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**Bridge Enhancements**

*Design Summary*

The reconstructed OR 214/219 bridge over 1-5 will be the most visually memorable aspect of the interchange. The railing design should consider what most travelers will notice from I-5 which are bold forms, colors, and attractive lighting. Decorative fencing will be designed to suggest the rolling hills that characterize much of the valley.

Design of the decorative fencing will carefully balance integration of the ODOT required protective fencing, the arches and the aesthetic lighting.

*Context Sensitive and Sustainable Solutions (CS³) Design Concept*
Panel System

- 12’ panel system allows for each panel to be fabricated, finished (painted or galvanized) as one piece, brought to the site and quickly installed with little on site welding.
- If a panel is damaged it can easily be removed and replaced.
- The highest point of the fence reaches 12’-8” above the top of sidewalk (10’ above the top of bridge rail).

Notes: The dimensions on the four end panels may vary once exact bridge rail dimensions are known. 35 panels per side for a total of 70 panels.
**Bridge Rail Modifications**

- Height extended from 2’-7” to 2’-8”
- Top widened by 3”
- Painted 1” relief stripe added

Note: These bridge rail modifications have already been accepted by ODOT.
Arches

- 3” or 4” steel or aluminum attached to barrier and connected to large vertical support.
- Galvanized, painted, or sandblasted with clear coat.
- Finishes selected to balance daytime and nighttime appearances.
Large Vertical Support
- 3” or 4” steel attached to barrier plate, spaced 12’ on center.
- Galvanized, painted, or sandblasted with clear coat.

Small Vertical Support
- 1” steel attached to large vertical support.
- Galvanized, painted, or sandblasted with clear coat.
Fence - Mesh

Mesh Frame
- Attaches to large vertical support.
- Removable panels for all 1”x1” mesh allows for easy maintenance of lighting and electrical.
- Galvanized, painted or sandblasted with clear coat.

Mesh Panel
- 3”x3” welded wire mesh panel attached to mesh frame.
- 1”x1” welded wire mesh panel attached to mesh frame.
- Galvanized, painted or sandblasted with clear coat.
**Up Light**

- Illuminates large and small vertical supports.
- Attached to top of bridge rail between arch and large vertical support.
- Requires approximately 4” of horizontal space between the arch and large vertical support.

Note: The lighting consultant is creating realistic graphic lighting studies with computer software programs. Once these studies are completed we will send them along as part of this concept report.

The **DynaGraze Exterior** is a high power, white LED, outdoor linear fixture. Available in 1’ and 4’ sections, it offers smooth linear dimming with ELV modules and 1-100% with most commercially available TRIAC dimmer. Featuring class-leading output, robust housing, LSF filter options, and a glare shield, it is the perfect option for any structure that calls for outdoor linear grazing.

Note: Preliminary lighting options are subject to change
Bridge Enhancements - Circuitry Options for Enhanced Lighting

- **Preferred: Raceway in External Channel**
- **Conduit in Bridge Rail**  
  (Modification of standard details probably required)
- **Conduit in Sidewalk**  
  (Modification of standard details probably required)
Roadway Light

- Architectural treatment of luminaire base, two options:
  - Add 1” painted concrete relief treatment shown on the bridge rail to the luminaire base. (Preferred)
  - OR paint the stripe directly on the concrete luminaire base.
- The proposed 1”x1” mesh removable panel should be sufficient for maintenance access to the luminaire base and/or metal luminaire pole.
- The luminaire base can horizontally shift a few feet in either direction, to aesthetically align with the railing/fencing design as necessary.
Sign Support Structures

Background

As part of the CSS aesthetics enhancements for the I-5 Woodburn Interchange Project, the Aesthetic Advisory Panel for the City of Woodburn asked if the required bridge type sign supports at each end of the highway over crossing could be fabricated with designs more complementary to the themes developed for other elements of the project. The proposed design provides a simple configuration while still striving to meeting stringent ODOT technical and structural requirements. Our intent is not to mimic or duplicate elements of the decorative fencing or landscaped areas. Those are the primary design elements. Our intent is to complement those elements without drawing attention away from them, and toward sign bridge structures that are inherently limited with regard to their visual appeal.

Baseline Design Conditions

Reconstruction and widening of the existing highway bridge will require two new bridge sign support structures at the interchange over crossing. The structures are located near the ends of the highway bridge and will support signage over the through lanes and left hand turn lanes (see View Looking North).

Proposed Sign Support Enhancements

The proposed aesthetic enhancements include an alternative configuration for the bridge sign supports and a galvanized steel finish for the steel tubing that will complement certain elements of the bridge fencing. Corten (weathering steel) was considered as a structural tubing material in order to visually link these structures to the weathering steel in the landscaped areas. However technical concerns of ODOT engineers ruled it out as an acceptable substitute for galvanized steel. The configuration has a span consisting of two curved rectangular steel tubes, one above the other and connected by vertical posts. The curved tubes of the span are complementary to the graceful arches of the bridge fence and have a simple, uncluttered appearance. The end posts are square or rectangular tapered steel tubes. ODOT and the CSS design team have decided that the third sign bridge, located near Evergreen Road and the planned transit facility, will also use this enhanced design and will be part of the Gateway Design.
Sign Support Structures

View Looking West

View Looking North
Loop Ramp Landscape Enhancements

Design Summary

The landscape areas enclosed by the new ramp system provide over three acres of opportunity for landscape enhancements. Gently curved lengths of weathering steel will form low terraces, planted with hardy and drought tolerant trees, shrubs and groundcover.

The landscape areas respond to the safety and operational needs of the roadway identified through ODOT technical review including; maintaining clear sight lines by limiting the number of fixed objects which could be struck by vehicles, integrating stormwater swale locations and size, and finally planting modifications that respond to the terraces, sign bridge footings and the BPA corridor.

With further understanding of all the roadway elements and boundaries, the original design concept has been refined showing conceptual terrace layout, grading based on existing contours, and planting designed to enhance the landscape terrace walls. The grading concept may be further refined to reduce the amount of fill material required.
Legend:

1. Proposed Landscape Terraces
2. Existing Grading (Dashed Line)
3. Proposed Grading (Solid Line)

Note: This conceptual grading plan is based on the DAP plans grading. The earthwork concept and grading will be updated for the Preliminary Plans when updated contour files are available.
South Loop Ramp Conceptual Planting

Legend:
- 5’ or Taller Plants
- 5’ or Shorter Plants
- 2-3’ Plants
- 1-2’ Plants
- Groundcover + Shrub Groupings
- Deciduous and/or Evergreen Trees

Note: This planting scheme assumes proposed landscape walls ranging from 3-5’ tall, planting heights will be adjusted to properly show off landscape terraces as the conceptual design is refined.
Cross-section A

This cross-section shows conceptual ideas about integrating the terrace walls into the slope. The walls will be either freestanding or slightly retaining depending on grading and desired effect. Plant material size, shape, and texture will be chosen to enhance the landscape terrace walls and will include hardy trees and shrubs varying in height from groundcover to 5-feet tall.

Legend:

1. Proposed Landscape Terrace Walls
2. Potential Grading Concept (Freestanding)
3. Proposed Grading Concept (Retaining)
4. Plant Material (Trees, Shrubs & Groundcover)
5. Drainage (Pipe or Weep Hole)
Legend:

1. Line of Sight (Bridge Shadow)
2. BPA Corridor
3. Tall Concrete Shoulder Barrier
4. Impact Attenuator
5. Edge of Asphalt
6. Sign Bridge Footing
7. Proposed Bridge Rail Pilaster (End of Fencing)
8. Proposed Landscape Terraces
9. Concrete Sidewalk
10. Manhole/Inlet
11. Stormwater Swale (Coordinate with ODOT)
Note: This conceptual grading plan is based on the DAP plans grading. The earthwork concept and grading will be updated for the Preliminary Plans when updated contour files are available.
North Loop Ramp Conceptual Planting

Legend:
- 5’ or Taller Plants
- 5’ or Shorter Plants
- 2-3’ Plants
- 1-2’ Plants
- Groundcover + Shrub Groupings
- Specimen Shrub

Note: This planting scheme assumes proposed landscape walls ranging from 3-5’ tall, planting heights will be adjusted to properly show off landscape walls as the conceptual design is refined.
Cross-section B

This cross-section shows conceptual ideas about integrating the terrace walls into the slope. The walls will be either freestanding or slightly retaining depending on grading and desired effect. Plant material size, shape, and texture will be chosen to enhance the landscape terrace walls and will include hardy shrubs varying in height from groundcover to 5-feet tall.

Legend:

1. Proposed Landscape Terrace Walls
2. Potential Grading Concept (Freestanding)
3. Proposed Grading Concept (Retaining)
4. Plant Material (Shrubs & Groundcover)
5. Drainage (Pipe or Weep Hole)
Introduction:
The aesthetic values of this weathered and textured material, and more importantly, the practical values of Weathering Steel make this steel particularly useful for applications where strength, ease of fabrication and appearance are paramount.

Design Considerations:
Weathering Steel has a unique, natural oxide coating that when fully mature is dense, tightly adherent and relatively impervious to further atmospheric corrosion. Minor damage to this oxide coating heals itself, therefore, maintenance is greatly reduced.

Bare Weathering Steel is suitable for many atmospheric environments, including moderate industrial and select marine exposures. It is compatible with other construction materials -brick, stone and wood - when appropriate details are incorporated in the design.

The Weathering Process:
Alloy content and environmental condition are key factors influencing the formation of an oxide film on steel. Under appropriate atmospheric conditions, Weathering steel develops a durable, tightly adherent protective oxide coating. The appearance, texture and maturity of this coating depend on three interrelated factors: time, degree of exposure and atmospheric environment. With time, the oxide coating changes from a “rusty” red-orange to a dark purple-brown patina. The moderately rough texture becomes more distinct as the coating thickens. The weathering process extends over a period of time.

For the full article visit: http://www.aisc.org/WorkArea/showcontent.aspx?id=17894
Soundwall

Design Summary

Soundwalls will be constructed of colored block materials that make them more attractive, a significant enhancement for the gateway. The soundwall block color, pattern and panel variation has been further refined based on technical design review. The soundwalls may also be a unique opportunity to view public art, which may be coordinated and attached by the City of Woodburn after the walls are constructed, with ODOT approval.

**Conceptual Block Pattern per Panel:**
- 20% Terracotta
- 20% Merlot
- 20% Sable
- 40% Grey

**Conceptual Block Pattern per Pilaster:**
- 10% Terracotta
- 90% Midnight

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**Block Pattern Variation Breakdown Per Pilaster:**
- Terracotta Blocks: 2 total per pilaster
  - (1) 4”x16”x16” cap block
  - (1) 8”x16”x16” standard block
- Midnight: 20+\ 8”x16”x16” standard blocks per pilaster
Block Pattern Variation Breakdown Per Panel:

- Terracotta Blocks: 42 total per panel
  - (2) 4”x8”x16” cap blocks
  - (38) 8”x8”x16” standard blocks
  - (2) 8”x8”x8” half blocks

- Merlot Blocks: 42 total per panel
  - (2) 4”x8”x16” cap blocks
  - (38) 8”x8”x16” standard blocks
  - (2) 8”x8”x8” half blocks

- Sable Blocks: 42 total per panel
  - (2) 4”x8”x16” cap blocks
  - (38) 8”x8”x16” standard blocks
  - (2) 8”x8”x8” half blocks

- Grey Blocks: 84+\- per panel

12 Panel Alternation:

- Repeat this sequence of 12 block panel variations X number of times per length of soundwall.
Mural Wall Panel Addition:

- Aluminum mural panels may be fastened to the soundwall after the wall is built, subject to structural and weight limitations approved by ODOT.
- Shape, size and location will be determined by the City working with the artist.
- It is recommended that an architectural engineer be consulted when installing panels.
- Two options for installing panels to be determined by the City working with the artist:
  - For simple installs on brick, generally 1 ½ inch stainless steel flat head screws with nylon Mungo plugs are used. The screws are placed at 16” intervals around the perimeter and 32” intervals in the middle of each panel.
  - Create a framework of 16” centred steel or wooden studs that are secured to the wall by specially engineered brackets, epoxy and steel rods. The mural is then secured to the frame using appropriate stainless steel screws or rivets.

Mural Wall Option - Potential Addition by the City of Woodburn at Future Date

This Mural Wall Option is subject to ODOT approval.

Employment Ontario Mural Project Example, funded by the Ontario Government in partnership with the City of Windsor and various local Business Improvement Associations.

The potential use of ODOT structures, such as soundwalls, for public art or communication raises some policy and legal questions. These questions are part of high-level, on-going discussions between ODOT and the City of Woodburn. A final determination about public art has not been made at this time.
**Drainage Swale - Southwest Quadrant**

**Proposed 2’-4’ Tall Wall with Access Fence**

**Ordinary High Water Line**

**Existing Property Line**

**Access Fence**

Note: Access fence will be a black coated chain link fence with a top rail.

**Design Summary**

Visually enhancing the look of this east-facing embankment, visible from 1-5 and the southbound off-ramp, is a part of the overall gateway design. Careful coordination between wall location, grading restraints, and limitations set by the existing stormwater swale have been considered in the design of this wall.
Note: Access fence will be a black coated chain link fence with a top rail.
The CS3 Design Concept Report included the development of streetscape elements at two intersections: 1) OR 214 and Evergreen Road; and 2) OR 219 and Woodland Avenue. Those elements were decorative signal poles, and special paving treatments at crosswalks and the intersection sidewalks.

**Special Paving Treatments at the Transit Center Sidewalk:**
During ODOT technical review it was identified that coloring and texturing the sidewalks near the transit center to match the transit center platform pavement would be an appropriate streetscape improvement element. Sidewalk finishes and transit center platform finishes will be complementary.

**Special Paving Treatments at Crosswalks:**
During ODOT technical review concerns were raised about the durability of concrete crosswalks at the two intersections. Other concerns were related to the construction of the crosswalks within the roadway, and the cure time required for the concrete. Both aspects would complicate traffic management during construction, potentially aggravating already difficult conditions for local traffic. Specialty paved crosswalks will not be part of the Gateway Design.

**Decorative Signal Poles:**
These design elements would not add a high-value aesthetic enhancement to the gateway. Additional maintenance responsibilities would have to be assumed by either ODOT or the City of Woodburn, and we are trying to minimize additional maintenance and strategically focus the construction costs of aesthetic enhancements. Decorative signal poles will not be part of the Gateway Design.
Maintenance of the Gateway Elements

Maintenance of the gateway elements will be important in preserving their aesthetic qualities and creating an attractive I-5 gateway for Woodburn. Good maintenance often rises to the top as something people notice and find attractive. While maintenance alone will not create a perception that the gateway design is attractive, irregular or neglected maintenance can diminish the public appreciation of the gateway.

ODOT and the City of Woodburn both understand the need for adequate maintenance and have reached an agreement with regard the maintenance expectations and responsibilities that will be reflected in an Intergovernmental Agreement (IGA). The IGA will be presented to Woodburn City Council for approval in October or November of this year.