

## **Draft Vision Statement, Goals, Overall Design Objectives & Feature Design Objectives**

## **I-84 Corridor Strategy**

### **DRAFT Vision Statement**

Interstate 84 in the Columbia River Gorge National Scenic Area is a critically important corridor that serves as a primary regional transportation artery, a key interstate freight route and a scenic highway. Interstate 84 is envisioned as:

- providing safe and efficient movement of people and goods while respecting and highlighting the magnificent landscape through which it passes;
- a model of design and management for interstate highways in protected areas;
- a route with a distinct and cohesive identity that reflects the character of the Gorge and the values of the Columbia River Gorge National Scenic Area;
- a vital connector serving social and economic needs by providing access to and between communities, services, recreation areas and tourism destinations;
- a corridor where the traveling through is as important as the traveling to.

### **DRAFT Goals**

Goal A: Improve safety along Interstate 84 in a manner that is consistent with the strategy for the corridor.

Goal B: Maintain the ongoing functionality of Interstate 84 as the most important east-west highway moving people and freight through Oregon.

Goal C: Establish a distinct visual character for Interstate 84 through design continuity for the common elements of highway features.

Goal D: The design and management activities of Interstate 84 should blend with the natural landscape setting and historic context and be consistent with scenic resource provisions of the CRGNSA Management Plan.

Goal E: Protect and enhance scenic, cultural, natural and recreational resources through careful planning, design, and development of projects and long-term maintenance practices.

Goal F: Improve access between Interstate 84, local communities, and other destinations to support local and regional economic development.

Goal G: Ensure that individual projects are developed through an interagency, interdisciplinary process from initial planning stages through implementation.

# I-84 CORRIDOR STRATEGY

## Design Objectives and Guidelines

*DRAFT: May 5, 2005*

### I. OVERALL DESIGN OBJECTIVES

**Visual continuity** shall be achieved through the use of a **palette of common design elements** that extend throughout the Columbia River Gorge National Scenic Area corridor.

The design elements of **form, line, color, texture, and scale** will be used to meet the CRGNSA Management Plan scenic resource provisions.

The **form** of features in the interstate corridor should be **integrated with the natural landform**.

The **horizontal line** of interstate features should **flow with** and respond to the **line of the river** below. The curvilinear line of the existing freeway alignment shall be retained and emphasized. **Vertical features should respond to the cliff landscape**. The **observer's eye should be led to the landscape**, rather than to the highway itself.

The **color** of features within the interstate corridor should be selected to **harmonize with the natural setting**.

- **Dark Earth-tone colors** that repeat throughout the Gorge landscape should be emphasized
- The number of colors in the palette should be limited in order to provide **unity of design**

**Texture** of Interstate features should be **rough with an irregular pattern** rather than smooth and reflective for the purpose of minimizing the reflectivity of the various highway features. The **textures should blend with the natural setting**.

**Textures and colors of concrete and steel** structures should derive from the **natural color tones of the exposed geology** found within the Columbia River Gorge.

Use common, unifying design features to **create Gorge-wide consistency of appearance for structural elements**

The Key Viewing area of I-84 itself as well as other **Key Viewing Areas** from which it is seen **should be considered during project design**. In Urban Areas, similar consideration will be made by ODOT in order to maintain unity and continuity of the highway.

Interstate 84 should be influenced by and **honor the presence of the Historic Columbia River Highway (HCRH)** and other historic architectural features where appropriate, and in a manner that **establishes a physical or visual architectural connection to historic heritage**, without mimicry or replication. Interstate architecture should **complement**, not rival or distract from **the integrity of the HCRH**.

The Interstate 84 system should **facilitate the enjoyment of the Columbia River Gorge resources**.

The interstate should be **functionally and ecologically integrated into the landscape** by accommodating vehicular **access to roadside destinations** and urban areas, **controlled non-motorized access**, and **wildlife passage** along the corridor.

Interstate 84 should **provide connection between the river and the mountainside** where possible.

Agencies and communities should **develop partnerships to leverage funding and resources for cooperative projects** where agency and community interests intersect are encouraged.

Communities, other agencies, and the private sector should **support the development and maintenance of additional rest areas, viewpoints, and recreation sites**.

**Encourage connectivity and access** by supporting travel through the corridor **via various transportation modes** – by motor vehicle, bus, train, boat, bicycle, and on foot.

## II. FEATURE DESIGN OBJECTIVES & GUIDELINES

### a. ROADWAY EDGE AND ALIGNMENT FEATURES

#### i. *Median Treatments should:\**

##### *Design Objectives:*

- **maximize** the use of **natural median**;
- **use one design to create Gorge-wide consistency** of appearance when a median barrier is required;
- **use dark earth tone-colors, non-reflective textures** and other design elements to ensure they will meet CRGNSA scenic resource standards as seen from KVAs;
- be designed to **allow views of the Columbia River and surrounding landscape** as much as possible, within safety standards;
- **minimize cross-over accident** potential

##### *Feature Guidelines:*

- Visual character of median barrier should match the surrounding elements
  - If the median railing has an open character, then it should retain the character of the open bridge and roadside railings.
  - If the median railing is solid, then it shall retain the character of the roadside railing that intercepts hillside slopes.
  - Or Median Barriers shall have its own character independent of the roadside and bridge railings.
- Median barrier alternative. In consideration of future roadway realignment opportunities, the riverside, hillside and other constraints should be carefully analyzed for adequate clear zone separation to establish a landscape median in replacement of a median barrier. Landscape median should be mass planted with vertical vegetation to mitigate headlight glare, but not pose a roadside safety threat within the clear zone.
- Meet crash test level 4. Use 35" F-Shape, cast-in-place concrete barrier. (Tentative)
- Expected deflection of barrier railing should not exceed available deflection distance.
- Median barrier must be compatible with planned end anchor and capable of transitioning to bridge railing systems.
- Shall have nighttime reflectivity to delineate road edge and maximize night/ inclement weather driving safety.

#### ii. *Roadside Guardrail should:*

##### *Design Objectives:*

- **use one design to create Gorge-wide consistency** of appearance when a roadside guardrail is required;
- be designed to **allow views of the Columbia River and surrounding landscape** from I-84 as much as possible, within safety standards;
- **maintain a visual connection to** the line, color, and texture of **bridge railing and railing transitions**

*Feature Guidelines:*

- Where clear zone requirements can be met, no roadside railing shall be installed
- Roadside railing shall be structurally able to contain and redirect design vehicle meeting Crash Test Level 3 standards.
- Guardrails should use dark earth tone-colors, non-reflective textures and other design elements to ensure they will be visually subordinate to the landscape setting as seen from KVAs
- Railing should be a neutral color that harmonizes with the colors of natural setting having the non-transparent features of the railing blend with the foreground and middle ground setting.
- The railing color shall be consistent with the color selected for the other highway common elements.
- Roadside railing on the mountainside of the highway that intercepts a hillside slope shall be a solid barrier that retains the color of the open rail type.
- Railing beginning point and terminus shall not end abruptly, but taper into or away from the roadway and transition out of or into the landscape.
- Roadside Guardrail design shall be compatible with planned end anchors and capable of transitioning to bridge railing systems.
- Be perceived as an extension of a bridge railing and retain the bridge rail character to its terminus.
- Roadside railing that is not an extension of a bridge railing shall have the same aesthetic line and color and safety criteria as the bridge/roadside rail, but may vary in form.
- When railings are required for on and off ramps, the railing types shall be an extension of the roadside or bridge railing to maintain continuity.
- Expected deflection of barrier railing should not exceed available deflection distance.
- Railing shall have nighttime reflectivity to delineate road edge and maximize night/inclement weather driving safety.
- Roadside guardrail should be considered to protect character trees within the clear zone

*iii. Railing Transitions & Terminals should:*

*Design Objectives:*

- **maintain consistency** in material types, form, line, color, and texture from one railing system to the next;
- **terminate smoothly into the surrounding landscape** where clear zone requirements can be met

*Feature Guidelines:*

- Be subtle by retaining the character of at least two visual elements of form, line, color and texture as the rail transitions from one to the next
- Maintain a consistent top line of the two barrier systems

**iv. Interchange Configuration should:**

*Design Objectives:*

- **improve interchange designs and highway geometrics** where existing sight distances, slopes, curves, and intersections create hazardous conditions;
- **blend harmoniously with the natural landform;**
- **minimize the area required for the interchange footprint** unless increased size better achieves resource protection and enhancement (emphasis on fitting within the landscape will dictate the area required);
- **extend and integrate mainline common elements** into the interchange design – barriers, railing, retaining walls, etc.;
- **not adversely affect the HCRH district;**
- be consistent with the guidelines established for bridges over the interstate

*Feature Guidelines:*

- Interchanges should be right-hand exits from Interstate 84
- New and reconfigured interchanges should be fully directional with eastbound and westbound off and on access

**v. Pavement Widening should:**

*Design Objectives:*

- encourage tourists and visitors to travel through the Columbia River Gorge by other modes, such as buses, trains, and watercrafts to accommodate future traffic growth;
- consider all other alternatives for managing traffic and transportation functions of the interstate before increasing capacity in accordance with Oregon’s statewide transportation planning rule;
- CRGNSA Management Plan Goals
  - Page I-33: “GMA Goal: Designate those portions of the following roads in the Scenic Area as scenic travel corridors and protect and enhance scenic resources within the corridors: Washington State Routes 14, 141, and 142, Interstate 84, the Historic Columbia River Highway (all segments), and Oregon Highway 35.”
  - Page I-146: “SCENIC APPRECIATION AND SCENIC TRAVEL CORRIDORS – GMA Goals:
    - Increase scenic appreciation opportunities throughout the Scenic Area.
    - Designate those portions of the following roads in the Scenic Area as scenic travel corridors and promote uses that improve their functions as recreational and scenic travel routes: Historic Columbia River Highway (all segments); Washington State Routes 14, 141, and 142; Oregon Highway 35; and Interstate 84.”

*Feature Guidelines:*

None at time of printing

b. BRIDGE FEATURES

i. *Mainline Interstate Bridges should:*

*Design Objectives:*

- **have common design of features** such as railing, structure, abutments, pedestrian and bicycle accommodation, and screens to **achieve corridor-wide continuity**;
- utilize an **architectural character that does not distract from or contrast with** the surrounding **natural landscape**;
- have **flexibility to vary** according to site specific conditions and opportunities;
- not emulate or mimic, but **honor the character of structures and historic bridges** in the HCRH;
- **minimize the apparent visual mass of the structure** in superstructure, piers and abutments;
- **use railing that does not obstruct scenic views** and allows the ability to view the natural features that the bridge is crossing;
- **incorporate bridge railing with an interior character that is consistent** in form, color and texture **with other linear design elements** to maintain continuity;
- **have adequate shoulders to create safe separation** between bicycles and the lane of traffic

*Feature Guidelines:*

- Use rock or materials that give the appearance of natural rock forms and textures
- Integrate arch shape into design
- Bridges crossing water bodies shall extend beyond the water body integrating streamside riparian landscape to provide for wildlife corridor
- Mainline bridges that cross other roads shall extend far enough to provide for pedestrian, bicycle, and other recreational access under-passage and attractive road edge treatments.
- Interstate bridges shall accommodate safe bicycle passage with a sufficiently wide shoulder or a separate facility if necessary
- Bridge abutment form shall tend towards a vertical character rather than sloped pavement.
  - Natural rock walls in the Gorge tend to the vertical
  - It maximizes the useable space for recreation and/or wildlife passage under the bridge
- Bridge layout shall minimize height of abutments giving the bridge deck the appearance of flowing out of the grade of the landform
- Consider natural slope treatments rather than concrete or other paving materials
- Eastbound and westbound lanes should be on independent bridge structures with an obvious separation to allow air and light through
- Piers of independent, but parallel bridges shall be lined up rather than staggered
- Bridges adjacent to a historic structure need to be sensitive to the Urban areas
- Bridge railing shall be of a crash-tested design that meets Crash Test Level 4 (Bridge deck to be designed using LFRD), unless a warrant dictates a higher standard

- Bridge widths should accommodate bicyclists, despite no special requirements existing under FHWA guidelines
- Expected deflection of bridge railing should not exceed available deflection distance
- Railing shall have nighttime reflectivity to delineate road edge and maximize night/inclement weather driving safety
- Select a bridge railing design that is adaptable for use as an on-grade roadside railing or compatible with clean and simple (maybe elegant) transition to the selected roadside guardrail
- Railing should be a dark earth tone color maybe (the specified color) selected to harmonize with the colors of natural setting having the non-transparent features of the railing blend with the foreground and middle ground setting
- Drainage shall be continuous along the bridge to avoid erosion at the abutments
- Bridge railing while subordinate should have a stout and sturdy base that establishes its permanent presence delineating the road edge
- Concrete base that has a feeling of anchoring to ground
- Metal bridge railing should be the same color and form of the roadside guardrail

*ii. Bridges Over the Interstate should:*

*Design Objectives:*

- have **common design of features** such as railing, structure, abutments, pedestrian and bicycle accommodation, and screens to achieve corridor-wide continuity;
- **repeat consistent themes and elements** of the mainline on the over crossings;
- be consistent with the overall theme but recognize that subtle differences to over-crossing design add to the character and variety of the Gorge;
- **minimize the apparent visual mass** of the superstructure and abutments;
- **have safe separation between pedestrians, bicycles, and the roadway;**
- utilize **railing that does not obstruct scenic views;**
- **integrate safety screens** into the integral elements of the structure's overall architectural character;
- **reflect the architectural character** established for the interstate mainline and have a **simple architectural transition into the natural landscape** when outside the urban areas;
- have the **flexibility to establish an architectural theme specific to the individual community** when in urban areas (the architectural character shall remain complementary to the linear architectural features of the interstate mainline and bridges)

*Feature Guidelines:*

- Railing on bridges over I-84 should meet crash test level TL-3
- Bridges over the interstate should span far enough to allow for a non-constricted shoulder along the mainline

- Landscaping used at supports and abutments of bridges over the interstate should use Native vegetation and fit the context of the surrounding landscape to soften their appearance
- Abutment faces of bridges over the interstate shall be a vertical form to create the appearance of natural stone wall
- When required on overpass bridges, screening shall be integrated into the bridge rail design
- Local urban streets will have a curb/sidewalk configuration

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c. ROADSIDE/R.O.W. FEATURES

i. *Vegetation Management should:*

*Design Objectives:*

- **provide and maintain views to the river** and other scenic features where **appropriate to the plant community**;
- maintain **adequate screening of I-84** from other key viewing areas;
- emphasize the scenic values of **healthy, fire resilient, dynamic, and native ecosystems**;
- consider the **visual impacts** of vegetation management **both from I-84 and from other KVAs** in the CRGNSA;
- **enhance the scenic quality** of the highway and **buffer** any elements that detract from the scenic quality;
- be managed in a manner that preserves and enhances the **integrity of riverside terrestrial and aquatic wildlife habitat**;
- provide effective management of roadside vegetation to meet a range of values inherent to **natural resource stewardship and scenic enhancement**, including:
  - Creation of new and restoration of historically important scenic views
  - Screening of developed areas
  - Encouragement of native species
  - Reduction of required maintenance (through noxious weed control and other means)
  - Preservation of terrestrial and aquatic habitats
  - Filtration and management of surface drainage

*Feature Guidelines:*

- Inform the visual aspects of a vegetation management master plan to be developed for the CRGNSA through a coordinated inter-agency cooperative agreement
  - Mitigation and approach to be based on landscape settings as defined and established in the NSA
- All proposed vegetation management projects in public rights of way to provide or improve views shall include an evaluation of potential visual impacts of the proposed project as seen from any key viewing area. (Vegetation management doesn't currently need a NSA permit)
- Maintain visibility of signage but provide screening of backs of signs.
- Accentuate scenic views of historic urban areas as viewed from the interstate
- Screen stockpile and staging areas that are visible from the highway
- Encourage the planting of rare and endemic plants that are found only in the Gorge while eradicating noxious weeds and undesirable non-native species
- Thin to decrease stand densities that will impede the development of large tree character.
- Planted trees should be spaced according to their fully-grown dimensions and characteristics
- Vegetation management should encourage the development of large tree character and the maintenance of character trees—especially Ponderosa Pine, Douglas Fir and Oregon Oak

- Vegetation growing on or over guardrails, bridges and other highway features should be trimmed and pruned back in a naturally appearing manner consistent with the International Society of Arboriculture (ISA) and the National Arborist Association (NAA) allowing for safe visibility of features and preservation of structures
- Tree branches that overhang highway travel lanes and shoulders shall be trimmed in a manner that sustains a natural form and character of the tree, is consistent with ISA and AAS, and provides for safe travel
- Vegetation thinning will be required in areas where vegetation impedes sight distances. Any bare ground resulting from thinning will be re-vegetated with native species that are compatible with sustaining safe sight distances
- Indigenous unmanaged roadside woodlands that are developing a dense stand should be managed, thinned and maintained for a healthy forest stand that fosters enhanced wildlife habitat and proactive wildfire prevention
- Vegetation should be permitted to grow on and in front of highway structures and retaining walls to soften the presence of the highway structures as viewed from Key Viewing Areas
- Ground cover such as wildflowers should be allowed to penetrate the vertical plane of the guardrail
- Vegetation thinning for view enhancement of the river and landforms shall be aligned with the direction of travel and road curvature In order to maximize the viewing quality
- Vegetated areas disturbed by construction and maintenance activities should be re-vegetated with native species
- Vegetation clearing shall be done to provide views to waterfalls, geologic features (cliffs), river and cultural landmark features (Bridge of the Gods)
- Landscaping at rest areas, pullouts and roadside viewpoints shall reflect the natural environment through plant and materials selection
- Urban areas should be allowed to establish a landscape theme along the interstate corridor at interchanges and parallel to the travel lanes establishing an identity and aesthetically buffering the presence of the interstate from sensitive community areas
- Landscaping should be designed and established to screen undesirable views of roadside maintenance facilities, storage yards, weigh stations, and parking lots
- Landscape treatments should be brought as close to the highway edge as allowable while maintaining a safe clear zone. (list specific treatments)
- Special BMP landscape treatments should be designed and placed strategically to serve as water quality treatment prior to reaching and discharging into the Columbia River
- Integrated vegetation management practices (mechanical, biological, chemical and re-establishment) should be used to achieve vegetation management goals and comply with ecological and environmental concerns and regulations.
- Inventory rare plants, sensitive wildlife habitat, wetlands, or riparian areas within construction and maintenance project sites. If such resources are determined to be present, the project shall comply with applicable Management Plan policies and guidelines to protect the resources. (Plant survey was completed as part of the fencing plan)

- Noxious weed and undesirable non-native species shall be removed and areas be re-vegetated with indigenous stands of vegetation.

**ii. Wildlife Crossings should:**

*Design Objectives:*

- **reduce accidents** caused by animal crossings;
- **enhance connectivity** and value of terrestrial and aquatic wildlife habitat areas;
- **provide access under, over and along I-84** for wildlife corridors and crossings;
- **focus on controlled points of access** along the corridor;
- **proactively consider opportunities** to provide for wildlife access during the **early stages of projects**;
- **consider multi-use opportunities** to be integrated into the crossings

*Feature Guidelines:*

- Critical areas of concentrated wildlife movement should be identified and provision made for safe passage through and separated from the interstate travel way. **(Inventory of existing crossing locations needs to be compiled)**
- Design of fences shall be coordinated with provision for wildlife movements
- Separate wildlife crossings from pedestrian and bicycle trails
- Fences should not keep animals ON the highway
- Bridges crossing water bodies shall extend beyond the water body integrating streamside wetland and terrestrial landscape to provide for wildlife corridor
- New culverts must evaluate the possibility to accommodate wildlife crossings
- Wildlife shall be guided to designated crossing points where suitable habitat is available along the bank of the Columbia River
- Spans of new bridges should accommodate and culverts sized large enough to provide for opportunities for wildlife, bicycle and pedestrian passage

**iii. Retaining Walls should:**

*Design Objectives:*

- emulate the **materials and colors of adjacent geology** using the color palette selected;
- **emulate the natural surroundings** using one of the following general approaches:
  - Natural boulders
  - Terraced walls
  - Vertical structure
- be **visually integrated and blended** with the visual character of the natural setting;
- **minimize the observed disturbance** to natural landforms after the system is complete in place

*Feature Guidelines:*

Before selecting a retaining wall system, evaluate the use of a hillside viaduct or tunnel

The different applications of wall structures, whether as a part of the roadway structure or adjacent landscape, dictate a separate set of guidelines for attaining compliance with the CRGNSA scenic resources provisions. There are two situations where retaining wall systems may be employed:

- Integrated systems to support the roadway structure – mainline, transitions from bridges to on-grade continuance, off and on ramp transitions, etc.
- Independent systems separated from the highway for retaining natural slopes excavated to establish the highway platform – hillside retaining walls, landscape retaining walls, etc.

#### Guidelines for roadway structure retaining walls

- Retaining walls used within the roadway prism to support the functional structure of the highway should:
  - Deciduous Maintain architectural continuity and linear consistency of the highway structure in form, line, color and texture.
  - Retaining walls should appear to be extensions of structural elements, such as bridge abutments or road edge supports and not appear as stand-alone independent features within the corridor.

#### Guidelines for hillside retaining walls

- Situations where uphill retaining walls may be used:
  - Note situations when a wall against road is preferred to preserve features
  - Retain an existing non-interstate roadway, structure or landform outside of Interstate boundary – e.g. HCRH, existing residential structure resting upon an unstable landform above highway, etc.
- Hillside retaining walls used within urban-like built environments shall retain the architectural character of roadway-structure walls to reinforce the highway concept and maintain visual continuity with the highway's linear common elements.
- Grade between walls and edge of roadway or walls and walls should emulate natural grades in the adjacent landscape.
- The landscape area between the roadway edge and the retaining wall should retain the character of the immediate natural landscape above and beside the wall. The area should appear as extensions of the natural landscape features.
- Slopes between the roadway edge and retaining wall should be similar to the natural slope topography, but not be steeper than 2:1, unless specially treated and then can increase to a slope not steeper than 1.5:1. Re-establishing the natural slope angle between the roadway and retaining wall will dictate base elevation of retaining wall, which should be higher elevation than the roadway in an uphill situation.
- Natural materials should be used to construct uphill walls that are 12 feet or less in height.
- Taller walls systems should be broken into separate shorter terraced walls with integrated landscape.

- Undulations in wall top and base should follow general localized slope conditions, and not follow every undulation of the immediate ground plane.
- Handrails are required for wall systems that require maintenance

**Setback requirements (Update these setback requirements to be consistent with the ODOT vegetation management requirements)**

- Screening Retaining walls should be setback from the roadway edge a minimum of 5 feet, but preferred distance of 10 feet or more.
- First 6 feet is keep void of vegetation
- 30 foot clear zone
- Woody shrub vegetation should be setback a minimum of 5 feet from roadway edge
- Deciduous trees should be planted at a setback minimum of 15 feet from roadway edge.
- Coniferous trees should be planted at a setback minimum of 25 feet.
- Area within the 5-foot setback should be limited to seeding of grasses and forb species.

**Wall Types**

- Concrete gravity walls (cast-in-place or pre-cast)
- Tie-back walls (cast-in-place or pre-cast)
- MSE walls (includes architectural veneer)
- Battered rock walls
- Buttressed boulder rockery walls

*iv. Fences should:*

*Design Objectives:*

- **delineate Interstate Right of Way boundary** to restrict motorized and non-motorized access;
- **consider wildlife crossing objectives;**
- incorporate form, line, color & texture to **achieve visual objectives;**
- incorporate design elements of other linear features when it is not possible **blend with the natural landscape;**
- consider fence function as well as aesthetic qualities;
- evaluate means other than fences to **provide access control**

*Feature Guidelines:*

- Meet the FHWA requirement (**Is the goal to suggest a barrier or actually physically block people?**)
- Fencing project – fences covered with blackberries will remain as a barrier to humans;
- Fences should not be used or eliminated in areas where natural barriers prohibit uncontrolled motorized and non-motorized access to the interstate;
- **(Research elk/deer winter range requirements for fence permeability)**
- Fences should not be used or should be eliminated in areas where there are no people

- No fences where there is (Chicken Charlie Flats) – special designated use areas and scenery context
- Properly designed stone walls are suitable substitutes for fences to delineate highway ROW in areas within the CRGNSA where stone materials are commonly used for other purposes within the landscape.
- Fence design should be a reflection of the character of the CRGNSA and the overall design theme of the highway
- Fence compatibility shall be enhanced by incorporating materials that reflect the natural and cultural character of the CRGNSA and/or nearby structures or developments
- Where people will be in close proximity and can see the fences, they shall be human in scale and should not dominate views or points of interest (**one fence design?**)
- Fence design should not detract from or dominate the scenery along the highway, rather fence design and construction should compliment and add interest to the landscape
- Fences should have easily obtainable and affordable replacement parts for effective maintenance operations

**v. Signs and Gateway Treatments should:**

*Design Objectives:*

- provide clear signage to allow safe navigation of the corridor;
- mark entry into the CRGNSA with a gateway sign that shall be prominent, unique and attractive;
- follow a consistent appearance and theme throughout the CRGNSA

*Feature Guidelines:*

- Signs shall be easily recognizable and readable at highway speeds.
- All highway signs shall conform to ODOT/AASHTO clear zone and breakaway standards.
- Clusters of different highway signs shall be avoided.
- Placement and location of highway signs shall be consistent throughout the CRGNSA.
- Informational signs displaying weather and road conditions, upcoming accidents and wildlife on roadway shall be strategically placed throughout the CRGNSA.
- Sign nighttime reflectivity shall conform to ODOT/AASHTO standards
- The use of natural materials such as wood and stone in new and existing signs shall be increased and carried continuously throughout the CRGNSA
- Signs that display corporate identification or “branded” amenity signs shall be kept to a minimum and should display generic services rather than provider names
- Planning for the use of available and emerging GPS technologies to reduce the number of needed signs should be implemented
- Unnecessary and degraded signs shall be removed
- Informational and directional signage to and within urban areas should be increased for tourist awareness

**vi. Lighting should:**

*Design Objectives:*

- provide sufficient lighting for safe nighttime access to and from Interstate 84;
- avoid over-lighting and light pollution while meeting CRGNSA scenic guidelines;
- integrate with other visibility enhancements such as striping, reflectors and other safety markings

*Feature Guidelines:*

- Over-head lighting shall be kept to a minimum and used at key locations only (interchanges, parking lots, etc.)
- Parking lots shall be adequately illuminated to ensure user safety at night
- Reflectors shall be used in place of overhead lighting to increase night driving safety
- Light fixtures, poles and arms shall be constructed of weathering steel to visually blend with the landscape
- To avoid light pollution, parking lot lighting shall be between twelve (12') and fifteen feet (15') high. Fixtures shall be downward focused and horizontally shielded. Light intensity shall be between zero (0) and one-half (0.5) foot-candles.
- For pedestrian walkways, the preferred option is for low-level "bollard" or pipe-mounted fixtures that are fully shielded and down-directed

**vii. Culverts should:**

*Design Objectives:*

- coordinate design and placement with pedestrian, bicyclist and wildlife crossings as well as fish passage;
- integrate consistent materials and design themes used for other features;
- protect and enhance riparian areas through allowance of natural drainage patterns

*Feature Guidelines:*

- Special BMP landscape treatments should be designed and placed strategically to serve as water quality treatment prior to reaching and discharging into the Columbia River
- Culverts shall be adequately sized to handle 100-year flood-level flows
- Culverts visible to motorists and pedestrians shall have headwalls faced with stone.

d. OPERATIONAL FEATURES AND SUPPORT FACILITIES

i. **Rockfall Mitigation should:**

*Design Objectives:*

- **provide for safe travel** and meet the CRGNSA scenic resources policies, goals, and objectives;
- apply **treatment away from the highway** to minimize visual impact;
- **minimize alteration** of existing slopes;
- create slopes that **visually blend** with the natural surrounding terrain;
- minimize structural solutions in the immediate foreground;
- choose an **alignment that precludes the need for mitigation**;
- explore the **possibility of using a viaduct or bridge** to cross long sections of unstable rock or talus slopes

*Feature Guidelines:*

**(Note: decision tree to list preferred options in priority to be developed)**

Treatment at the source

- Preservation: Minimize rock fall potential by stabilizing the geologic feature while preserving its natural form and character
  - Rock bolting
  - Exposed hardware should be color treated to match the natural color of the rock feature being stabilized. Recessing rock bolts into rock face and epoxy cover\
  - Mesh shall not be visible in the landscape from KVA's and must meet scenic resource provisions of the CRGNSA Management Plan
  - Adhere mesh to landform to control small rock fall shall be (mesh as a way last resort)
  - Mesh should be color treated to match the natural color of the rock feature being stabilized.
- Modification: Minimize rock fall potential by stabilizing the geologic feature by modifying its form, but keeping the natural character of the surrounding landscape
  - Rock Scaling
  - Non-weathered rock faces exposed by rock scaling procedures are to be color-treated with rock stain (or other acceptable products) to match the natural coloring of the surrounding weathered rock.
  - Re-engineering the landform – horizontal drainage example
  - Landform re-grading/Rock sculpting Modified bedrock formations should be sculpted during rock excavation to visual correspond to stable natural landforms.
  - Benches should be designed to not increase rock-launching hazards.
  - Benches should have a graded slope with topsoil and revegetated with indigenous species matching the surrounding undisturbed terrain.
  - Non-weathered rock faces exposed by rock excavation procedures are to be color-treated with rock stain to match the natural coloring of the surrounding weathered rock.

- Unstable portions of the graded or rock sculpted landforms should be stabilized in a manner that retains the naturalized character of the new landform through scaling, rock bolting or other innovated methods that are consistent with the stated objectives.

#### Treatment between source and highway

- Rock fall mitigation treatments placed between the highway and the rock fall source should be concealed by blending the features in with the natural landscape.
- If visually blending the features in with the landscape setting is not possible, then the character of the rock fall feature should be consistent with the architectural character of other highway features such as uphill retaining walls).
- Upslope Landform Modification and Grading
  - Berming
    - Berms designed for the purpose of intercepting falling rocks should be graded to match the character of the surrounding natural landscape. New landforms should have topsoil placed and revegetated or other surface treatments to blend with the surrounding landscape.
    - Berms that do not take on a naturalized form should be hidden from view by landscaping or placement behind an existing visual barrier (hillside, forest vegetation, etc.)
  - Catchment ditch run out zones catchment landforms (seen , not seen)
    - Excavated catchment ditches designed for the purpose of intercepting falling rocks should be graded to match the character of the surrounding natural landscape. Catchment ditches should have topsoil placed and revegetated to blend with the surrounding landscape.
    - Catchment ditches that do not take on a naturalized form should be hidden from view by landscaping or placement behind an existing visual barrier (hillside, forest vegetation, etc.)
  - Strategic boulder placement
    - Boulders may be used to serve as rock fall impact barriers. Boulders should not be placed in rows, but in a manner that has a natural presence appearance.
    - Boulders used should be of the same type of rock naturally occurring within the immediate landscape.
    - Logs – fallen tree appearance
- Structural strategies
  - Chain-link netting
  - Deflector structures
  - Commercial fencing (torpedo fence)
  - Catchment wall

#### Treatment at highway

- Rock fall mitigation treatment at the highway should be physically integrated with highway structure and consistent with the highway's architectural character.

- Catchment ditch at highway
- Catchment fence or wall as extension of roadside barrier
- Bridge over allowing rock fall run out zone
- Reinforced roadside barrier wall with graded catchment ditch

Combination of treatments

Effective rock fall mitigation may require implementing a combination of the methods described. When prescribing the mitigation methods, the cumulative visual impacts should be considered rather than evaluating each structure or landform modification independently.

*ii. Viewpoints should:*

*Design Objectives:*

- **provide adequate rest areas and viewing locations** for travelers;
- provide **safe egress and ingress** from and onto Interstate 84;
- identify, preserve and provide access to prime vantage points to view the river and Gorge,

*Feature Guidelines:*

- Viewpoints should be consistent with Recreation Intensity Class zones – RIC 1 is a maximum of 10 cars (much of I-84 is in RIC-1, particularly in the Eastern Gorge
- Roadside viewpoints shall have adequate acceleration and deceleration lanes into them, and shall be far enough removed from the lanes of travel to provide maximum safety to sightseers
- For user safety, viewpoints shall be adequately illuminated at night
- Where possible, roadside viewpoints shall be buffered from the highway by vegetation and/or landforms
- Landscaping at viewpoints shall reflect the landscape setting in which they are located
- Where possible, roadside viewpoints shall provide pedestrians with riverbank access
- For pedestrian walkways, the preferred option is for low-level "bollard" or pipe-mounted fixtures that are fully shielded and down-directed
- Viewpoints shall be adequately illuminated to ensure user safety at night (see lighting guidelines)

*iii. Interpretive Signs/Exhibits/Historical Markers should:*

*Design Objectives:*

- provide educational and interpretive opportunities about, and increase awareness of, the unique historic, cultural, and natural resources of the corridor, including the historic and cultural assets of the local communities;
- assist visitor orientation to scenic viewpoints, recreation and interpretive sites through clear and aesthetically cohesive signing, while also avoiding sign clutter and unnecessary signing

*Feature Guidelines:*

*iv. Parking Lots should:*

*Design Objectives:*

- provide adequate rest areas and viewpoints for travelers;
- provide safe egress and ingress from and onto Interstate 84;
- create landscaping that follows existing Management Plan guidelines

*Feature Guidelines:*

- Motorists shall be adequately notified of approaching parking areas. Exits to parking areas shall be clearly signed
- Access to parking areas shall have adequate accel/decel lanes
- Parking lots shall be equipped with call boxes or similar emergency communication devices
- Parking lots shall be adequately illuminated to ensure user safety at night (see lighting guidelines)
- Parking lots shall be adequately landscaped using a native plant palette
  - Landscaped islands between parking rows are encouraged
  - Landscape islands that collect, filter and detain stormwater are especially encouraged
- Restrooms, interpretive displays and other facilities shall conform to the aesthetic standards of the CRGNSA. Use of natural materials in the construction of such facilities is required
- Where possible, parking areas shall be adequately separated and screened from the roadway by landscaping or structures constructed from natural materials

*v. Embankment Repair should:*

*Design Objectives:*

- maintain a natural appearance that does not stand out from other embankments;
- protect the shoreline from erosion;
- be designed to withstand anticipated river flows

*Feature Guidelines:*

- Embankment repairs shall not impair Native American fishing access
- Re-constructing embankments using material existing on-site shall be the preferred method of embankment repair
  - Should sufficient material not be available on-site, material shall be obtained from an established source
  - Sources that do not infringe on the viewshed from the roadway shall be used prior to sources that are visible to motorists

- Areas disturbed during embankment repair shall be revegetated to prevent erosion and weed invasion

*vi. Permanent De-Icing Systems should:*

*Design Objectives:*

- minimize their visual impact;
- be designed to adequately deal with extreme weather conditions

*Feature Guidelines:*

- De-icing systems shall not affect the flow of traffic;
- De-icing systems shall not attract the attention of the casual observer.

*vii. Truck Weighing Stations should:*

*Design Objectives:*

- minimize their visual impact;
- provide safe ingress and egress of truck & freight traffic;
- minimize the impact of water spray from vehicles;
- maintain existing screening and seek means to decrease visual impact of standing vehicles

*Feature Guidelines:*

- Adequate stacking distance shall be provided so that idling trucks are not blocking the right lane of the interstate.
- Where possible, truck weigh stations shall be adequately screened from the roadway by landscaping or structures constructed from natural materials.
- Weigh station buildings shall be painted with a tone that blends into the landscape setting.

*viii. Weigh-in-Motion Facilities should:*

*Design Objectives:*

- minimize their visual impact

*Feature Guidelines:*

- Weigh-in-motion facilities shall be shaped and colored so as not to attract the attention of the casual observer.

### **III. OTHER GUIDELINES**

Design of all features should meet FHWA, AASHTO and ODOT policies and standards.

Implement a coordinated, cooperative implementation program between local, State, federal, tribal, railroad, and private entities to meet the goals and objectives of the I-84 Corridor Strategy.

Encourage early collaboration between disciplines during project development.

Involve community representatives, tribes, special interest groups, land owners and managers and the general public throughout all stages of project planning, design, and development - from project inception through implementation.

Public acceptance of proposed improvement and maintenance projects shall be achieved through a structured and progressive process of review and approval.

Where possible, the “land between the lanes” should be recaptured providing a sense of landscape continuity transcending through the highway platform.

Features constructed of concrete and steel materials shall have the same color treatment through the CRGNSA.