



COLORADO
Department of Transportation



Visual Resources and Transportation



LANDSCAPE ARCHITECTURE AT CDOT

Environmental Stewardship



STREAM RESTORATION & WETLAND MITIGATION



RESEARCH & EDUCATION



ROUNDBABOUTS

LANDSCAPE ARCHITECTURE



STREETScape & REST AREAS



LANDFORM MANIPULATION



VISUAL IMPACT ASSESSMENT



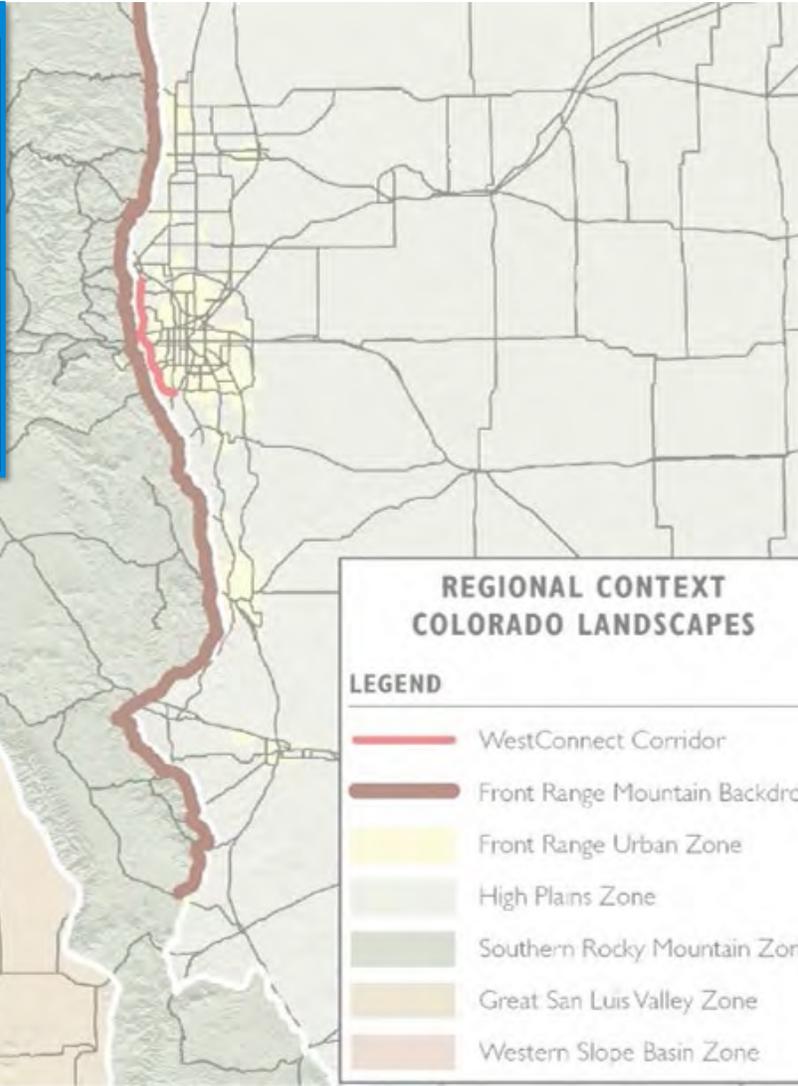
PEDESTRIAN AMENITIES & PUBLIC ART



MANUALS & SPECIFICATIONS



NATIVE PLANTINGS



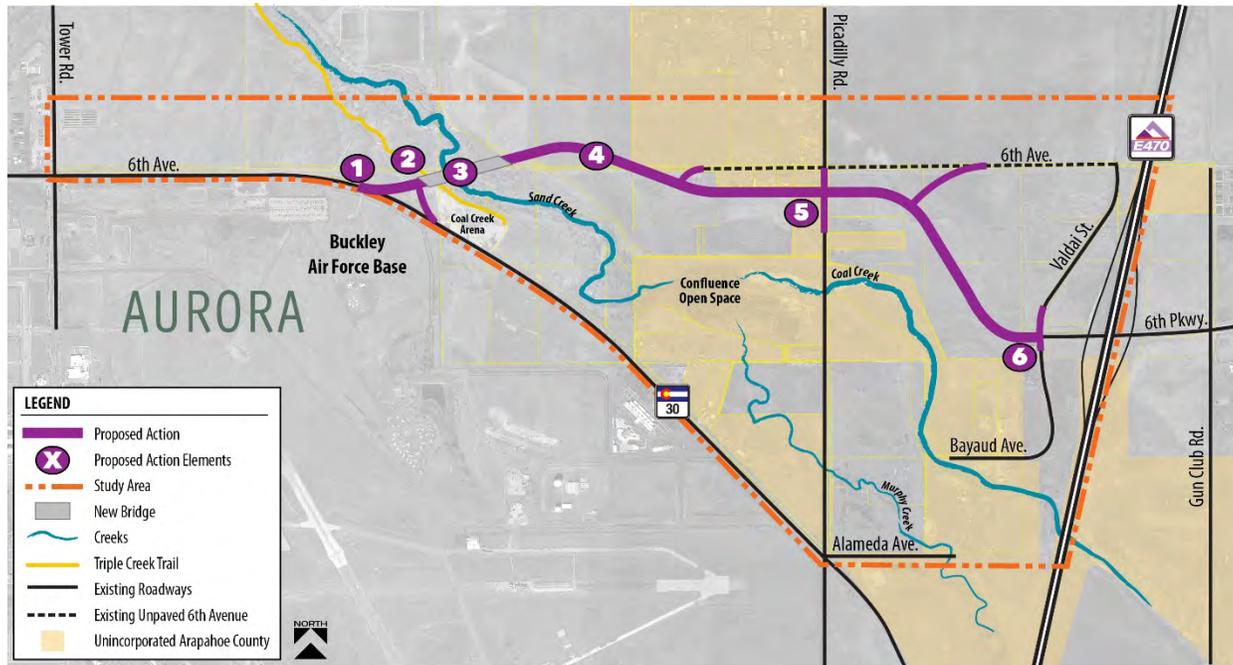
Commitment to Visual Resources of Colorado

- Nationally significant transportation corridors
- Landscape Architecture Manual (2014)
- NEPA Manual: Visual Resources
- Federal Lands MOU (CDOT/FHWA/BLM/USFS)
- FHWA 1980's VIA Guideline applications
- FHWA 2015 VIA Guideline applications
- CDOT Visual Resource Committee (2018)
- VIA Mitigation Research (2018)
- CDOT VIA Guidelines (2018 - 2019)

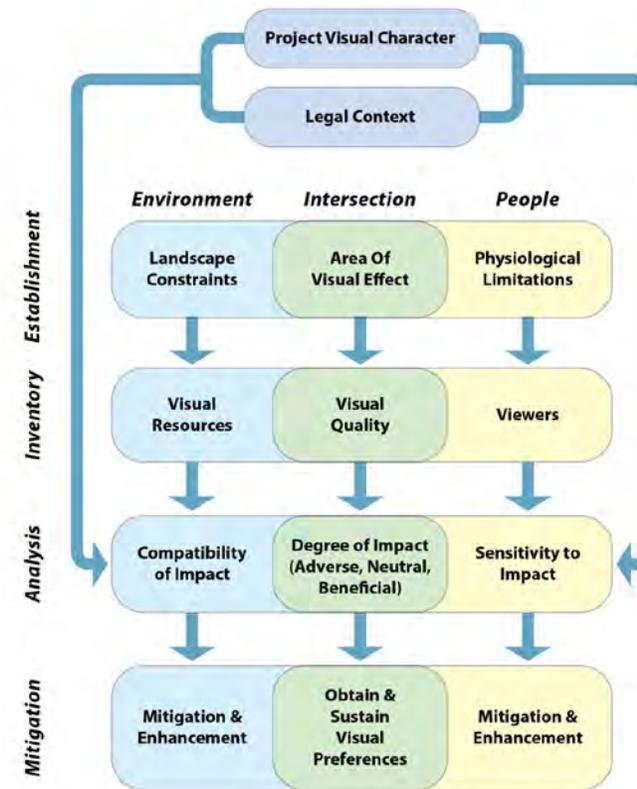


6th Avenue Parkway Extension EA City of Aurora, 2015-2016

Initial CDOT VIA following FHWA 2015 Guidelines

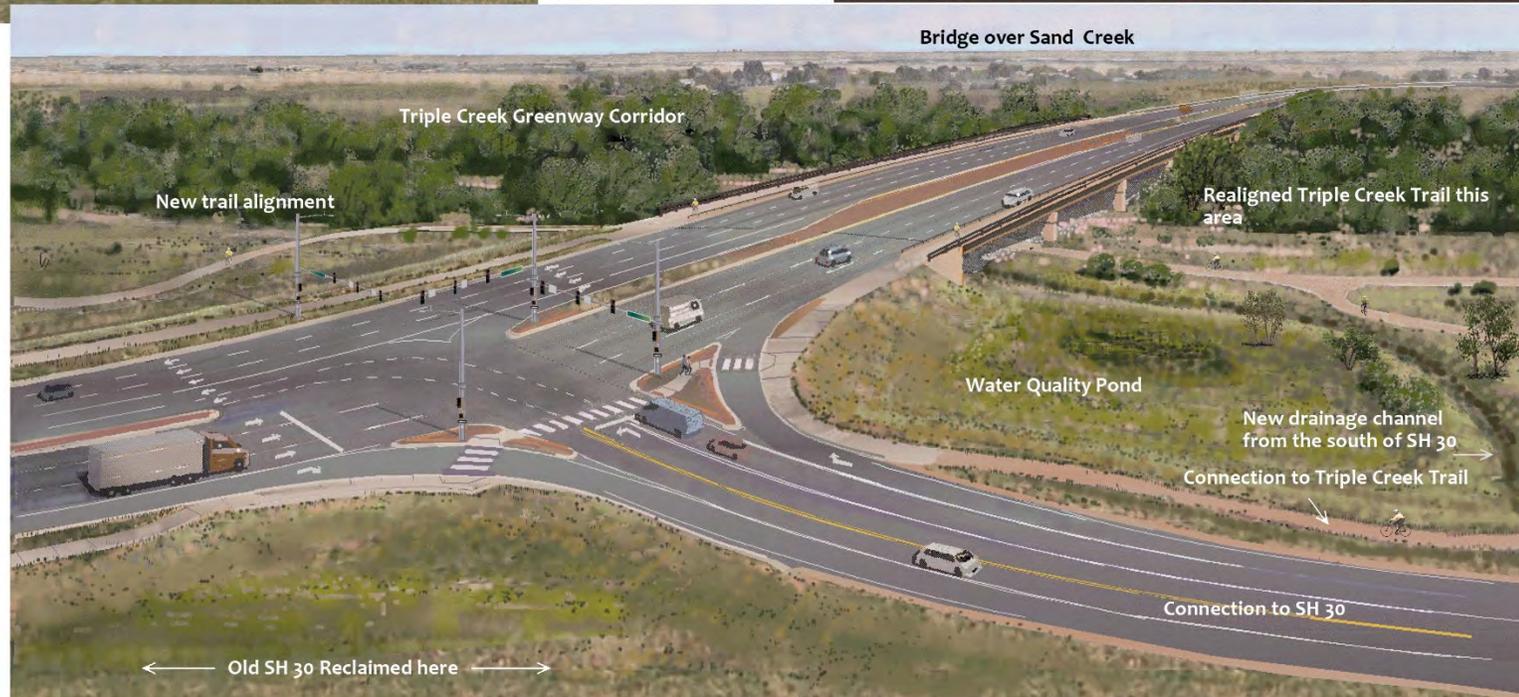


Visual Impact Assessment Process





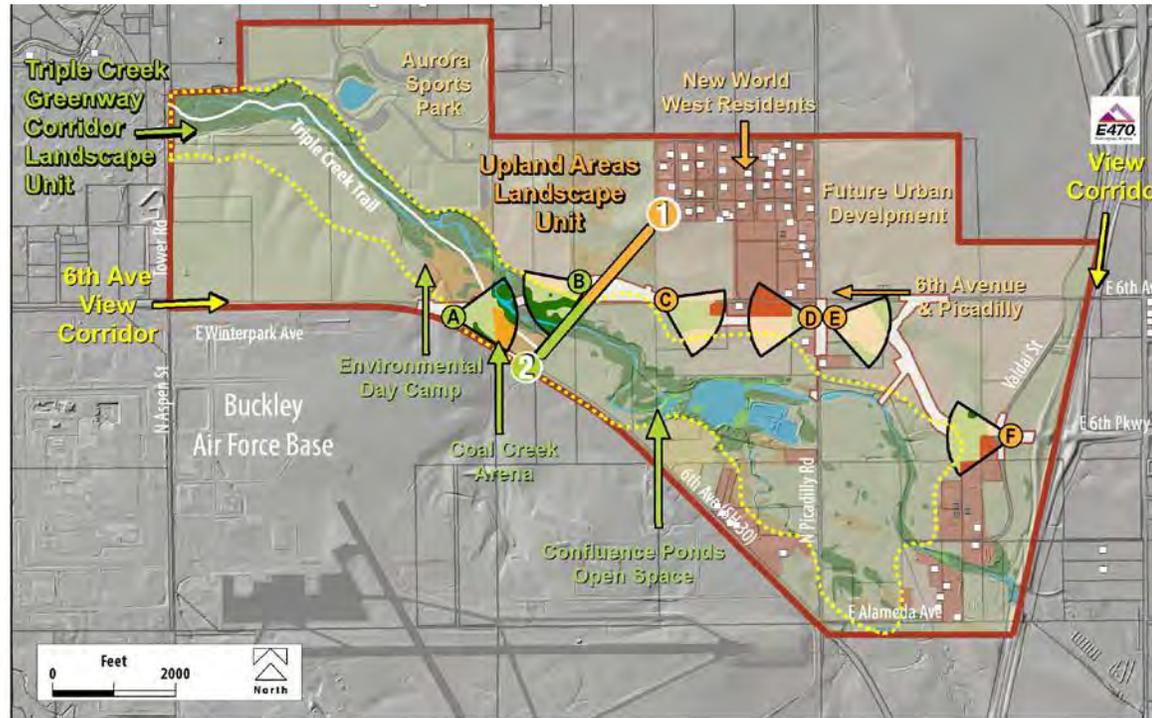
Visual Attributes SH 30/6th Avenue Intersection and Bridge



Simulated bird's eye view of bridge over Sand Creek and SH 30/6th Avenue intersection



Landscape Character Inventory

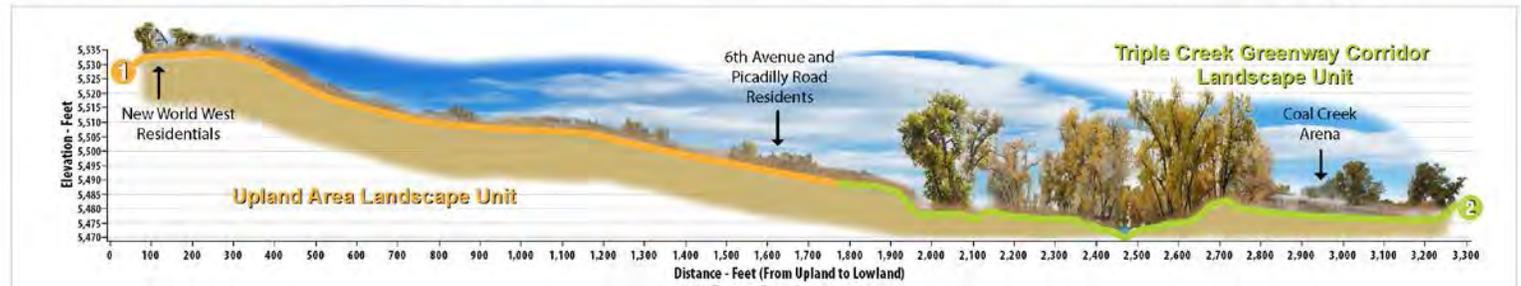


- Property Boundaries
- Area of Visual Effect
- Proposed Action

- Traveler Viewsheds (A - F)**
- Key Views from the Project Corridor

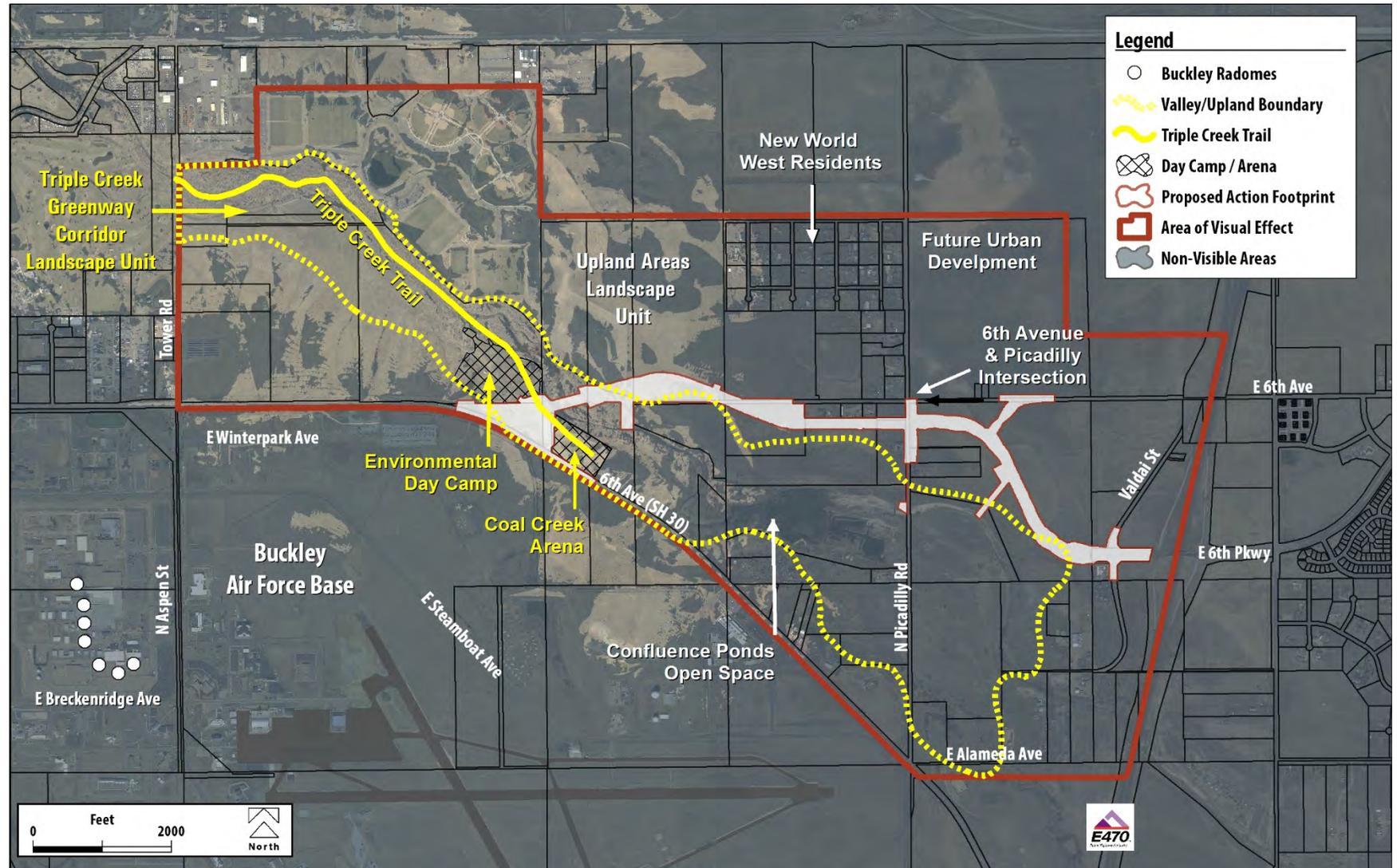
- Project Landscape Character**
- Arena / Environmental Day Camp
 - Cottonwood/Riparian
 - Agriculture
 - Grassland
 - Creek/Ponds
 - Residential
 - Roadway
 - Shrub Mix

- Representative Section**
- Triple Creek Greenway Corridor Landscape Section
 - Upland Areas Landscape Section





Viewer / Visibility Inventory





Visual Quality Analysis

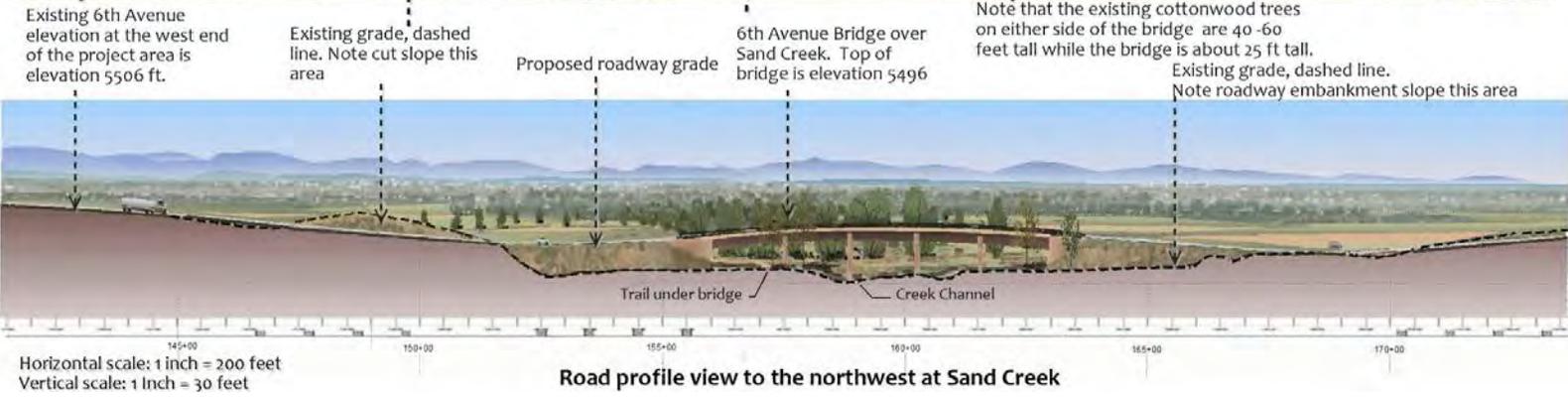
Visual Resources: Triple Creek Greenway Corridor						
Visual Quality Analysis						
Viewers	Natural Environment		Cultural Environment		Project Environment	
	Harmonious	Inharmonious	Orderly	Disorderly	Coherent	Incoherent
	Natural Harmony		Cultural Order		Project Coherence (Proposed Action Corridor)	
Triple Creek Trail / Open Space Use		Consistent with open space setting		Influence of SH 30 and Buckley AFB diminish the cultural order		Pipeline clearing and influence of SH 30 reduce Project Corridor coherence
Coal Creek Arena		Consistent with open space setting		Consistent with open space setting		Consistent with open space setting
Environmental Day Camp		Influence of SH 30 and fill slopes, and eroded soils diminish natural harmony		Influence of SH 30 traffic diminishes cultural order		Influence of SH 30 traffic diminishes Project Corridor coherence
Confluence Pond		Consistent with open space setting		Consistent with open space setting		Consistent with open space setting
EB Views from the Road Corridor		Consistent with open space setting		Consistent with open space setting		Consistent with open space setting
WB views from the Road Corridor		Views modified by influence of SH 30 and Buckley AFB		Views modified by influence of SH 30 and Buckley AFB		The historic prairie landscape image is diminished by SH 30 corridor, and skylining of Buckley AFB features, and distant development



Visual Compatibility/Contrast



Graphic roadway profile showing vertical relationship of the new 6th Avenue Parkway to the existing ground level and the surrounding land. The length dimension is squeezed or shortened while the vertical dimension is exaggerated. Note that the top of the bridge is lower than the existing 6th Avenue elevation. From a distance east and west of here the bridge will be low enough to be at least partially screened by trees and landforms.

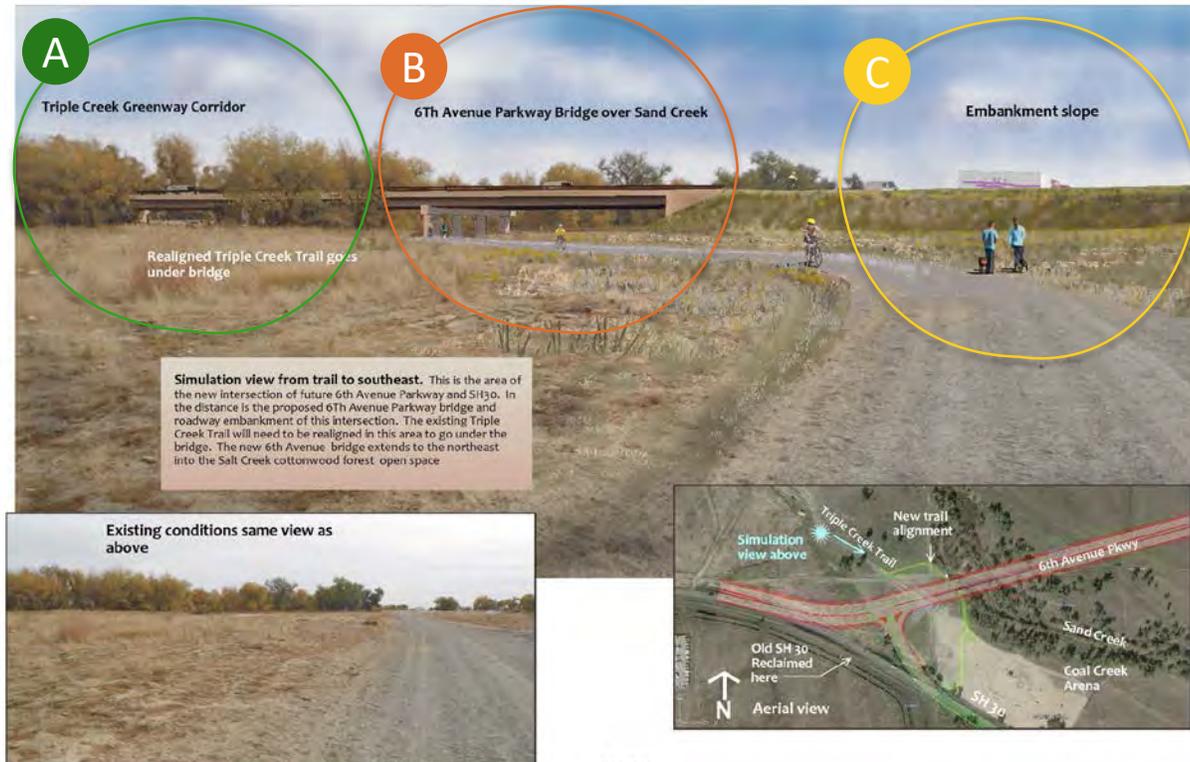




Visual Impact Assessment

		Visual Impact Synthesis		Viewer Sensitivity to Impact		Impacts to Visual Quality Triple Creek Greenway Corridor Landscape Unit												
		Visual Character Compatibility to Impact		Change in Exposure and Awareness		Viewer Sensitivity												
						Sensitive					Insensitive							
						Exposure					Awareness							
Visual Compatibility	Incompatible	Criteria	Project Elements / Visual Compatibility of the Project	Visual Contrast	Sand Creek Trail / Open Space Use	Coal Creek Arena	Environmental Day Camp	Confluence Pond	Multi-Modal Views from 6 th Ave Parkway	Sand Creek Trail / Open Space Use	Coal Creek Arena	Environmental Day Camp	Confluence Pond	Multi-Modal Views from 6 th Ave Parkway				
					S	Roadway	S											
						Bridge	S											
						Intersection	S											
			Ponds and drainage	M-S														
		Compatible	Cultural Order	Roadway	W													
				Bridge	S													
				Intersection	S													
	Ponds and drainage			W														
		Project Coherence	W															
	W/M	Visual Quality	Roadway	S														
			Bridge	S														
			Intersection	S														
			Ponds and drainage	M														
	Visual Impact Levels		Visual Contrast Levels		S	Strong			M	W			Weak					
	Adverse		Neutral			Beneficial/Positive				Screened			No Visual Impact					

Mitigation



FM 2 10 16

Mitigation to reduce the visual contrast of Sand Creek Bridge within Triple Creek Greenway Corridor

- A** SAND CREEK VEGETATION CLEARING: Create naturalized clearing edges; and mimic surrounding plant density, spacing, and species composition
- B** SAND CREEK BRIDGE CONTRAST: Select colors, forms, and finishes that blend in with the corridor environment, and compliment the recreation & equestrian trails
- C** INTERSECTION EMBANKMENT SLOPE CONTRAST: Create naturalized transition of fill slopes into adjacent landscape, with slope rounding and warping



NEXT STEPS – CDOT VIA Conformance Review & CDOT VIA Guidelines

- CDOT initiated statewide survey (2017)
- VIA Conformance Review (2018)
 - Reviewed 11 CDOT VIAs following FHWA 2015 Guidelines
 - Review criteria involved 48 questions
 - Craig Churchward provided national-level professional support
- VIA Conformance Review Findings
 - VIAs conformed w/2015 Guidelines
 - Issues: complexity, consistency & cost
- *Findings led to developing CDOT's 2019 VIA Guidelines*

Goals for CDOT VIA Guidelines

- Establish statewide process
- Connect to FHWA 2015 VIA Guidelines
- Prepare reader-friendly VIAs
- Focus on valued visual resources of Colorado
- Identify adverse and beneficial impacts
- Develop SMART mitigation

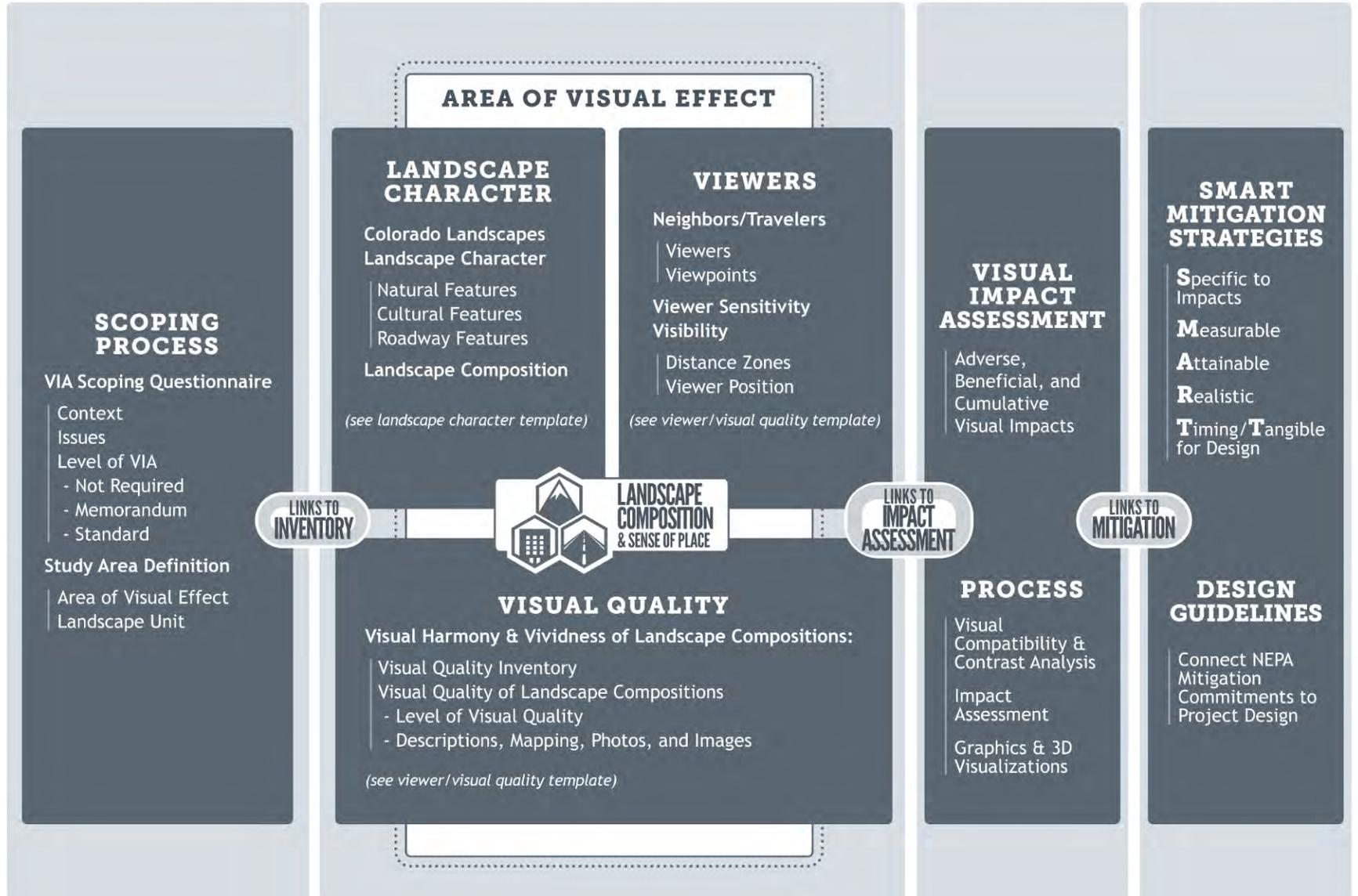


**ESTABLISHMENT:
SCOPING**
Level of
Visual Impact Assessment (VIA)

INVENTORY: AFFECTED ENVIRONMENT
Focus on Scoping Issues, Landscape Compositions,
& Context-Sensitive Process

**ANALYSIS:
IMPACT
EVALUATION**
NEPA Compliance

MITIGATION
Impact Mitigation &
Design Guidelines





SMART Mitigation

“Policy, Planning & Prescriptive” Strategies

Example Project:

Maryland DOT *Intercounty Connector EIS*

Policy-level mitigation strategies: Apply Aesthetic Design Guidelines to increase compatibility, create a corridor theme, and contribute to visual unity

Planning-level mitigation strategies: Characteristics contributing to visual unity include thematic patterns, colors, architectural features, and gateway designs. These elements would enhance existing visual character by using materials and design techniques that blend with the surrounding area.

Prescriptive-level mitigation strategies: 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.

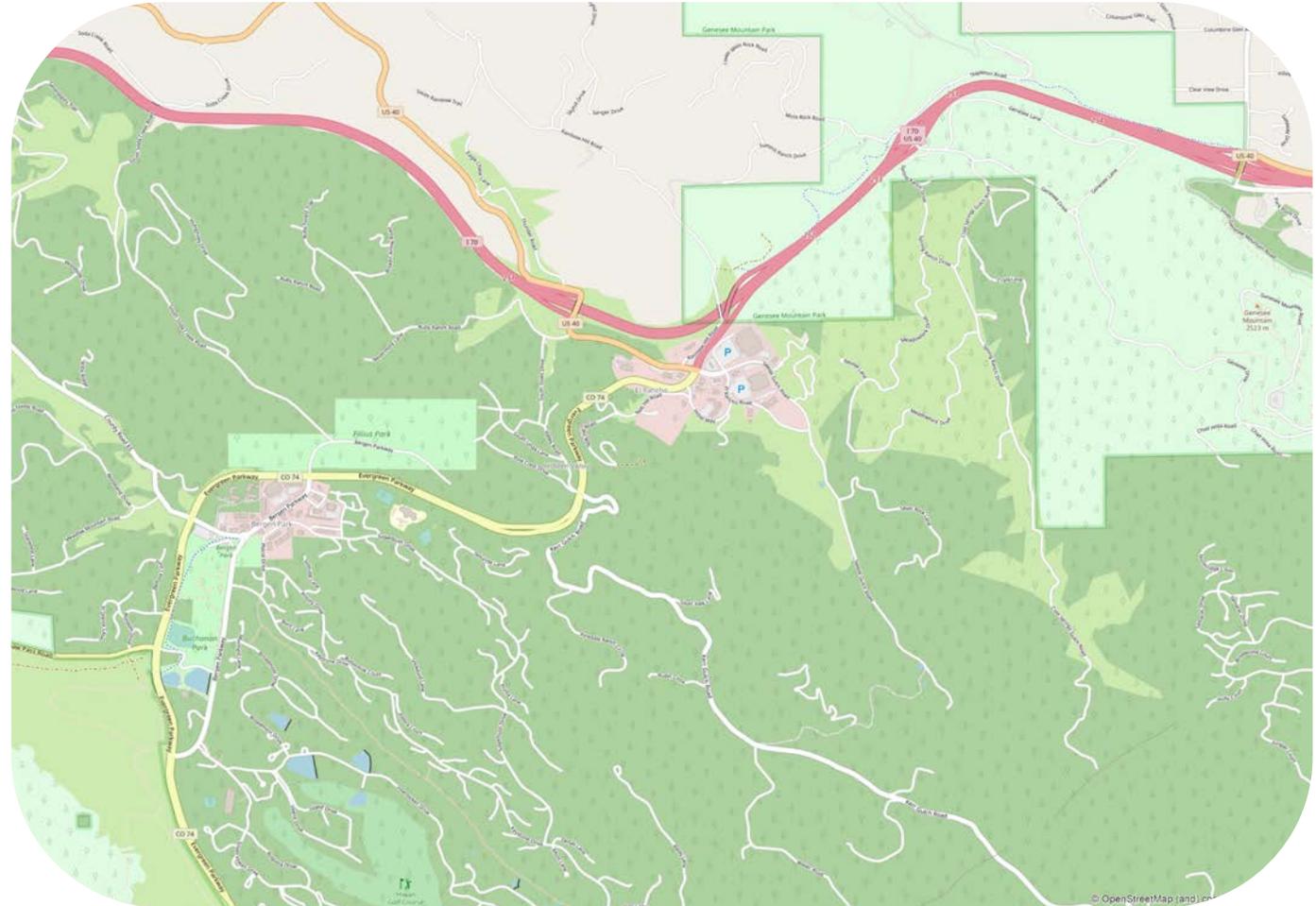
Smart Mitigation Criteria

- *Specific* to affected landscape character, viewers & visual quality
- *Measurable* compensation for visual impacts
- *Attainable* strategies that are practicable and within engineering standards
- *Realistic* to communities/ agencies & financially feasible
- *Timing /Tangible* relative to project design and delivery



Mitigation/Construction Case Study

*SH 74 Evergreen Parkway
Kerr Gulch to Elk Meadow*

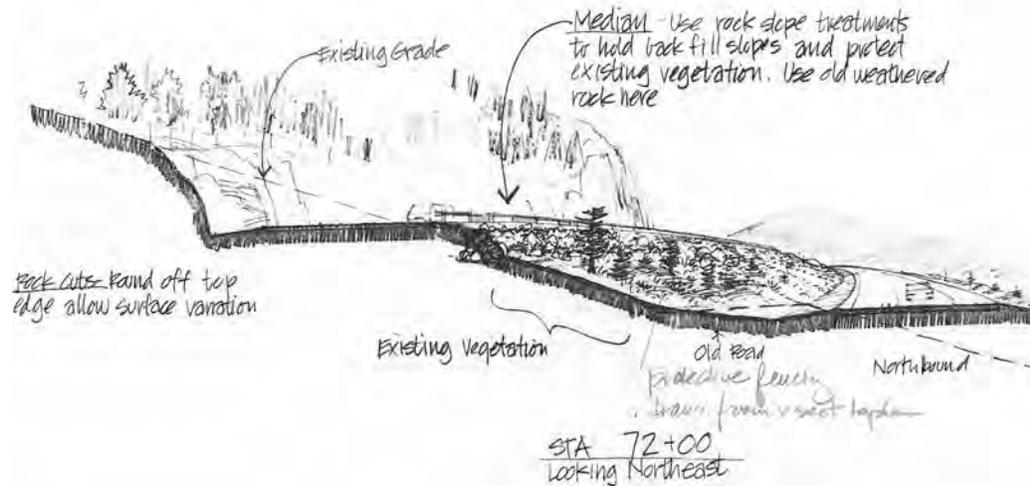




Visual Mitigation Treatment

Landscape Mitigation Objectives

Native tree protection and rock slope treatment



- Blending steep rock cuts with adjacent forests
- Shaping cliff features within tall cut slopes
- Creating visual buffers with plant materials
- Protecting native vegetation & rock features
- Establishing compatible alignments & medians



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OBJECTIVE - Mitigate to the extent possible the obtrusive affect of a tall 75ft. rock cut, by shaping it into something more sympathetic to indigenous landforms. Avoid flat even surfaces and abrupt contrasting transitions.

Existing Rock outcrops near Bateman house are attractive weathered rock, investigate salvaging for use elsewhere

Attempt to create a natural like weathered cut with a more gradual transition to adjacent forest

Create irregular clearing edge in thick forest areas

Existing Flow Fence

Large Cut

Generally round off top of rock cut allowing rough rock to remain as outcrops. Salvage weathered rock if possible

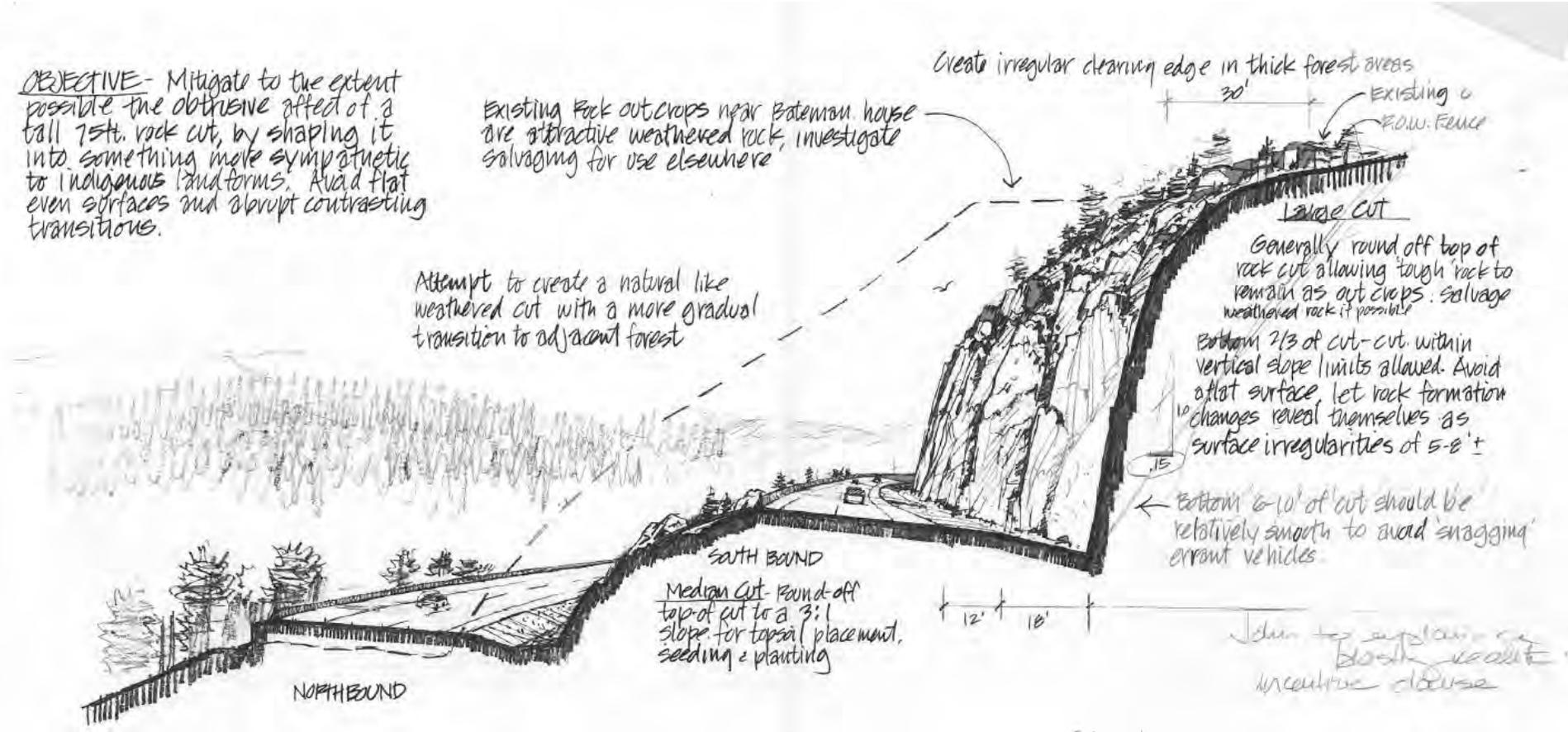
Bottom 2/3 of cut - within vertical slope limits allowed. Avoid a flat surface, let rock formation changes reveal themselves as surface irregularities of 5-8'

Bottom 6-10' of cut should be relatively smooth to avoid snagging errant vehicles

SOUTH BOUND

Median Cut - Round off top of cut to a 3:1 slope for topsoil placement, seeding & planting

NORTHEBOUND



John to explain re. Blast results, uncentric closure

**SH 74 Evergreen Parkway
Kerr Gulch Rock Cut & Split Alignment Concept**

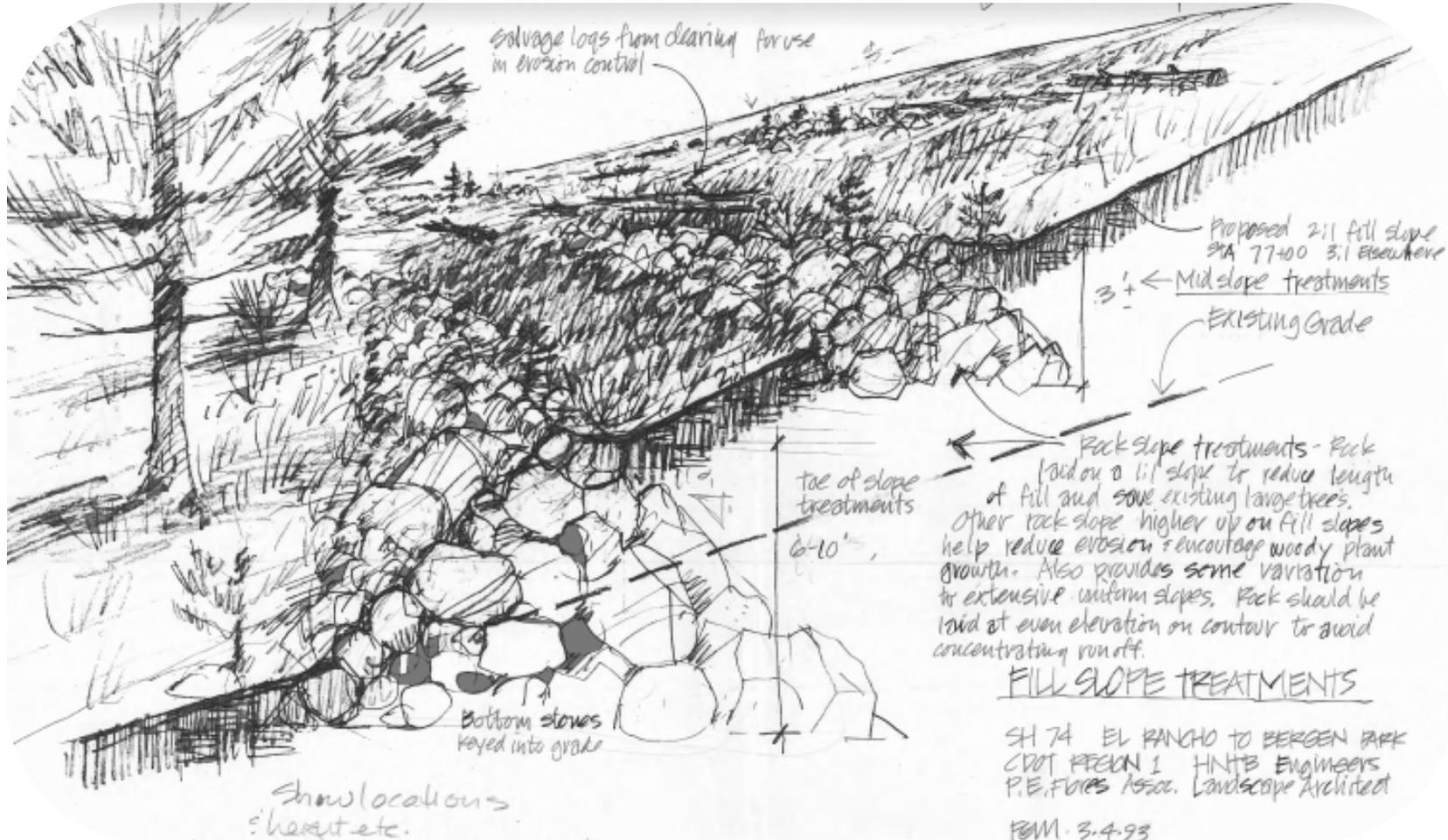


SH 74 Split Alignment / Rock Cuts / Forest Edge





SH 74 Mid-slope Tree Preservation Mitigation Concept





SH 74 Tree Preservation During Construction





Mid-slope Tree Preservation with Rock Retaining Walls





Summary of CDOT's 2019 VIA Process

- Interdisciplinary team participation
- VIA scoping, public values, & agency planning/policies/guidelines
- Visual attributes and visibility of proposed transportation elements
- Context-sensitive inventories of landscape character, viewers, and visual quality
- Landscape compositions and *sense of place*
- Unified visual quality criteria, rooted in *visual harmony*
- Visual compatibility/contrast assessments of project , to identify adverse and beneficial impacts
- Mitigation strategies through SMART criteria, to integrate visual resources within design process and project implementation

Elements of Visual Harmony Criteria

- **Coherence** - Measures order and balance in a composition of natural, cultural, and roadway features
- **Unity** - Measures how well roadway elements, alignments, and structures blend in with the natural and cultural landscape setting in terms of *form, line, color, texture, and scale*
- **Intactness** - Measures visual integrity of compositions, including how well cut and fill slopes or rock cuts blend in with adjacent landform, vegetation, and development patterns