

Tips for Developing VIA Mitigation

Mitigation Foundation

Characterize Visual Impacts

- ▶ *Identify* elements of the proposed action (e.g., rock cuts) affecting visual resources
- ▶ *Describe* how visual resources are affected
- ▶ **Landscape character:** Changes to form, line, color, texture, or scale
- ▶ **Viewers:** Reference specific viewer and visibility impacts
- ▶ **Visual Quality:** Loss or reduction in visual harmony, unity, or vividness

Develop Mitigation Goals

- ▶ **Type of Mitigation:** Avoid, minimize, compensate
- ▶ **Category of Mitigation Strategy:** Policy (1), Planning (2), Prescriptive (3)
- ▶ **Intent of Mitigation:** State the desired outcome/intent (create visual compatibility, reduce visual contrast, establish a theme)
- ▶ **Timing of Mitigation:** Construction, Maintenance, Project Life

Connect with Regulatory Context

- ▶ Account for applicable federal, state, and local guidelines

Mitigation Development

Use an Interdisciplinary Team Approach

- ▶ Involve project design and resource specialists (landscape architects, biologists, historians, etc.)
- ▶ Coordinate with CDOT and local agencies, as appropriate

Involve Stakeholders

- ▶ Involve stakeholders in the VIA process for complex or controversial projects, and consider aesthetic design guidelines for large scale projects

Structure and Compose Mitigation Measures

- ▶ Develop SMART mitigation strategies within coordinated groupings of mitigation measures
- ▶ Create visualization(s) of mitigation measures (visual simulations, graphics, diagrams, or cross sections to illustrate mitigation design)

SMART Mitigation Strategy Model

Visual Impacts ↔ Mitigation Measure Strategies		SMART Criteria for Effective Mitigation ¹	
		Focus on NEPA Mitigation for Adverse Visual Impacts	Focus on Design and Project Delivery of Mitigation Commitments
Adverse Visual Impacts	Avoidance and Minimization	<p>“Avoid or minimize” visual impacts:</p> <ul style="list-style-type: none"> ▶ Project alternatives & screening ▶ Realignment strategies ▶ Design approaches 	<p>Specific:</p> <ul style="list-style-type: none"> ▶ Mitigation measure targets affected visual resources: <ul style="list-style-type: none"> - <i>Landscape character</i> - <i>Viewers</i> - <i>Visual quality</i> <p>Measurable:</p> <ul style="list-style-type: none"> ▶ Visual resource compensation achieved through: <ul style="list-style-type: none"> - <i>Community and agency coordination</i> - <i>Compliance with agency/regulatory standards and guidelines</i>
	Compensation	<p>“Compensate” for visual impacts:</p> <ul style="list-style-type: none"> ▶ Replace resource ▶ Provide substitute resource(s) 	

¹SMART Criteria: S = Specific, M = Measurable, A = Attainable, R = Realistic, T = Tangible/Timing

SMART Mitigation Development Tool

VIA Project	Impact & Mitigation Codes	SMART Mitigation Strategies						
Visual Impacts and Mitigation Measures		Focus on NEPA/Mitigation of Adverse Visual Impacts			Focus on Design & Delivery of VIA Mitigation Commitments			
		Specific			Measurable	Attainable	Realistic	Tangible / Timing
		S1: Landscape Character	S2: Viewers	S3: Visual Quality				
Visual Impact Description (insert Visual Impact Mitigation Measure)								
Mitigation Measures								
1.								
2.								
3.								

Legends

Impact Category Code Examples (See complete list)	E = Earthwork FS = Fill Slopes CS = Cut Slopes	R = Roadways GR = Guardrails RC = Rock cuts	V = Vegetation clearing L = Lighting RW = Retaining walls
Mitigation Strategy Code	1= VIA policy-level mitigation measure	2 = Visual resource planning-level mitigation measure	3 = Prescriptive-level mitigation measure
Effectiveness	x = mitigation measure statement connects with SMART criteria		

Mitigation Measures
Toolkit of Mitigation Examples by Type of Impact
 Working Draft August 7, 2020

B = Bridges

- ▶ Use (*insert bridge rail design type*) for the new bridge rail.²
- ▶ All new and replacement end treatment guardrail posts shall be colored with (*insert stain color*), as directed by CDOT Landscape Architect.²
- ▶ Replace the existing (specify type) cushions in the median with an end treatment system that more closely resembles the (*specify type*) beam barrier.²
- ▶ Modify existing bridge structures to reflect the visual character of the existing structures in terms of materials, color, style, and the existing human scale of the area.³
- ▶ Incorporate visually compatible surfaces and colors into all new bridge structures, for example, textured surfaces, architectural relief, and color application.³
- ▶ Implement aesthetic treatments on *bridge barriers, sound walls, and retaining walls*. Incorporate architectural treatment on new *bridge barriers, sound walls, and the visible side of retaining walls*.⁵
- ▶ Color bridge rail and bridge girders to blend with the natural setting.⁶
- ▶ Color and/or darken the posts and beams of all new or replaced bridge approach rail and guardrail in order to blend with the surroundings and reduce reflectivity.⁶
- ▶ Select colors, materials, forms, and finishes of bridge and wing walls that blend in and complement landscape features.⁸
- ▶ Avoid reflective surfaces.⁸
- ▶ Pedestrian bridge overpass approach railing will be timber post and rails.¹⁷
- ▶ All structural steel components of the pedestrian bridge overpass will be weathering steel, with the exception of the stay-in-place deck forms which would only be visible directly under the bridge.¹⁷
- ▶ Wire fabric fencing used for the pedestrian bridge overpass railings will be painted or Natina stained a similar 'weathering steel' color as the bridge.¹⁷
- ▶ All exterior exposed faces of piers and abutments will be given a simulated stone masonry surface treatment (formliner). Pattern will be Dayton Superior Colonial Drystack or approved equal.¹⁷
- ▶ All exposed structural concrete in piers, abutments, deck slab, and curbs will be integrally colored Rustic Brown (Davis color #6058, or approved equal).¹⁷
- ▶ To the extent practicable, grading and slope work around the pedestrian bridge overpass abutments will be blended into the existing landscape to mimic a natural form.¹⁷

C = Construction

- ▶ Remove excess SH 9 pavement from the abandoned roadbed, as much as practicable, and restore the disturbed area with native seeding.¹²
- ▶ Locate construction staging areas for trailers, equipment, and temporary stockpiles for excavation away from residents or screen from view, to the extent practicable, to minimize visual disruption.¹³
- ▶ Shield and direct lighting at working areas to minimize glare and ambient light conditions for nearby residents.¹³

<ul style="list-style-type: none"> ▶ Remove visually obtrusive erosion-control devices, such as silt fences, plastic ground cover, and straw bales as soon as the area is stabilized; stockpile areas should either be in containers or neatly organized and cleaned.¹¹
<ul style="list-style-type: none"> ▶ Locate stockpile areas in less visibly sensitive areas and, whenever possible, not visible from the Scott Lancaster Memorial Trail.¹¹
<ul style="list-style-type: none"> ▶ Direct lighting, including “down-lighting,” toward the interior of the construction staging and work areas, and shield it so that it does not spill over into adjacent areas.¹¹
<p>CD = Construction/Debris</p>
<ul style="list-style-type: none"> ▶ All equipment and construction debris (man-made debris and trash, including old culverts) caused by timber operations shall be removed from the site at sale completion.¹⁶
<ul style="list-style-type: none"> ▶ Where feasible, construction of skid trails should avoid creating straight line corridors when the skid trails connect with open system roads and trails. Any skid trails should be rehabilitated to reduce the color contrast of the exposed soil by randomly scattering and spreading slash or replacing scraped material. Cover exposed bare soil with adjacent organic material.¹⁶
<ul style="list-style-type: none"> ▶ Do not leave unnatural appearing rings of trees adjacent to openings. Any painted trees, which leave a strip along meadow edges, should be removed along with the other timber in the clearcut prior to the end of the sale.¹⁶
<p>CF = Cut and Fill Earthwork</p>
<ul style="list-style-type: none"> ▶ Limit slopes to 2.5:1 (H:V) maximum and physical disturbance to less than 40 vertical feet from the edge of pavement or rail platform to the farthest edge of cut or fill, as described in the Design Criteria.¹¹
<ul style="list-style-type: none"> ▶ Round the top and bottom of the slope to provide a stable area for revegetation and transition the embankment back into the natural grade; when viewed in elevation, this rounded transition should occur over the last 1/6th of the slope top and toe.¹¹
<ul style="list-style-type: none"> ▶ Allow the removal of more vegetation than necessary for earthwork to create a natural and irregular edge, allow a naturalized rounding of the slope, frame scenic views, and create islands of significant existing trees and shrubs¹¹
<ul style="list-style-type: none"> ▶ Use a warped or variable slope technique in areas where the terrain is rolling and road work requires frequent shifts between cuts and fills; soften transitions by laying back the slopes more at the ends of the cuts and fills than in the middle.¹¹
<p>CS = Cut Slope</p>
<ul style="list-style-type: none"> ▶ Slope modifications in “cut” areas would be completed in a manner that accentuates foreground views. Visual variety would be achieved by undulating finished grades, creating pockets for native plant material and large contiguous areas of native grasses. Rock outcroppings would remain exposed where possible.¹
<ul style="list-style-type: none"> ▶ Overland drainages would be re-established and revegetated with native materials. Erosion control measures would include, but not be limited to, rock rip-rap and control matting.¹
<ul style="list-style-type: none"> ▶ Areas in talus zones would be graded and excavation stockpiled. Upon final grading acceptance, stockpiled material would be distributed and machine graded to resemble existing visual appearances in areas that are constructible, and pose no safety issues.¹
<ul style="list-style-type: none"> ▶ Upslope “cut” conditions may require retaining walls. In these locations, walls may be terraced or stepped to allow for planting areas. Access and sufficient widths must be met to accommodate maintenance activities. Wall materials are proposed as poured in place concrete or precast units, mechanically stabilized earth, reinforced earth, or binwalls, which would be color stained upon completions.¹

<ul style="list-style-type: none"> ▶ For visual impacts associated with terraced retaining walls, consider wall height, length, and number of walls; and viewer orientation. Long continuous sections of cut slope retaining walls with multiple terraces result in adverse impacts.
<ul style="list-style-type: none"> ▶ Use colors and textures for wall surfaces that will provide visual continuity with surrounding elements and be repetitive of attractive colors, textures, and forms. Use terrace widths that allow landscaping to dominate walls from distant views. Use additional architectural detail and/or surface treatment on walls in select areas, including imitation rock texture and forms that replicate adjacent exposed rock along the roadway.⁹
<ul style="list-style-type: none"> ▶ Visual contrast of 30th Street retaining walls and cut slopes along the mesa slopes east of 30th Street.¹⁵
<ul style="list-style-type: none"> ▶ Create a visually unified mesa slope edge. Select non-reflective wall colors and materials and finishes that blend in with the mesa slope terrain and vegetation patterns. Contour wall edges to follow natural forms and lines characteristic of the mesa slope topography. Avoid slopes greater than 3:1 and apply slope rounding and slope warping grading techniques to blend in with adjacent mesa slope terrain. Revegetate with native prairie plants and grass mixes. The revegetation plan will use adaptive restoration methods and match with native plant communities present within the study area. The City of Colorado Springs and Garden of the Gods approved seed mix known as Basic Reclamation Mix with a 5% ratio of Mountain Supplemental Mix will be used for revegetation of disturbed areas.¹⁵
<p>CSS = Context Sensitive Solutions and Tiering Process</p>
<p>I-70 Mountain Corridor Programmatic Mitigation Strategies for Tier 2 Process¹⁰</p>
<ul style="list-style-type: none"> ▶ Mitigation strategies for visual resources will be defined in Tier 2 processes in coordination with Corridor communities and will focus on reducing visual contrast associated with the implementation of Action Alternatives.¹⁰
<ul style="list-style-type: none"> ▶ Because visual contrast is most closely associated with the addition of structural elements and changes to landform characteristics, mitigation measures will consider efforts to minimize impacts related to both landform and structures.¹⁰
<ul style="list-style-type: none"> ▶ Mitigation strategies and enhancement opportunities through design treatment at Tier 2 would have the potential to create a positive visual image of the future multimodal transportation system for the Corridor and adjacent views, as well as to the overall context and sense of place of the broader viewshed.¹⁰
<ul style="list-style-type: none"> ▶ Development of mitigation strategies will involve the review of US Forest Service and Bureau of Land Management and other jurisdictions' visual standards.¹⁰
<ul style="list-style-type: none"> ▶ The lead agencies will consider creating a Visual Impact and Mitigation Plan for each Tier 2 process that addresses past visual impacts and scarring, and project-related visual impacts.¹⁰
<ul style="list-style-type: none"> ▶ Review and consider all US Forest Service, Bureau of Land Management, and other jurisdictions' visual standards (or as otherwise agreed to or amended.)¹⁰
<ul style="list-style-type: none"> ▶ Non-obstructed views of items like narrow canyons to valleys, rivers, etc.¹⁰
<ul style="list-style-type: none"> ▶ Adopt rock fall mitigation measures.¹⁰
<ul style="list-style-type: none"> ▶ Minimal use of signage, light poles, guard rails, or other infrastructure elements (where safety permits)¹⁰
<ul style="list-style-type: none"> ▶ Use vertical and horizontal alignments to preserve views of items such as rivers, canyons, etc.¹⁰
<ul style="list-style-type: none"> ▶ Use minimum amount of road cuts, fills, turnarounds, etc.¹⁰
<p>Tier 2 Context Sensitive Mitigation Strategies: I-70 Twin Tunnels Visual Impact Mitigation¹¹</p>
<ul style="list-style-type: none"> ▶ The cut walls proposed for this project will conform to the goals outlined in the Aesthetic Guidance Index of the I-70 Mountain Corridor Context Sensitive Solutions Aesthetic Design

Guidelines and will be designed to blend in with the color and texture of the existing geology of the area.¹¹

- ▶ Through the Context Sensitive Solutions process stakeholders have identified design principles and engineering design criteria for the Mountain Mineral Belt as well as specific concepts to address its unique characteristics. CDOT developed these design solutions with stakeholder input to ensure that community concerns relating to aesthetics and visual quality received attention early in the project development process.¹¹
- ▶ CDOT will avoid and minimize negative effects on visual quality by incorporating I-70 Mountain Corridor Context Sensitive Solutions Aesthetic Design Guidelines into the project design.¹¹

E = Earthwork

- ▶ Following construction, re-grade and re-contour any new construction access roads, staging areas and other temporary uses as necessary to match the surrounding natural topography.²
- ▶ All disturbed areas within the project limits not specifically designed as rockfall catchment areas or as recoverable surfaces should be graded to appear as natural as possible. Natural-appearing roadside grading should include broad, random undulations, gently-rounded transitions between adjacent slope-faces and varied planar surfaces.⁴
- ▶ Following construction, re-grade and re-contour any new construction access roads, staging areas and other temporary uses as necessary to match the surrounding natural topography. Along Highway 1, avoid unnatural-appearing remnant landforms.⁶
- ▶ Following construction, re-grade and re-contour any new construction access roads, staging areas and other temporary uses as necessary to match the surrounding natural topography.⁷
- ▶ Avoid slopes greater than 3:1 to minimize erosion and difficulties with revegetation on steep slopes.⁸

F = Fences

- ▶ Do not use unclad galvanized chain link for access denial fencing along the southbound on-ramp at Los Patos Way along the local street side of existing businesses.³
- ▶ Introduce native plants that provide and contribute to an aesthetic vista, in a manner that does not interfere with the implementation of the project or result in inappropriate costs.⁸

FS = Fill Slope

- ▶ Fill areas are located predominantly in riparian or creek zones. Sensitivity in these locations, compounded with minimum horizontal widths, in many areas, prohibits earth fills at reasonable slopes. Areas of fill in excess of the angle of repose for that material would receive a retaining system. Transitions at these locations may be abrupt and may include native rock placement to mitigate encroachment and erosion potential. Revegetation of plantings and erosion control blankets would be included where necessary and practical. Where practical or feasible, native rocks and boulders consistent with adjacent existing locations would be located to accentuate simulated ridges, draws, and transitions to existing grades.¹
- ▶ Where possible, drainage areas would be diverted along the roadway edges and discharged down station at existing slopes. The diversion drainage channels would be compacted and topped with native rock material. Edges would be rolled back, rounded and re-seeded. Downslope channels would be ripped and over-seeded.¹

Visual impacts to landforms resulting from grading requirements in steep mountainous terrain, with cut and fill slope heights ranging from less than 10 feet to more than 25 feet

- ▶ **Landform:** Blend all cut and fill slopes with the surrounding terrain through slope rounding, lay-back, and warping techniques to the extent possible. Individually develop mitigation measures for slope modification and landform contrast reduction for cut and fill slopes. Using slope lay-back,

slope rounding, and slope warping techniques allow cut slopes a greater ability to be modified. These techniques will be implemented as follows:⁹

- ▶ **Slope Rounding:** Use slope rounding at the top of all cuts, except in rock.⁹
- ▶ **Slope Lay-Back:** The degree of lay-back will influence the visual impression gained by the highway traveler and will be crucial in establishing vegetation and preventing erosion.⁹
- ▶ **Slope Warping:** Use slope warping to attain a more natural-appearing transition between two unlike surfaces. Use slope warping to further refine slope blending and to vary the pitch of cut slopes. Use slope rounding in both vertical and horizontal forms to achieve a more natural extension of landform configurations.⁹
- ▶ Design slope embankment contours to include slope rounding and slope warping grading techniques to reduce geometric slope patterns and to blend in with adjacent contours, consistent with the Powers Corridor Design Guidelines. Native seeding should include a diversity of low and mid-height grass to create a naturalized prairie-like appearance.¹⁴

G = Vehicle Light Glare

- ▶ Where feasible, vegetate medians within the freeway corridor to provide a glare screen between opposing lanes of traffic.¹⁸
- ▶ Use directional lighting when feasible to minimize nighttime glare to surrounding areas.¹⁸

GR = Guardrails

- ▶ Color and/or darken the posts and beams of all new or replaced guardrail in order to blend with the surroundings and reduce reflectivity.⁷
- ▶ Use Type 3 Guardrail W-beam with wooden posts for guardrails; eliminate the use of galvanized "W" rails.¹¹
- ▶ Color concrete barriers using the selected colors from the design segment color palette to blend the roadway into the surrounding environment.¹¹
- ▶ Incorporate landform and planting directly with concrete barrier walls.¹¹
- ▶ Discourage the use of cable rail in this segment because of long-term maintenance costs and aesthetics.¹¹
- ▶ Use continuous concrete barriers rather than segmented movable barriers.¹¹
- ▶ Provide edge delineation through applied markings and reflectors rather than painting bright contrasting colors on concrete barriers.¹¹

GW = Gateway

- ▶ Improvements that identify this segment of highway as a gateway into historic downtown Stillwater and the St. Croix National Scenic Riverway would allow the commercial development to differentiate itself from similar developments in the metropolitan region. These improvements could be incorporated into the final design for the project through the installation of plantings, architectural features, and signage identifying the area as the "Gateway to the Lower St. Croix National Scenic Riverway" in highway areas closer to the river. Travelers would benefit from identifying the area as the approach to Stillwater and the Lower St. Croix National Scenic Riverway and from clarified, safer traffic movements that would allow the traveler to enjoy the view more and concentrate less on maneuvering through the area.²⁰

H = Historic

- ▶ CDOT and the State Historic Preservation Officer have agreed that archival documentation and interpretive signage are appropriate mitigation under Section 106, per the Memorandum of Agreement executed January 2014.¹²

HS = Hardscape
<ul style="list-style-type: none"> ▶ Limit hardscape elements to areas where only necessary to accommodate environmental avoidance, minimization, and stewardship features.¹⁹ ▶ In instances where hardscape elements are used (i.e., retaining walls, overpasses, box culverts, riser structures, etc.) in publicly visible areas, allow rustic finishes such as timber, staining, or formlining.¹⁹
IAC = Interagency Coordination
<ul style="list-style-type: none"> ▶ Coordination with CDOT, USFS, and other stakeholders will continue through the final design process.¹⁷ ▶ CFLHD will coordinate with the Top of the Rockies Board to ensure design elements are consistent with the corridor management plan.¹⁷ ▶ CFLHD will continue to incorporate elements of the Top of the Rockies National Scenic & Historic Byway Design Guidelines as applicable.¹⁷
IS = Interpretive Signage
<ul style="list-style-type: none"> ▶ CDOT and the State Historic Preservation Officer have agreed that archival documentation and interpretive signage are appropriate mitigation under Section 106, per the Memorandum of Agreement executed January 2014.¹²
L = Lighting
<ul style="list-style-type: none"> ▶ Carefully place the poles, height, and position of luminaries and use shielded lenses, where feasible, for all new lighting to minimize excess light and glare.³ ▶ Incorporate bioretention basins in planting design. Integrate the design of bioretention basins with the overall highway planting design, using techniques such as landform grading and/or incorporating varied plant materials.⁵ ▶ Minimize fugitive light from portable sources used for construction. At a minimum, the construction contractor shall minimize project-related light and glare to the maximum extent feasible, given safety considerations. Use color-corrected halide lights. Operate portable lights at the lowest allowable wattage and height and raise to a height no greater than 20 feet. Screen and direct all lights downward toward work activities and away from the night sky, highway users, and highway neighbors, particularly residential areas, to the maximum extent possible. Minimize the number of nighttime lights used to the greatest extent possible.⁵ ▶ Avoid blocking views of Pikes Peak and the Front Range Mountain Backdrop with DDI structure, signs, and lighting.¹⁴
LR = Landscape Restoration
<ul style="list-style-type: none"> ▶ Revegetate disturbed areas along the highway roadside, using plant materials which at maturity do not block (<i>describe key view, i.e.. Mountain</i>), as seen from (<i>describe viewpoint(s)</i>).² ▶ Reinforced slope-face shall have open soil and/or voids capable of sustaining the appropriate native vegetation.⁷ ▶ Topsoil and/or native duff material shall be placed on the slope-face to create a favorable growing medium, as determined by the <i>CDOT Landscape Architect</i> in collaboration with the <i>CDOT Biologist</i>.⁷ ▶ Re-seed all areas disturbed by the project including but not limited to temporary access roads, staging and other areas with native plant species.⁷ ▶ Select native plant species that produce dense, fibrous roots to help prevent soil erosion.⁸

▶ Temporary riparian and wetland impacts will be revegetated with appropriate native plants which will mimic adjacent habitats. ⁸
▶ Mimic surrounding plant density, spacing and species composition. ⁸
▶ Blend existing natural materials from the site into the project area by saving and reusing stumps, tree logs or native rocks. ⁸
▶ Introduce native plants that provide and contribute to an aesthetic vista, in a manner that does not interfere with implementation of the project or result in inappropriate costs. ⁸
▶ Create a naturalized transition with the adjacent landscape setting. ⁸
▶ Create a continuous planting pattern across medians and roadway edges that would blend in with adjacent shortgrass prairie vegetation. ⁸
▶ Provide appropriate vegetation screening for residents adjacent to roadway and Picadilly intersection. ⁸
▶ Implement selective thinning and clearing to avoid vertical vegetation wall or "tunnel effect." Plant replacement trees to help control erosion and to function as a visual screen. Take tree and shrub materials wherever possible from construction areas and local forests to minimize effects acclimation. Ask the USFS to help locate suitable replacement trees from the general vicinity for transplanting. Plant areas that are to be revegetated, such as cut and fill slopes, as well as terraces between retaining walls, to emphasize natural vegetation patterns, with the heaviest planting occurring at the forest edge and upper terraces, and fewer plants on the lower terrace, thus creating an undulating forest edge. Use predominantly native seed mixtures in conjunction with mulches and netting to minimize erosion. ⁹
▶ Use a variety of native plant material in revegetation efforts to ensure long-term establishment and success. ¹²
▶ A seed mix will be selected in coordination with CDOT and USFS. The seed mix will include locally native vegetation types, suitable for the climate and soil conditions. ¹⁷
▶ Revegetation efforts will mimic the spacing and density of adjacent vegetation. ¹⁷
▶ Wetland impacts will be revegetated with appropriate native plants which will mimic adjacent habitats. ¹⁷
▶ Onsite native material, such as rocks, soil, and stumps, will be reused on site. ¹⁷
▶ Blend existing rock and natural materials from the site with the landscape. ¹¹
▶ Save and reuse native rock, stumps, and other natural materials in conditions such as boulder fields, talus slopes, or ground cover that emulates the existing landscape. ¹¹
▶ Reuse existing materials as part of site design (Rocks make up a large portion of the landscape surface). ¹¹
▶ Carefully modify cut slope lines and replicate the existing ground surface to enable constructed slopes to blend more effectively. ¹¹
▶ Implement grading strategies to minimize the height of retaining walls along the corridor. ¹¹
▶ The cut walls proposed for this project will conform to the goals outlined in the Aesthetic Guidance Index of the I-70 Mountain Corridor Context Sensitive Solutions Aesthetic Design Guidelines and will be designed to blend in with the color and texture of the existing geology in the area. ¹¹
▶ Vary the slope of the embankment through the length of a large cut or fill area; a consistent slope should not be used for a longitudinal length greater than 300 feet. ¹¹
▶ Evaluate sites for elevation, solar orientation, soil conditions, and Mountain Mineral Belt ecosystem type (subalpine, montane, foothills, or riparian) ¹¹
▶ Review plant selections for drought tolerance, salt and alkali tolerance, seedling vigor, fire-retardant characteristics, growth habit, suitable soil groups, and seeding rates; natural patterns and distribution of plants is the predominant landscape principle; ensure that the selected plant

palette complements the site-specific existing vegetation (see section 09 | Landscape Planting); vary plant height, size, and width in restored plant communities.¹¹

- ▶ Minimize the linear effect of vegetation clearing.¹¹
- ▶ Create a continuous habitat pattern by extending planting across the full extent of medians and roadway edges.¹¹

MB = Median Barrier

- ▶ Include coloring and/or texturing for proposed concrete median barriers that are appropriate for the setting.³
- ▶ Include coloring and/or texturing for proposed concrete median barriers that are appropriate for the setting.³

PC = Paint Colors

- ▶ Do not leave unnatural appearing rings of trees adjacent to openings. Any painted trees, which leave a strip along meadow edges, should be removed along with the other timber in the clearcut prior to the end of the sale.¹⁶
- ▶ All exposed structural concrete in piers, abutments, deck slab, and curbs will be integrally colored Rustic Brown (Davis color #6058, or approved equal).¹⁷
- ▶ The colors selected for this segment complement the unique features found here and provide consistency across the entire design segment.¹¹
- ▶ This segment's color palette should be applied to transportation structures and associated facilities within this segment—e.g., retaining walls, lighting, signage, and bridges.¹¹
- ▶ The base color for this design segment is a beige tone consistent with the dominant color of the bridge and overpass structures in Glenwood Canyon.¹¹
- ▶ The accent color for this design segment is a light blue green tone currently found in this segment and should not be more than 15 percent of the painted structure.¹¹
- ▶ The base color should be applied to the dominant sections of the structure; accent colors should be used to highlight smaller details that are attached to the overall roadway structure.¹¹
- ▶ Vertical metal features—such as light poles, sign poles, and highway edge facilities—should be colored with USFS brown color.¹¹
- ▶ Vertical metal features less than 8 inches in diameter or 10 feet in height may be excluded from the vertical metal features color palette.¹¹

PI = Project Implementation

- ▶ Form an Aesthetic Advisory Committee during the design phase of implementation of the proposed improvements.¹⁸

PU = Pedestrian Underpasses

- ▶ Use roadside plantings, slope molding, and careful selection of color and texture to reduce contrast. Plant groupings are to be located in areas most visible to the motorist to make best use of limited plant material quantities. Design all groupings so they visually extend the existing landscape.¹²

R = Roadways

- ▶ Harmonize improvements and new highway elements introduced in Developed Recreation Complexes (Management Prescription area 8.21) within the USFS with the natural setting and be consistent with the White River National Forest Plan (USFS, 2002) to the extent possible.¹²

<ul style="list-style-type: none"> ▶ During final design, address the visual compatibility of the project with surrounding landscapes, including the consideration of design strategies.¹²
<p>RA = Realignment</p>
<ul style="list-style-type: none"> ▶ Excess SH 9 pavement from the abandoned roadbed will be removed, as much as practicable, and the disturbed area restored with native seeding.¹²
<p>RC = Rock Cut</p>
<ul style="list-style-type: none"> ▶ Rock cuts would be needed to accommodate a widened roadway section to improve sight distance. The extent and depth of the existing rock formations would allow this widened roadway concept without detrimentally affecting the visual quality. The intent is to maintain these geologic features where possible.¹
<ul style="list-style-type: none"> ▶ Rock cuts would be needed to accommodate a widened roadway section to improve sight distance. The extent and depth of the existing rock formations would allow this widened roadway concept without detrimentally affecting the visual quality. The intent is to maintain these geologic features where possible.¹
<ul style="list-style-type: none"> ▶ Rock cuts and excavations would be completed by blasting or ripping. Natural fracture planes would be identified to produce a natural appearing finished cut face.¹
<ul style="list-style-type: none"> ▶ Disturbed rock surfaces shall employ rock-sculpting in order to create textured slope-faces similar in appearance to the existing natural rock formation surfaces seen in the vicinity.⁴
<ul style="list-style-type: none"> ▶ Following rock sculpting, disturbed rock surfaces shall be colored to reduce noticeability and to match the appearance of the weathered rock formations seen in the vicinity.⁴
<ul style="list-style-type: none"> ▶ Rock sculpting and coloring shall be designed and approved in consultation with the <i>CDOT Landscape Architect</i>.⁴
<ul style="list-style-type: none"> ▶ During on-site rock excavation, the CDOT landscape present and shall be present and coordinate with the Resident Engineer regarding procedures, in accordance with CDOT (specify appropriate Guidelines).⁴
<ul style="list-style-type: none"> ▶ Rock Face Damage: This technique simply minimizes damage to the projected rock face during construction. Ripping and unnecessary gouging of newly exposed rock is not desirable. Visible drill holes or other unsightly areas of rock face shall be repaired using methods determined by the USFS.⁹
<ul style="list-style-type: none"> ▶ Rock staining will be used when feasible to mitigate the visual impacts created by the contrast between newly broken and existing rock faces. The USFS will identify these areas during construction.⁹
<ul style="list-style-type: none"> ▶ Design new rock cut slopes to blend with existing rock formations.¹²
<ul style="list-style-type: none"> ▶ If needed, add coloring, such as rock staining, to reduce the contrast between new cuts and existing rock faces.¹²
<p>RW = Retaining Walls</p>
<ul style="list-style-type: none"> ▶ Implement aesthetic treatments on bridge barriers, sound walls, and retaining walls. Incorporate architectural treatment on new bridge barriers, sound walls, and the visible side of retaining walls.⁵
<ul style="list-style-type: none"> ▶ Visual contrast of 30th Street retaining walls and cut slopes along the mesa slopes east of 30th Street.¹⁵
<ul style="list-style-type: none"> ▶ Create a visually unified mesa slope edge. Select non-reflective wall colors and materials and finishes that blend in with the mesa slope terrain and vegetation patterns. Contour wall edges to follow natural forms and lines characteristic of the mesa slope topography. Avoid slopes greater than 3:1 and apply slope rounding and slope warping grading techniques to blend in with adjacent mesa slope terrain. Revegetate with native prairie plants and grass mixes. The revegetation plan

will use adaptive restoration methods and match with native plant communities present within the study area. The City of Colorado Springs and Garden of the Gods approved seed mix known as Basic Reclamation Mix with a 5% ratio of Mountain Supplemental Mix will be used for revegetation of disturbed areas.¹⁵

- ▶ Construct each retaining wall with a single material and a visually simple texture rendering a shadow pattern of the wall.¹¹
- ▶ Provide space for landscape screening treatment in front of all retaining walls that are visible from the roadway or adjacent community.¹¹
- ▶ Incorporate wall materials that have a consistent texture and pattern.¹¹
- ▶ Employ simple vertical textures and patterns on walls to create shadows and interest.¹¹
- ▶ Use landscape platforms and form the ends of walls to meet with the grades of hills and slopes to ensure that retaining walls are integrated with adjoining slopes.¹¹
- ▶ Design walls with single material style and method rather than a mix of materials—even if wall material varies.¹¹
- ▶ Design walls to include an appropriate cap with overhang to create shadows and interest.¹¹

S = Signage

- ▶ Locate any new signage such that it minimizes view blockage of (*specify landscape, community, or culturally sensitive features*).³
- ▶ Avoid blocking views of Pikes Peak and the Front Range Mountain Backdrop with DDI structure, signs, and lighting.¹⁴
- ▶ Trail and Wayfinding Markers should be at a modest pedestrian scale and have minimal impact within the landscape.¹⁷

ST = Structures

Landscape concepts to reduce the strong visual contrast of the proposed roundabout, WCR 44 travel lanes, and right-of-way edges west of US 85:¹³

- ▶ Create a visual buffer for residents adjacent to the WCR 44 alignment, as shown on **Figure 9** and **Figure 10**, by planting an informal layered pattern of shrubs. The planting zone would optimize on the base of the grade-separated intersection fill slope and the agricultural field edges where increased soil moisture occurs. **Appendix C** contains a visual mitigation map, along with planting/seeding lists and images of proposed shrubs.¹³
- ▶ Create a natural prairie-like appearance for the roundabout slopes and grade-separated intersection infield areas. Plant roundabout slopes and depressions within infield areas (no-mow zones) between travel lanes, with a native grass and shrub seed mix and containerized shrub plantings. **Figure 9**, **Figure 10**, and **Appendix C** illustrate the locations and concepts for landscape treatment and screening.¹³

Landscape concepts to compensate for the loss of panoramic residential views of the Front Range east of US 85, due to the WCR 44 exit ramp alignment:¹³

- ▶ Establish prairie-like appearance with a native grass and shrub seed mix and shrub plantings.¹³
- ▶ Visual resource mitigation strategies will adhere to Section 106 consultation.¹³

- ▶ Establish a design image for the DDI with finishes and colors consistent with the Powers Corridor Design Guidelines.¹⁴

- ▶ Avoid blocking views of Pikes Peak and the Front Range Mountain Backdrop with DDI structure, signs, and lighting.¹⁴

- ▶ Select colors, materials, forms, and finishes that blend in and complement the Park and Visitor Center setting. Use native prairie plants and grass mixes consistent with Park standards. The revegetation plan will use adaptive restoration methods and match with native plant communities

present within the study area. The City of Colorado Springs and Garden of the Gods approved seed mix known as Basic Reclamation Mix with a 5% ratio of Mountain Supplemental Mix will be used for revegetation of disturbed areas. Apply slope rounding and slope warping grading techniques to create a natural entrance. Coordinate with Park landscape architects.¹⁵

STW = Storm Water

- ▶ Apply context-sensitive design standards to all permanent stormwater systems. Swales, ditches, and basins should appear as natural as possible. Built structures and finishes should be visually compatible with adjacent land uses. Minimize the use of fencing, and if required, minimize visibility by darkening or using a low-visibility material.³

SW = Sound Walls

- ▶ Establish visually compatible textures and/ or colors appropriate for the setting of the sound wall, in context to the (*specify highway and adjacent communities or other sensitive areas*).³
- ▶ Implement aesthetic treatments on bridge barriers, sound walls, and retaining walls. Incorporate architectural treatment on new bridge barriers, sound walls, and the visible side of retaining walls.⁵

T = Tunnels

- ▶ Provide lighting and light-colored reflective surfaces in the tunnel to eliminate the black hole effect.¹¹
- ▶ Flair tunnel portals extending from the rock cut face, and use of headwalls perpendicular to travel lanes is strongly discouraged.¹¹

TMS = Traffic Management Systems

- ▶ If new traffic management system elements such as radar, cameras, and other equipment are added to the project, locate all visible components in the least obtrusive locations possible and use colors that will reduce visibility.³

U = Utilities

- ▶ Specify color (or paint) all new utility conduit attached to bridges to match the color of the bridge material.²
- ▶ If the project causes the relocation of existing overhead utilities, place the utilities underground if feasible.³

VC = Vegetation Clearing

- ▶ Clearing of existing trees, both evergreen and deciduous, could be done to accommodate the proposed cross section. To avoid a “wall” effect, random trees would be removed beyond the clearing line to transition the vegetation height and density at the edge. Prior to this activity, tree line and removals would be identified by a Forest Service Representative. This approach allows for new plantings of varying size/height trees to establish a natural edge.¹
- ▶ In areas where existing nominal vegetation is proposed to be thinned to provide enhanced scenic views, the site would also be evaluated by a Forest Service Representative.¹
- ▶ The plant palette for revegetation would be derived from tree, shrub and grass species existing in the corridor. Special attention would be paid to exposure, realizing the success and vitality of existing plantings, with respect to north/south facing orientation.¹
- ▶ Soil stabilization is of concern and all replanted/revegetation operations would be re-seeded by drilled methods utilizing a “stapled” netting or fabric or hydro seeded with tackifier. Apply topsoil with amended pH values matching existing conditions, mulch, and sprayed tackifier.¹

▶ Preserve as much existing vegetation as possible. Prescriptive clearing and grubbing and grading techniques which save the most existing vegetation possible should be employed. ²
▶ Revegetate the creek banks with native vegetation as directed by the CDOT Biologist in conjunction with <i>CDOT Landscape Architects</i> . ²
▶ Make existing ramps and other paved surfaces areas to be removed suitable for landscape restoration, by ripping or scarifying the earth, and placing topsoil within planting zones. ³
▶ Preserve existing trees and shrubs to the greatest extent possible. ³
▶ Preserve the visual context of the setting for (describe/specify the place or cultural resource & associated designation) to the greatest extent feasible, respective of the selected project alternative. ³
▶ Throughout the project, preserve as much existing vegetation as possible. Use prescriptive clearing and grubbing and grading techniques which save the most existing vegetation possible. ⁴
▶ Any trees removed should be replaced at a type and ratio determined by the <i>CDOT</i> Biologist and Landscape Architect, in consultation with applicable Resource Agencies as required. Replacement trees should be planted as close to the area of impact as possible considering safety standards. ⁴
▶ Preserve as much existing vegetation as possible. Prescriptive clearing and grubbing and grading techniques which save the most existing vegetation possible should be employed. ⁶
▶ Revegetate disturbed areas to the greatest extent possible, considering safety and horticultural appropriateness. ⁶
▶ Preserve as much existing vegetation as possible. Prescriptive clearing and grubbing and grading techniques which save the most existing vegetation possible should be employed. ⁷
▶ Select plants and seed mixes that are consistent with native vegetation types, growth habits and soil types. ⁸
▶ Plan vegetation clearing edges that create a naturalized line and transition with the landscape setting. ⁸
▶ Use roadside plantings, slope molding, and careful selection of color and texture to reduce contrast. Locate plant groupings in areas most visible to the motorist to make the best use of limited plant material quantities. Design all groupings so that they visually extend the existing landscape. ¹²
▶ Replace any street trees removed along Research with compatible species to maintain the visual character of the streetscape. ¹⁴

Upper Fryingpan Vegetation Management Project¹⁶

The proposed project was developed with site-specific directions for implementation, called design features, to lessen or avoid potential negative effects associated with implementation. The following are scenery-related design features:

- ▶ Openings in the canopy should have a natural appearance with uneven edges rather than straight lines where possible. When it is possible, coordinate with adjacent property owners, to soften the edges of cutting units. The shape should be an irregular pattern like the existing natural openings and should avoid straight-line edges, especially along adjacent property and roadless area boundaries. The edges of the treatment units should be varied and random to soften and blend with the native vegetative mosaic. Favor existing healthy dominant trees such as Aspen and woody shrubs to shape the edges of areas where materials are to be removed. Blend with natural landscape features such as natural meadows or openings and rock outcrops when possible. This will create free form vegetative shapes that mimic natural patterns. Make clearing edges irregular and freeform, feathering and undulating edges where possible.¹⁶
- ▶ Root-wads created by the harvest activities that are visible in the foreground within 50' of open system roads and trails shall be removed from sight. Root-wads should not be used to close roads and landings which are within 50' of open system roads.¹⁶
- ▶ Stumps should be 12 inches high or less. Within 15' of forest system trails, stumps should be cut 4" or less.¹⁶
- ▶ Slash piles in units 108, 109, and 111 would be removed through burning, or utilizing as biomass, within 5-years following unit closure. After completion of pile burning, blackened logs and stumps should be scattered back into harvest units or removed to create visual diversity.¹⁶
- ▶ Where possible place landings in existing openings, unless doing so would adversely affect other resources. If an existing opening cannot be used, clearing size and form of the landings should mimic that of surrounding vegetative mosaic as seen from middle ground and background views (distances greater than ½ mile). The shape of landings should be an irregular pattern like the existing natural openings and should avoid straight-line edges.¹⁶

WQ = Water Quality Basins

- ▶ Incorporate bioretention basins in planting design. Integrate the design of bioretention basins with the overall highway planting design, using techniques such as landform grading and/or incorporating varied plant materials.⁵
- ▶ Reduce the visual contrast of the geometric shape by rounding corners and blending pond edges and drainage channel with existing grades through slope rounding techniques to establish a naturalized shape.⁸
- ▶ For visual contrast of water quality Pond A, apply slope rounding and slope warping grading techniques to blend in with surrounding terrain within the Park. Revegetate with native prairie plants and grass mixes consistent with Park standards. The revegetation plan will use adaptive restoration methods and match with native plant communities present within the study area. The City of Colorado Springs and Garden of the Gods approved seed mix known as Basic Reclamation Mix with a 5% ratio of Mountain Supplemental Mix will be used for revegetation of disturbed areas. Coordinate with City Landscape Architect.¹⁵
- ▶ For visual contrast of water quality Pond B to Howbert Elementary School, apply slope rounding and slope warping grading techniques to blend in with surrounding terrain within the Howbert Elementary School setting. Revegetate with native prairie plants and grass mixes and replace existing landscape trees within the construction footprint. The revegetation plan will use adaptive restoration methods and match with native plant communities present within the study area. The City of Colorado Springs and Garden of the Gods approved seed mix known as Basic Reclamation Mix with a 5% ratio of Mountain Supplemental Mix will be used for revegetation of disturbed areas. Coordinate with Howbert Elementary School.¹⁵

- ▶ Design drainage structures visible from public areas so that they visually blend and reduce visual contrast.³

Sources

¹US 160 East of Wolf Creek Pass EA, CDOT. 1998.

²Visual Impact Assessment of the proposed Old Creek Bridge Retrofit Project On Route 1 in San Luis Obispo County, Caltrans. March 2017.

³Highway 101 High Occupancy Vehicle Lane Project EA On Route Santa Barbara County, California, Caltrans. October 2011.

⁴VISUAL IMPACT ASSESSMENT of the proposed ASPEN FALES SHOULDER WIDENING PROJECT US 395 Mono County, Caltrans. April 2016.

⁵Mathilda Avenue Improvements at SR 237 and US 101 Project Santa Clara County, California, Caltrans. 2016.

⁶Visual Impact Assessment of the proposed Pfeiffer Canyon Bridge Replacement Project On Route 1 in Monterey County - Big Sur, Postmile 45.4 to 45.8, Caltrans. March 2017.

⁷Visual Impact Assessment of Route 1 in Monterey County Caltrans. December 2015.

⁸6th Avenue Parkway Extension VIA, CDOT. 2016.

⁹US 40 Berthoud Pass Environmental Assessment, Visual Impact Mitigation Measures. CDOT, 1997.

¹⁰I-70 Mountain Corridor PEIS, CDOT. 2011.

¹¹I-70 Twin Tunnels Visual Impact Mitigation: Tier 2 Context Sensitive Mitigation Strategies. CDOT, 2012.

¹²SH 9 Iron Springs VIA, CDOT. 2014.

¹³US 85 and WCR 44 Grade-Separated Intersection, CDOT. 2019.

¹⁴Powers Boulevard/Research Parkway Interchange Design Reevaluation, CDOT. 2019.

¹⁵30th Street Corridor Development Fontanero Street to Garden of the Gods Road. CDOT, 2019.

¹⁶Upper Fryingpan Vegetation Management Project EA, Aspen/Sopris Ranger District White River National Forest Pitkin and Eagle Counties Colorado, USFS. 2017.

¹⁷Freemont Pass Recreation Path VIA, Federal Highway Administration, Central Federal Lands Highway Division. Summit County, Colorado. 2018.

¹⁸I-5: South Jefferson to US 20 Visual Resources Technical Memo. Linn County, Oregon. Oregon Department of Transportation. April 2014.

¹⁹I-270 Intercounty Connector in Frederick County, Maryland. Maryland Department of Transportation.

²⁰New St. Croix River Crossing Final EIS. Minnesota Department of Transportation. 1994.

VISUAL IMPACT MITIGATION CATEGORIES

August 7, 2020

B = Bridges
C = Construction-related
CD = Construction/Debris
CF = Cut and Fill Earthwork
CS = Cut Slopes
CSS = Context Sensitive Solutions and Tiering Process
E = Earthwork
F = Fences
FS = Fill Slopes
G = Vehicle Light Glare
GR = Guardrails
GW = Gateway
H = Historic
HS = Hardscape
IAC = Interagency Coordination
IS = Interpretive Signage
L = Lighting
LR = Landscape Restoration
MB = Median Barrier
P = Pedestrian Underpasses
PC = Paint Colors
PI = Project Implementation
PU = Pedestrian Underpasses
R = Roadways
RA = Realignment
RC = Rock Cut
RW = Retaining Walls
S = Signage
ST = Structures
STW = Storm Water
SW = Sound Walls
TMS = Traffic Mgt Systems
U = Utilities
VC = Vegetation Clearing
WQ = Water Quality Basins