetation.
93.	Vegetation	Temporary impacts to vegetation during construction	Areas cleared of vegetation would be revegetated and returned to their preconstruction coverage.
94.	Vegetation	Temporary impacts to riparian vegetation during construction	Replace riparian trees and shrubs removed during construction as stipulated in CDOT's Guidelines for Senate Bill 40 Wildlife Certification, which states that trees removed during construction, whether native or non-native, shall be replaced with a goal of 1:1 replacement based on a stem count of all trees with diameter at breast height of two inches or greater.
95.	Vegetation	Temporary impacts to riparian vegetation during construction	Shrubs removed during construction, whether native or non-native, will be replaced based on their preconstruction areal coverage. In all cases, all such trees and shrubs will be replaced with native species.
96.	Vegetation	Temporary impacts to riparian vegetation during construction	A vegetation survey will be completed during final design to determine the number of riparian trees and the areal coverage of shrubs impacted.
97.	Vegetation	Impacts to landscaped areas during construction	Revegetate landscaped areas disturbed during construction. Landscaping will be determined during the final design process in consultation with stakeholders.
98.	Noxious Weeds	Weed growth where vegetation removed during construction	Revegetate disturbed areas with native species.
99.	Noxious Weeds	Weed growth where vegetation removed during construction	Conduct a noxious weed survey prior to construction.
100.	Noxious Weeds	Weed growth where vegetation removed during construction	Develop and implement an Integrated Weed Management Plan that will contain best management practices to prevent and/or control the establishment of noxious weeds, including, but not limited to, appropriate herbicide application, equipment cleaning, use of weed-free materials, and prompt revegetation of disturbed areas.
101.	Noxious Weeds	Weed growth where vegetation removed during construction	CDOT will identify and remove tamarisk trees (a noxious weed also known as Saltcedar), in and adjacent to areas of construction, per the best management practices that will be developed for construction plans and specifications.
102.	Wildlife – Non Aquatic	Direct mortality of and removal of habitat for small mammals from permanent riparian vegetation removal	CDOT will continue to coordinate with Colorado Parks and Wildlife to implement mitigation measures to minimize impacts to wildlife.

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103.	Wildlife – Non Aquatic	Removal of future nesting sites for some bird species from permanent riparian vegetation removal	To ensure compliance with the Migratory Bird Treaty Act, CDOT Specification 240 will be followed by the contractor. Specification 240 outlines requirements regarding nests on structures, seasonal vegetation-clearance restrictions, and measures to buffer bird nests within a construction area.
104.	Wildlife – Non Aquatic	Direct mortality of and removal of habitat for small mammals from permanent riparian vegetation removal	Provide temporary fencing in riparian areas to protect wildlife from construction activities.
105.	Wildlife – Non Aquatic	Temporary loss of habitat due to the clearing of vegetation in and around the Colorado River	Replace riparian trees and shrubs removed as stipulated in CDOT's Guidelines for Senate Bill 40 Wildlife Certification, which states that riparian trees removed during construction, whether native or non-native, shall be replaced with a goal of 1:1 replacement based on a preconstruction stem count of all trees with a diameter at breast height of two inches or greater.
106.	Wildlife – Non Aquatic	Temporary loss of habitat due to the clearing of vegetation in and around the Colorado River	Riparian shrubs removed during construction, whether native or non-native, will be replaced with native species based on their preconstruction areal coverage. In all cases, CDOT will replace all such trees and shrubs with native species.
107.	Wildlife – Non Aquatic	Temporary loss of habitat due to the clearing of vegetation in and around the Colorado River	A vegetation survey will be completed during final design to determine the number of riparian trees and the areal coverage of shrubs impacted.
108.	Wildlife – Non Aquatic	Temporary loss of habitat due to the clearing of vegetation in and around the Colorado River	Avoid disturbance of native trees, shrubs, and vegetation to the extent possible. When disturbance is unavoidable, replace native and non-native species with native species.
109.	Wildlife – Non Aquatic	Impacts to wildlife during construction	Use bear-resistant trash receptacles near construction areas.
110.	Wildlife – Aquatic	Habitat loss and increased water turbidity	CDOT will continue to coordinate with Colorado Parks and Wildlife and implement the following mitigation measures to minimize impacts to aquatic species.
111.	Wildlife – Aquatic	Habitat loss and increased water turbidity	Use CDOT-approved best management practices to offset the extent and duration of any temporary impacts to the Colorado River.
112.	Wildlife – Aquatic	Habitat loss and increased water turbidity	In no instance allow construction activities or equipment to work in flowing water or disturb sediment during recognized trout spawning seasons unless in coordination with Colorado Parks and Wildlife, as follows: <ul style="list-style-type: none"> ◆ Rainbow Trout: March 1-May 31 ◆ Brown Trout: October 1-November 30
113.	Wildlife – Non Aquatic	Introduction of invasive aquatic species	Prevent the spread of invasive aquatic nuisance species, including Eurasian watermilfoil, zebra mussel, and New Zealand mudsnail by following CDOT's Guidelines for Senate Bill 40 Wildlife Certification.
114.	Wildlife – Aquatic	Habitat loss and increased water turbidity	Provide permanent water quality measures discussed in Section 3.9.3 Water Resources and Water Quality Mitigation of the Environmental Assessment.
115.	Wildlife – Aquatic	Sediment increase in Colorado River during construction.	Minimize sediment entrainment within the river flow and the diversion channels using protected control structures. Such protection will consist of, but not necessarily be limited to, geotextiles fabrics, riprap, and conduits.

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116.	Special Status Species – Non Aquatic	Vegetation removal due to construction activities	CDOT will continue to coordinate with Colorado Parks and Wildlife and implement the following best management practices and mitigation measures to minimize impacts to special-status species during construction and to improve habitat availability and quality following construction.
117.	Special Status Species – Non Aquatic	Potential bird impacts	Follow CDOT specification 240 to ensure compliance with the Migratory Bird Treaty Act.
118.	Special Status Species – Non Aquatic	Potential wildlife impacts	Provide temporary fencing in riparian areas to protect wildlife from construction activities.
119.	Special Status Species – Non Aquatic	Habitat removal due to construction activities	A vegetation survey will be completed during final design to determine the number of riparian trees and the areal coverage of shrubs impacted.
120.	Special Status Species – Non Aquatic	Habitat removal due to construction activities	Replace all riparian trees and shrubs removed during construction, as required by Senate Bill 40 Wildlife Certification.
121.	Special Status Species – Non Aquatic	Habitat removal due to construction activities	Non-native trees and shrubs removed during construction will be replaced with native species.
122.	Special Status Species – Aquatic	Introduction of invasive aquatic species	Prevent the spread of invasive aquatic nuisance species, including Eurasian watermilfoil, zebra mussel, and New Zealand mudsnail following CDOT's Guidelines for Senate Bill 40 Wildlife Certification.
123.	Special Status Species – Aquatic	Water quality impacts to river otter and fish during construction	Provide permanent water quality measures discussed in Section 3.9.3 Water Resources and Water Quality Mitigation of the Environmental Assessment.
124.	Special Status Species – Aquatic	Sedimentation and streambed disturbance	No in-water work will be allowed between March 1 and May 31 to protect spawning Colorado River Cutthroat Trout.
125.	Special Status Species – Aquatic	Temporary habitat loss and sediment impacts during construction	Minimize sediment entrainment within the river flow and the diversion channels through use of protected control structures. Such protection will consist of, but not necessarily be limited to, geotextiles fabrics, riprap, and conduits.
126.	Special Status Species – Aquatic	Vegetation removal due to construction activities	In no instance allow construction activities or equipment to work in flowing water during recognized spawning seasons or any other time unless in coordination with Colorado Parks and Wildlife.
127.	Historic	Direct impacts to historic properties	Prepare Level II archival documentation to mitigate the adverse effect to Glenwood Springs Viaduct/SH 82/Grand Avenue Bridge (5GF.2717), per Memorandum of Agreement to be prepared.
128.	Historic	Proximity impacts to historic properties	Using the established context-sensitive process, CDOT will work with Section 106 consulting parties and the State Historic -Preservation Officer to identify opportunities for aesthetic treatments in the design of the bridge, roadway, and sidewalk elements to reflect the materials and architectural style of the historic period of significance for these properties: Silver Club Building (5GF.1015); Palace Hotel (5GF.1016); Parkison Building (5GF.1017); Springs Restaurant/Doc Holliday Tavern (5GF.1033); Dougan Block (5GF.4730); and Ore Sampling Room (5GF.1032).

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129.	Historic	Temporary impacts to the Denver & Rio Grande Railroad – Aspen Branch (Site #5GF.1661.7) for construction detour	When the new Grand Avenue Bridge is reopened and the detour is no longer needed, CDOT will restore the Denver & Rio Grande Railroad – Aspen Branch connection to preconstruction conditions.
130.	Historic	Noise impacts to historic properties during nighttime construction detour	Temporary noise mitigation will be deployed during nighttime detour operations along 6th Street to reduce noise impacts to nearby historic resources. This would include, but not be limited to, CDOT coordinating detour nights and times with local hotels (e.g., Hotel Colorado and Glenwood Hot Springs). This will help hoteliers to move patrons to rooms farther from detour noise.
131.	Hazardous Materials	Possible exposure to potentially hazardous materials	CDOT will attempt to resolve regulatory responsibilities for known regulated materials contaminants at properties targeted for right-of-way acquisition or easements prior to acquisition. Properties targeted for acquisition are identified in Section 3.5 Relocation/Right-of-Way of the Environmental Assessment.
132.	Hazardous Materials	Possible exposure to potentially hazardous materials	CDOT's contractor will prepare a Materials Management Plan to address potential regulated materials that may be encountered during construction activities and minimize the spread of any remaining regulated materials located in the subsurface within the construction area. The plan will have emphasis on these areas: <ul style="list-style-type: none"> ◆ The potential exists for hazardous materials (including residual contamination associated with the on-site filling stations as well as the Union Pacific Railroad line) to be encountered in areas where proposed construction and excavation areas approach the groundwater table and within the temporary construction detour route. Recent investigations reveal that groundwater levels are about 10 to 20 feet below ground on the south side and approximately 30 feet below the ground on the north side. ◆ Potential fill or demolition debris from roadway construction may be present on the site. Ensure that workers follow CDOT Specification 250 – Environmental, Health and Safety Management and the CDOT Asbestos-Contaminated Soil Management Standard Operating Procedure during excavation activities at this site.
133.	Hazardous Materials	Possible exposure to potentially hazardous materials	Complete American Society for Testing and Materials (ASTM)-compliant Phase I Environmental Site Assessment for properties considered for right-of-way acquisition.
134.	Hazardous Materials	Possible exposure to potentially hazardous materials	Complete subsurface soil and groundwater investigation to identify potential contaminants in construction area. The subsurface investigation should target areas where contamination would likely be encountered during construction, or parcels where right-of-way is acquired. A subsurface investigation at the northwest portion of the study area could be eliminated since subsurface groundwater investigations are currently being conducted in this area related to active petroleum releases.
135.	Hazardous Materials	Possible exposure to potentially hazardous materials	In the event that suspected asbestos containing material (ACM) is encountered, including with buried utilities, workers must follow CDOT Specification 250.07 – Asbestos-Containing Material Management and CDOT Asbestos-Contaminated Soil Management Standard Operating Procedure. Additionally, depending on the type of ACM, this material must also be abated in accordance with either Section 5.5 of the Solid Waste Regulations, or Regulation No. 8 of the Air Quality Control Commission Regulations.
136.	Hazardous Materials	Possible exposure to potentially hazardous materials	Complete appropriate surveys for asbestos and lead-containing paint prior to demolition. If ACM is encountered, implement abatement activities in accordance with all applicable state and federal regulations and guidelines. Surveys for asbestos will not be required if an architect certifies the structures were constructed with asbestos-free building materials.
137.	Hazardous Materials	Possible exposure to potentially hazardous materials	Follow CDOT guidelines regarding lead-containing paint. The contractor will avoid sanding, cutting, burning, or otherwise causing the release of lead from paint on structures when possible. If this is not possible, the lead must be abated properly.
138.	Hazardous Materials	Possible exposure to potentially hazardous materials	Specify proper handling procedures of contaminated media identified during subsurface investigations in accordance with applicable state and federal requirements.
139.	Hazardous Materials	Possible exposure to potentially hazardous materials	Develop a Health and Safety Plan to protect workers during construction activities.
140.	Hazardous Materials	Possible exposure to potentially hazardous materials	Stop work in the event that unknown contaminated media is encountered during construction until the contamination has been properly evaluated and measures are taken to protect worker health and safety, as well as public health and the environment.
141.	Hazardous Materials	Possible exposure to potentially hazardous materials	Follow the CDOT Specification 250 – Environmental, Health, and Safety Management during excavation activities within the construction area.

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142.	Hazardous Materials	Possible exposure to potentially hazardous materials	Implement standard construction measures for fugitive dust control, as well as stormwater erosion and sediment control.
143.	Hazardous Materials	Possible exposure to potentially hazardous materials	Conduct dewatering and/or dewatering activities in accordance with Colorado Department of Public Health and Environment (CDPHE) permits during construction activities if groundwater is encountered.
144.	Hazardous Materials	Possible exposure to potentially hazardous materials	Properly store and treat contaminated water prior to discharge in accordance with dewatering and/or discharge permits. In the event that discharged water cannot be treated to meet the surface water quality standards, discharged water will be stored and transported off site for disposal.
145.	Hazardous Materials	Possible exposure to potentially hazardous materials	<ul style="list-style-type: none"> ◆ Identify and properly close, remove and/or replace monitoring wells and remediation systems within the construction area to avoid impacts and minimize the spread of regulated materials. ◆ Properly abandon or potentially replace monitoring wells and/or existing remediation system components impacted during construction if the system is still being utilized.
146.	Hazardous Materials	Possible exposure to potentially hazardous materials	Initiate coordination with lead regulatory agencies before impacts to regulated facilities occur.
147.	Parks and Recreation	Visual impacts to Glenwood Hot Springs visitors and Colorado River recreationists	CDOT will incorporate aesthetic treatments in the design of bridge elements to reflect the materials and architectural style of the surrounding historic structures.
148.	Parks and Recreation	Parking impacts to Glenwood Hot Springs	CDOT will continue coordinating with the Glenwood Hot Springs to identify a solution to compensate for permanent parking impacts.
149.	Parks and Recreation	Temporary impacts at park access	CDOT will coordinate with the City School Board about the regrading of the Vogelaar Park access road before and after implementation of the SH 82 Detour to avoid conflicts with large events that may be planned in the park or ballfield.
150.	Parks and Recreation	Temporary impacts at park access	When the new Grand Avenue Bridge is reopened, the SH 82 Detour will be removed and the driveway leading to Vogelaar Park will be regraded to match the restored 8th Street grade.
151.	Parks and Recreation	Temporary impacts to river recreationists during construction	<p>CDOT will coordinate with rafting companies and outfitters to develop a Construction River Use Plan. This River Use Plan will include at a minimum:</p> <ul style="list-style-type: none"> ◆ Methods to give advance notice of channel-disturbing activities so anglers can avoid unclear or muddy sections of the Colorado River. ◆ Management of river users through the construction site, including measures to keep river users from encountering culvert openings (if any) and to minimize turbulent water or backwater conditions. This will address times of critical construction activities, such as bridge demolition, and girder placement. ◆ Management of recreational boat take-out during river closures, including locations and notification.
152.	Pedestrian and Bicycle Facilities	Changes in street crossings	Use prominent signage to direct bicyclists and pedestrians around the roundabout.
153.	Pedestrian and Bicycle Facilities	Changes in circulation patterns	Install new signage to direct users to new recreational trail connections, as funding allows.
154.	Pedestrian and Bicycle Facilities	Safety for underpass/tunnel connection users	Install lighting in the new 150-foot underpass and wider openings/approaches to improve safety and security for users.
155.	Pedestrian and Bicycle Facilities	Safety for sidewalk and pathway users during construction	Provide construction fencing to protect pedestrians and bicyclists from construction areas.
156.	Pedestrian and Bicycle Facilities	Interruption of connectivity during pedestrian bridge replacement	Maintain connectivity during construction. Early in the project, a five-foot sidewalk with barrier will be built on or adjacent to the existing Grand Avenue Bridge. The existing pedestrian bridge will be removed and the new bridge built adjacent to the existing Grand Avenue Bridge. Temporary access will be provided on the northern and southern touchdown points of the pedestrian bridge to maintain American with Disabilities Act (ADA) access from the new pedestrian bridge to the adjacent sidewalks until permanent connections are completed.

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157.	Pedestrian and Bicycle Facilities	Closures and detours at 6th and Laurel Streets roundabout	Provide detours to maintain pedestrian connectivity at all times to the businesses. Pedestrian routes will be kept open to the extent practical, but temporary detours will be necessary during parts of the construction.
158.	Pedestrian and Bicycle Facilities	Changes to trail access	Keep the North River Street and 7th Street on-road bicycle routes open to the extent feasible, although temporary detours will be necessary during parts of the construction. Detour routes for North River Street could include existing bike routes/trails both north and west of the construction area. Detour routes for 7th Street could include 8th Street or 9th Street downtown.
159.	Pedestrian and Bicycle Facilities	Changes to trail access	Access to the Two Rivers Trail will be kept open to the extent practical, but temporary detours will be necessary during construction. Detour routes could include a temporary sidewalk or a detour across the Colorado River south to the Roaring Fork Trail to 7th Street, and then back across the pedestrian bridge.
160.	Pedestrian and Bicycle Facilities	Access changes and closures for SH 82 Detour	Provide an ADA accessible ramp and sidewalk connecting the on-road bicycle route on 7th Street to the ramp leading to the River Trail. ADA-accessible ramps and a three-foot sidewalk on the south side of 7th Street will connect the 8th Street intersection to the existing sidewalk under the railroad bridge. Pedestrians will be directed to use the sidewalk on the north side of 8th Street. When the Grand Avenue bridge is reopened, use of sidewalks on the south side of 8th Street will be restored, and all existing pedestrian ramps along 8th Street will be restored to their original location.
161.	Pedestrian and Bicycle Facilities	Temporary sidewalk closures and detours during construction	Use signage to direct pedestrians and bicyclists to temporary sidewalk connections.
162.	Energy	Energy consumption from new lighting fixtures	Incorporate lighting fixtures that minimize energy use in the design of the Build Alternative, in compliance with CDOT specifications and local light ordinances.
163.	Energy	Energy consumption during construction activities	CDOT will require contractors to implement an energy plan that would consider several construction energy conservation measures. These could be the following: <ul style="list-style-type: none"> ◆ Limit construction equipment idling. ◆ Locate construction staging areas close to work sites to minimize travel time. ◆ Use cleaner and more fuel-efficient construction equipment and vehicles. ◆ Consolidate material delivery whenever possible to ensure efficient vehicle use. ◆ Promote employee carpooling.
164.	Archaeological Resources	Unanticipated archaeological discoveries during construction	If any unanticipated archaeological resources are encountered during construction, ground-disturbing activities in the area of the find will immediately cease, and the CDOT Staff Archaeologist will be notified immediately to assess their significance and make further mitigation recommendations.
165.	Paleontological Resources	Unanticipated paleontological discoveries during construction	If any subsurface bones or other potential fossils are found by the construction contractor during construction, work in the immediate area will cease immediately, and the CDOT Staff Paleontologist will be contacted to evaluate the significance of the find. Once salvage or other mitigation measures (including sampling) is complete, the CDOT Staff Paleontologist will notify the construction supervisor that paleontological clearance has been granted.