



**Project Title: Interstate 70 Mountain Corridor Aesthetic Guidance**

**Project Location: Denver to Glenwood Springs, Colorado**

**Project Summary** | The potential for disruption of communities and the destruction of the most treasured mountain landscape in the United States is the great dilemma with a large infrastructure project like I-70. This project provides a new and significantly different approach to determining the design of transportation facilities and has resulted in a consensus for solutions that will be constructed over the next 50 years. The I-70 Mountain corridor is a 144-mile section of interstate that traverses the Rocky Mountains and is considered the most challenging section of highway in the entire system. Within the corridor, at elevations of over 12,000 feet, mountainous topography, canyons, river gorges, and small communities located adjacent to the corridor pose enormous design challenges. These communities, the public, and a number of national, state, and public agencies have been debating the solution to increasing access, greater capacity, and ultimately eliminating the existing grid lock that often occurs throughout the corridor.

The innovations in this project are the aesthetics guidance and standards that have been developed to replace traditional engineering criteria for new highway locations, relationships to land features, and community and landscape design values. The aesthetics guidance for the construction of the new highway and transportation facilities define for the first time that the aesthetics of highway design are equal to traditional engineering criteria for functional engineering design aspects of the highway. The guidelines define that I-70 will be expanded only in the areas previously disturbed, that the road will be secondary to the landscape, maximum limits to cut and fill have been established, and “areas of special attention” will receive intense evaluation in order to preserve components of history, hydrology, and communities. The aesthetics for the I-70 corridor include design standards for the inclusion of a fixed guide transportation system forecast to be the long term solution for the demands placed on the corridor. This project is an entirely web-based program that will provide the guidance for all future projects.

**Purpose** | Heretofore, aesthetics in roadway design have typically been applied once a project is almost complete. This project is different because it suggests that aesthetics are integral to roadway design and alignment in the establishment of engineering criteria. The Aesthetic Guidelines provide objectives and strategies for accomplishing this vision, specifically defining a transportation and land relationship, as well as identifying structures such as bridges, walls and safety features, a color and plant palette for each design segment, limits of land disturbance, earthwork and grading, treatment of hydrologic features and wildlife, maintenance, signage and access to cultural and recreational destinations and guidance for future advanced transportation systems planned to connect Denver to the western slope.

**Significance** | The Aesthetic Guidelines are a model for roadway design, promoting aesthetics as an integral part of the process at the onset rather than applying aesthetic solutions after the roadway is designed. Based on the establishment of engineering design criteria that address design speed, roadway alignment, slope cut and fill, areas of disturbance and structure design for bridges and walls, the guidelines are embedded in the technical road design from concept to construction documentation. Many of these design criteria have been developed for the project because of visual and design character considerations, not simply functional concerns. And, because these design criteria have been developed with aesthetics in mind from the beginning, they represent a new way of managing a highway corridor. Any new construction within the corridor will occur within the footprint of historic or current disturbances. These criteria have been developed and adopted because they represent a holistic approach to roadway design that not only enhances safety, mobility, and sustainability, but also considers a corridor for the 21st century which includes both an advanced guideway transportation system and additional vehicle carrying capacity, all the while reducing maintenance through design and engineering.

**Role of the landscape architect** | Once the landscape architects developed the engineering criteria, objectives and strategies were formulated for the four Design Segments that make up the corridor - “Western Slope Canyons and Valleys”, “Crest of the Rockies,” “Mountain Mineral Belt,” and “Front Range Foothills.” Corridor design segments are identified by their physical and cultural characteristics, including human geography, land form, community character, settlement patterns and life zones. The segments, which define the design character of the highway based on its environmental and cultural setting, are the foundation upon which the Aesthetic Guidelines are structured as well as the foundation for stakeholder and aesthetic working group input.

An essential component of the Aesthetic Guidelines is the development of standards for two separate alignments, one for each travel lane, based on topographic conditions and other existing circumstances including rock-cuts, community connectivity, sound barriers, and wildlife corridors. Additionally, the guidelines address the environmental context in which highway facilities are built, including their relationship with the land, surrounding hydrology, wildlife corridors, plant palette, adjacent communities and recreational resources, creating an environmental, visual and community-based vision for the landscape in which these facilities are located. Finally, this vision addresses the design character of new construction along the corridor, including landscape disturbances, sustainable practice, new standards of design, and a transportation corridor that exhibits a thoughtful consideration of the interface between users and the environment. In this project, aesthetic design is made an integral part of the engineering process rather than an after-thought. The intent of the guidelines is to connect the transportation user to the larger setting, and to complement the surroundings with a highway and corresponding facilities that tread lightly on the landscape.

The Aesthetic Guidelines defer to community context, emphasizing the existing natural environment, scenic integrity and the need for safe and efficient travel. Hydrologic features affected by the construction of a transportation facility construction will be protected and enhanced for their ecological and scenic value. Because the native topsoil contains a natural seed bank complete with a moisture-retaining capacity and nutrients to support plant growth, it is required that, throughout the corridor, all topsoil be salvaged, stored and redistributed. Ultimately, successful re-vegetation and long-term restoration is achievable when these resources are managed properly. Wildlife corridors and crossings are integral to the design in order to maintain the natural movement of animals and is undisturbed by geographic or physical barriers. The Guidelines recommend a central control for irrigation systems and to consider the use of reclaimed water, including fully treated effluent and water harvesting techniques, as a supplement to irrigation. The plant palettes (there is one for each segment) are all native with recommendations for salvaging plants prior to construction. Also native seed collection would be completed in close proximity to the construction area. Top soil would also be salvaged. Restoring disturbed areas eliminates the appearance of artificial construction, creating an authentic representation of the site’s natural conditions.

In order to develop a successful and context-driven design for the corridor, it is imperative that all stakeholders remain involved throughout the life of the project. To date, a diverse array of stakeholders — from truck drivers to tourists, business owners to snowboarders, and environmental champions to cultural/history constituents — have contributed to shaping the future of the corridor. The public engagement process creates a direct link between stakeholder issues and the design process, including design criteria, design guidelines and areas of special attention. The guidelines foster a methodology for coalescing communities and ensuring that all stakeholders continue to have a voice.- In addition, the guidelines are a ‘living’ web-based document in which updates and additions can be tracked through a website for the life of the project. The website provides interactive maps, links to applicable documents, related studies and pertinent regulations, as well as contact information for stakeholders to provide ongoing input. Colorado Department of Transportation training has been incorporated into the project.



