



I-74 IOWA/ILLINOIS CORRIDOR STUDY
AESTHETIC DESIGN GUIDELINE
April 6, 2009

Prepared for:

 Iowa Department of Transportation

 Illinois Department of Transportation



I-74 AESTHETIC DESIGN GUIDELINE

Corridor Aesthetics

The Illinois and Iowa Departments of Transportation (DOT) and the I-74 Advisory Committee are committed to strengthening the cultural and environmental value and the aesthetic interest of the I-74 Corridor.

The consultant design team, working with the advisory committee and the DOT, organized and facilitated a local group of stakeholders who were charged with assisting the design team in developing priorities and concepts for I-74 corridor aesthetics. This group reported to the Advisory Committee and ultimately, to the DOT, and was identified as the Corridor Aesthetics Advisory Team (CAAT).

Members

CAAT members assisted the I-74 consultant design team and the Iowa and Illinois DOTs in establishing appropriate, affordable and constructible aesthetic improvements for the corridor. These members participated in several coordination meetings and design review sessions and provided vital input and feedback.

Representation

The CAAT members are representatives of the Quad City community who were selected to represent various stakeholder interests centered on the I-74 corridor. This list of stakeholder representation with membership is illustrated on the right.

Corridor Aesthetics Advisory Team (CAAT)

City Representatives

(Moline, Bettendorf, Davenport)

- Stan Leach (Moline)
- Bob Leaf (Moline)
- Randall Nelson (Moline)
- Bill Connors (Bettendorf)
- Gene Hellige (Davenport)
- Darrin Nordahl (Davenport)

Bi-State Representative

- Gena McCullough

Chamber of Commerce / Business

Organizations

- Scott Tunnicliff (Bettendorf Chamber)
- Nicole Christian (Davenport One Member)
- Rick Baker (Illinois QC Chamber)

River Action Representative

- Kathy Wine

Community Representatives

- Joe Taylor (QC Convention and Visitors Bureau)
- Keith Hall (Bettendorf)

Design Consultants

- CH2M Hill
- RDG Planning & Design
- Jacobs Engineering Group
- Rosales + Partners

Department of Transportation (DOT) Staffs (Iowa, Illinois)

- Cathy Cutler - Iowa DOT
- Mark Masteller - Iowa DOT
- Kimball Olson - Iowa DOT
- Donna Matulac - Iowa DOT
- Lisa Biggs - Iowa DOT
- Douglas Rick - Iowa DOT
- Derrick Lopez - Illinois DOT
- Becky Marruffo - Illinois DOT
- Andy Wilson - (Federal Highway Administration)



Figure 0.1 – Existing Memorial Bridge



Figure 0.2 – Existing I-74 Corridor, South Bound Bettendorf



Figure 0.3 – Existing I-74 Corridor, North Bound Moline

The information presented in this report represents a conceptual level plan for aesthetic enhancement of the I-74 Corridor Study. As the project progresses through the final design phase, the concepts may change and evolve. This document is a framework for that future development, which may include additional public involvement and local cost sharing arrangements to help target the final design characteristics. As such, all illustrations shown are conceptual and are subject to further study and cost analysis based on available funding sources. The level of aesthetic enhancements identified in the plan and implemented in the built project will be dependent on the amount of local contributions that are provided for these items. The Iowa and Illinois DOTs cannot fund all of the enhancements through basic project funds-- and will need local financial support to incorporate many of the design ideas identified.



I-74 AESTHETIC DESIGN GUIDELINE

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Figure 0.4 - Existing Memorial Bridge

* Images from the publication *On the Road Again...an Exhibit of Creative Transportation Design*

SECTION 1 - ORIENTATION

Introduction

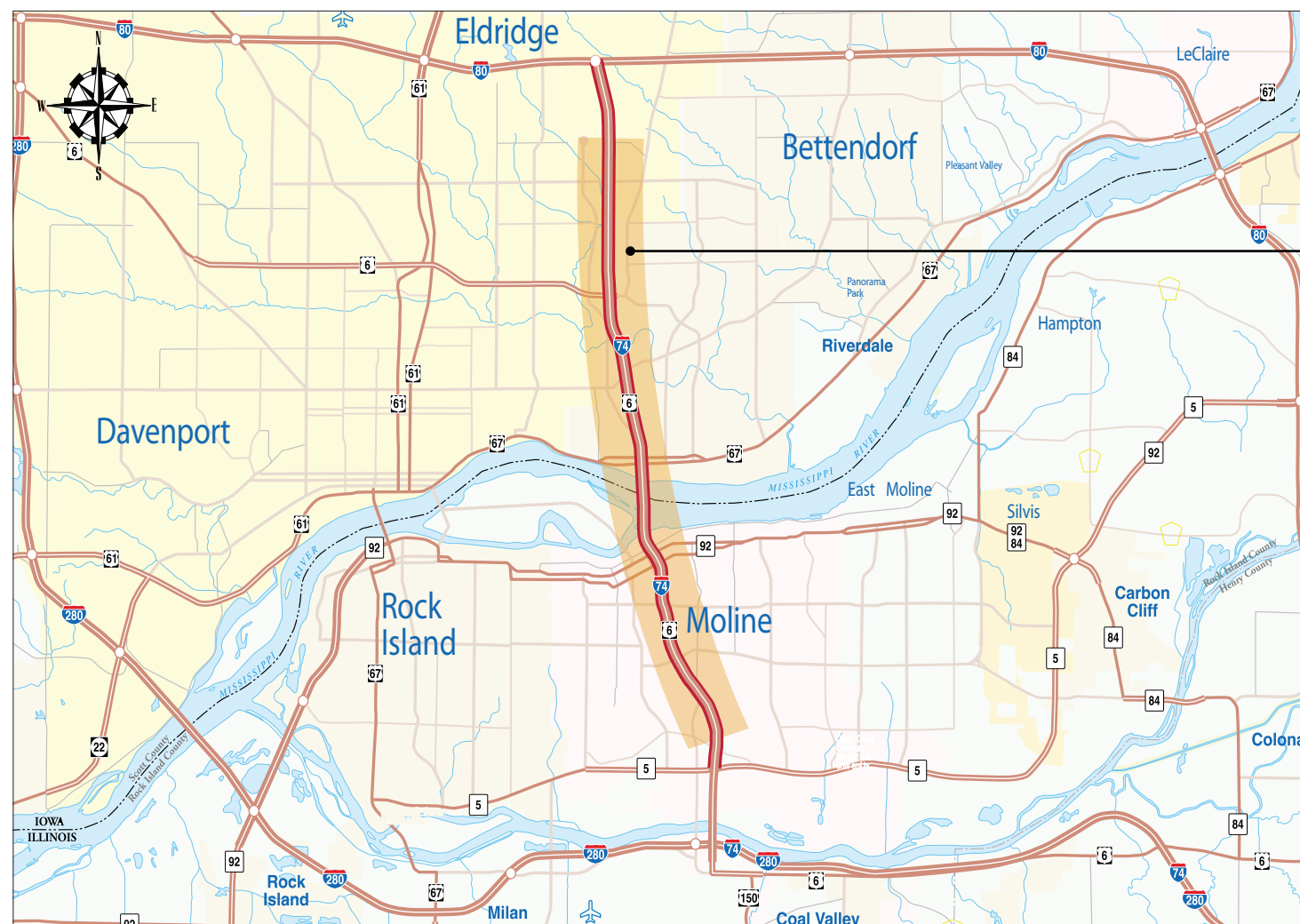


Figure 1.1 – Corridor Study Area

Corridor Study Area

As illustrated in Figure 1.1, the I-74 corridor aesthetics study area stretches from Davenport and Bettendorf, Iowa across the Mississippi River to Moline, Illinois. Specifically, the limits of the area are approximately one mile north of 53rd Street in Bettendorf, Iowa to just south of the Avenue of the Cities in Moline, Illinois.

Corridor Zones

The existing I-74 corridor is comprised of distinct 'zones' (see Figure 1.2). These zones are delineated by viewsheds, land uses and physical attributes.

Determining the various zones of the I-74 Corridor involved several criteria. The first criteria was viewsheds which were determined by the analysis of topographic maps, aerial photographs and by on site assessment. The second criteria was the current land uses within the corridor, which was determined by existing land use mapping. The final criteria was the physical

Corridor
Study Area

attributes of the corridor which were determined by evaluating aerial photographs, driving the corridor and researching maps of the area.

Specific recommendations for each zone are not within the scope of this corridor aesthetic process, but the uniqueness and context of each zone guided the overall recommendations.

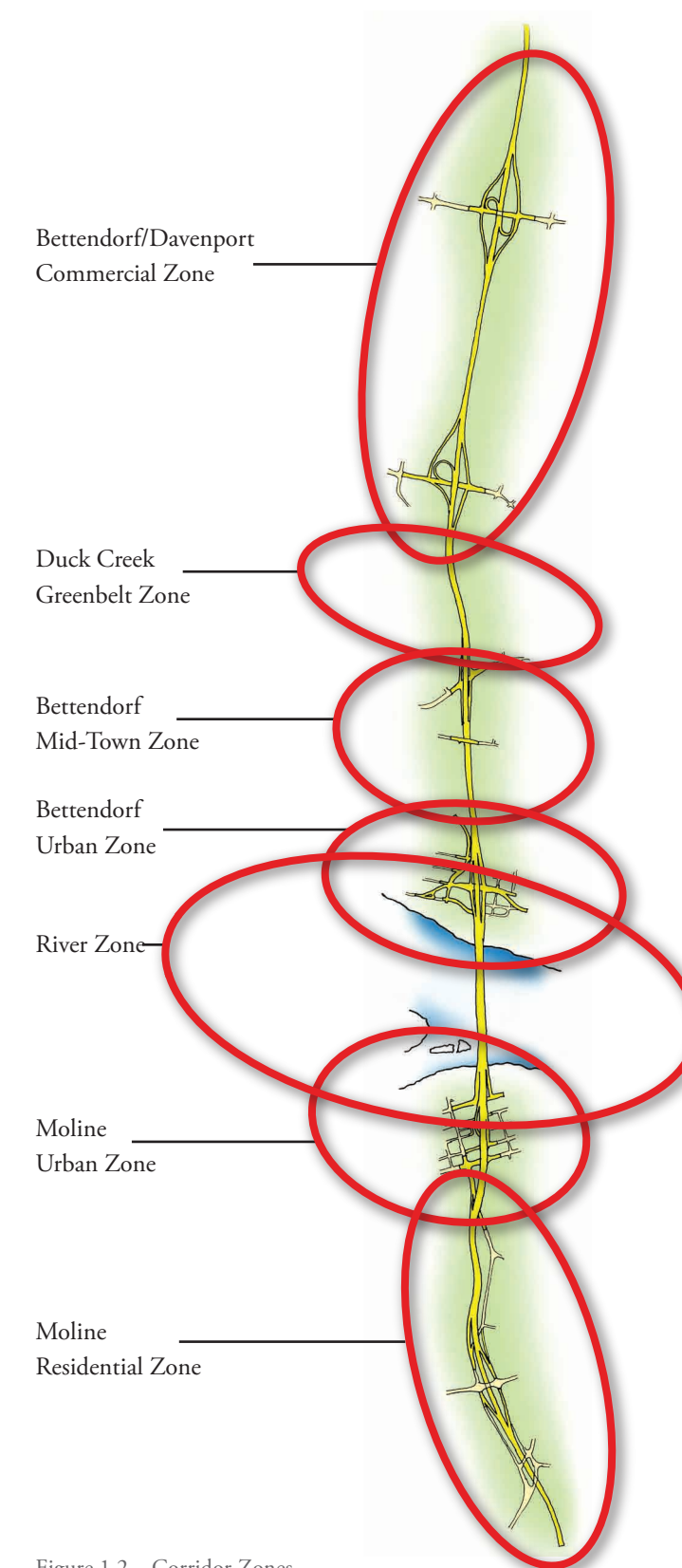


Figure 1.2 – Corridor Zones

SECTION 1 - ORIENTATION

Introduction

Corridor Aesthetics Overall Process



Figure 1.3 Corridor Aesthetics Overall Process

Purpose

The I-74 Aesthetic Design Guideline (ADG) document has two primary goals:

- To establish and identify an overall design theme
- To prioritize enhancement opportunities within the framework of corridor elements

The recommendations of this report have been developed based on an “unconstrained” framework for future corridor-wide enhancements. Future funding availability, along with the recommendations of this report, will guide the final design process.

ADG Future Uses:

This document is intended to be used as a reference to future processes in the following ways:

- Guidance for I-74 final design teams
- Reference document for future local community redevelopment initiatives
- Inspiration for identification and development of other I-74 corridor aesthetic enhancement opportunities

Process

As illustrated in Figure 1.3, the overall process for corridor aesthetics began traditionally with inventory and identification of potential aesthetic applications. The ADG does not document all the reports and presentations related to these early design stages, but has incorporated these efforts into the design theme, guiding principles and prioritized enhancements shown on the following pages of this report. The I-74 final design phase will incorporate these recommendations into the project.

The consultant design team and representatives of the DOTs have worked with the CAAT members to facilitate community input and have helped develop recommendations for improving I-74 corridor aesthetics. CAAT recommendations have been advanced to the I-74 Advisory Committee for review and endorsement. Both DOTs have reviewed the CAAT recommendations and have endorsed the contents of this report.

Figure 1.4 illustrates the status of corridor aesthetic design development. As of the date of this report, aesthetic design is approximately 50% complete. Future detailed design, cost evaluation, feasibility and prioritizations all need to occur for this process to be successfully completed.

Corridor Aesthetics Scope and Status

I-74 CORRIDOR AESTHETICS SCOPE & STATUS							
Guiding Forces or Theming	Opportunity Discovery	Design Integration "Conceptual"	Corridor Wide Prioritization	Design Integration "Detailed"	Cost Evaluation & Prioritization Update	Final Design	Construction
Current Scope & Process				Future Scope & Process			
✓	✓	✓	✓				

Figure 1.4 Corridor Aesthetics Scope and Status

SECTION 1 - ORIENTATION

Guiding Principles

Water . . . Connections . . . Motion . . . Flow . . . Twin . . . Waves



Figure 1.5 Embracing Hands

Corridor Theme and Design Concepts

A corridor theme is “authentic, inherent characteristics of the local region capable of being articulated within practical elements of the corridor.” The I-74 Corridor theme focuses on the term “reflections” which is symbolized by two states, multiple communities and countless initiatives working across the river and throughout this corridor to reflect shared values and a unified image.

The design process evaluated several conceptual frameworks or approaches for aesthetics within this corridor including: sustainable design, artful collections, thresholds, the first glimpse of the river, the mystique of the river, a planting focus and a familiar approach.

Feedback from the CAAT members identified a need to consider all these frameworks or approaches. Through more dialogue and evaluation, two became primary: the river mystique and thresholds.

Design Concepts

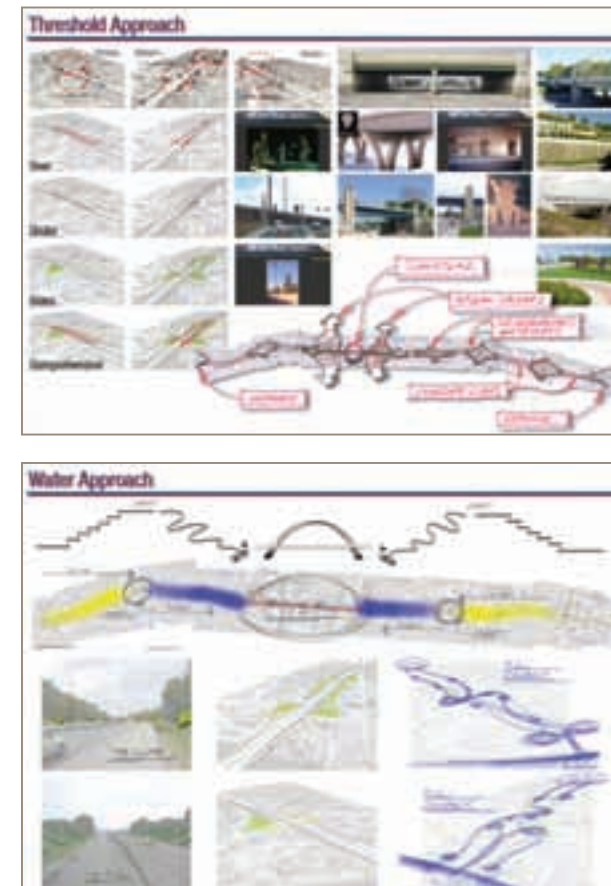
Proposed Design Concepts were advanced based on these two primary design frameworks or approaches:

River Mystique:

Integration of river-based characteristics into enhancement designs.

Thresholds:

Celebration of the shared experiences found throughout the corridor: two states, multiple communities and diverse neighborhoods.



The two dominant curves of the Mississippi River adjacent to the I-74 corridor, symbolized by two hands embracing, offers inspiration to shapes and forms rehearsed within corridor elements.



Figure 1.6 - Conceptual “Approaches”

SECTION 1 - ORIENTATION

Guiding Principles

Water . . . Connections . . . Motion . . . Flow . . . Twin . . . Waves



Figure 1.7 - User Experience - "Anticipation"

User Experience

The experience of traveling a roadway in anticipation of seeing and ultimately crossing the Mississippi River is etched in the minds of millions. This increase in intensity of experience or "anticipation" effect gives priority and structure to the geographic distribution of proposed corridor enhancements. An increase in quantity and significance of enhancements culminating at the Mississippi River crossing is a recommendation of the ADG and is graphically depicted in Figure 1.7.

Context

As illustrated in Figure 1.8, each of the Corridor Zones possess unique characteristics. Enhancements can be incorporated at the local level in each of these seven areas adjacent to I-74 to reflect the qualities of respective zones while reflecting the overall I-74 experience.

Safety, Affordability, and Constructability

Corridor aesthetic enhancement recommendations for the I-74 corridor are based on the design team and DOT staff's working knowledge of safety and constructability standards. In addition, the affordability and maintenance of enhancements has influenced the design recommendations.

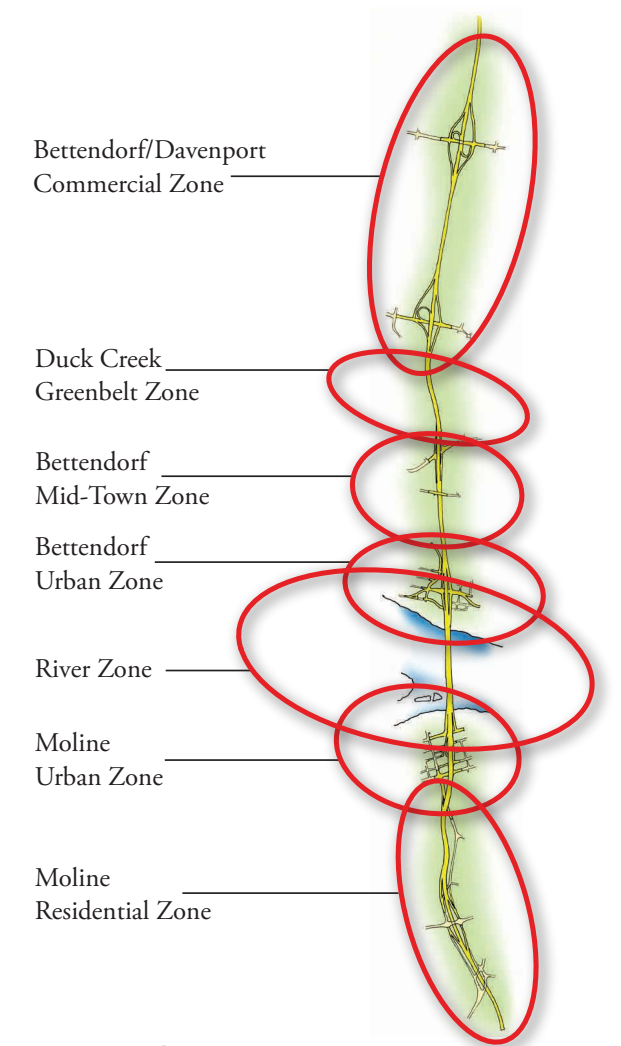


Figure 1.8 - Context Map

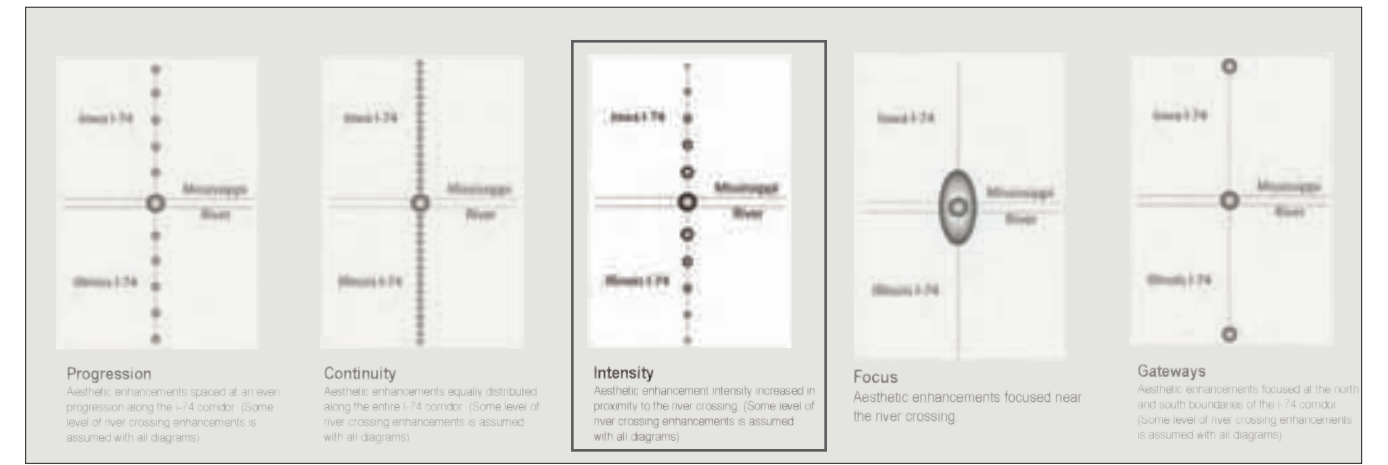


Figure 1.9 - Studies of Various User Experiences

SECTION 1 - ORIENTATION

Scope



Figure 1.10 - Overpass Bridge at the Avenue of the Cities, Moline

Bridge Aesthetics

The ADG addresses bridge-related enhancement opportunities throughout the I-74 corridor. Excluded from this document are specific recommendations for the Mississippi River crossing bridge (see Section 2 for more details).

Bridge Types and Enhancement Opportunities

Both overpass bridges (local road bridges passing over I-74) and mainline bridges (I-74 bridges passing over local roads) provide a variety of aesthetic enhancement opportunities. Figures 1.10 and 1.13 depict existing I-74 overpass bridges while Figures 1.11 and 1.12 depict existing I-74 mainline/underpass bridges.

For each type of bridge, the most feasible opportunities for aesthetic enhancement center around specific elements of the bridge. The ADG identifies these

specific elements with conceptual recommendations and options depicted via illustrative graphics and supporting descriptions.

The opportunities have been prioritized by the CAAT members to guide future implementation as funding becomes available. This prioritization is reflected in the following list of bridge aesthetic enhancement opportunities:

- Pedestrian Railings (highest priority)
- Bridge Abutments
- Bridge Piers
- Bridge Lighting (lowest priority)



Figure 1.11 - Mainline/Underpass Bridge, Moline



Figure 1.12 - Underpass Bridge at 19th St. & I-74, Moline



Figure 1.13 - Overpass Bridge at 27th St., Moline

SECTION 1 - ORIENTATION

Scope



Figure 1.14 - Example of Barriers and Sign Truss

Roadway Structure Aesthetics

The ADG addresses roadway structure related enhancement opportunities throughout the I-74 corridor. Specific opportunity areas identified within the ADG range in scale from large retaining walls to sign trusses and roadway barriers.

The opportunities have been prioritized by the CAAT members to guide future implementation as funding becomes available. This prioritization is reflected in the following list of roadway structure aesthetic enhancement opportunities:

- Retaining Walls (highest priority)
- Soundwalls
- Barriers
- Sign Trusses (lowest priority)



Figure 1.15 - Example of Sign Truss

Landscape Aesthetics

The ADG addresses landscape-related enhancement opportunities throughout the I-74 corridor. Specific opportunity areas identified within the ADG range in scale from earthwork to public art.

The opportunities have been prioritized by the CAAT members to guide future implementation as funding becomes available. This prioritization is reflected in the following list of landscape aesthetic enhancement opportunities:

- Planting (highest priority)
- Public Art / Landscape Lighting
- Earthwork / Fencing (lowest priority)



Figure 1.16 - Example of Landscape and Sound Walls



Figure 1.17 - Example of ROW Fencing



Figure 1.18 - Example of Retaining Walls

SECTION 2 - CORRIDOR WIDE ENHANCEMENT FRAMEWORK

Mississippi River Crossing



Figure 2.1 – Selected Signature Bridge

Background

The Mississippi River crossing bridge type selection process preceded the advancement of the corridor aesthetics process, the CAAT process and the development of the ADG. Iowa and Illinois DOTs have recommended the advancement of Basket Handle true arch twin bridges. This recommendation and conclusion to the bridge type selection process allowed project stakeholders to move forward and focus on the I-74 transportation corridor aesthetics.

ADG Process

As the corridor aesthetics process moved forward, the selected bridge type guided and reinforced several corridor aesthetic framework ideas and many conceptual design ideas for aesthetic enhancements.

The contemporary, clean and curved forms of the selected signature bridge are reflected in many of the conceptual recommendations for the corridor enhancements.



Figure 2.2 – Selected Signature Bridge

SECTION 2 - CORRIDOR WIDE ENHANCEMENT FRAMEWORK

Mississippi River Crossing

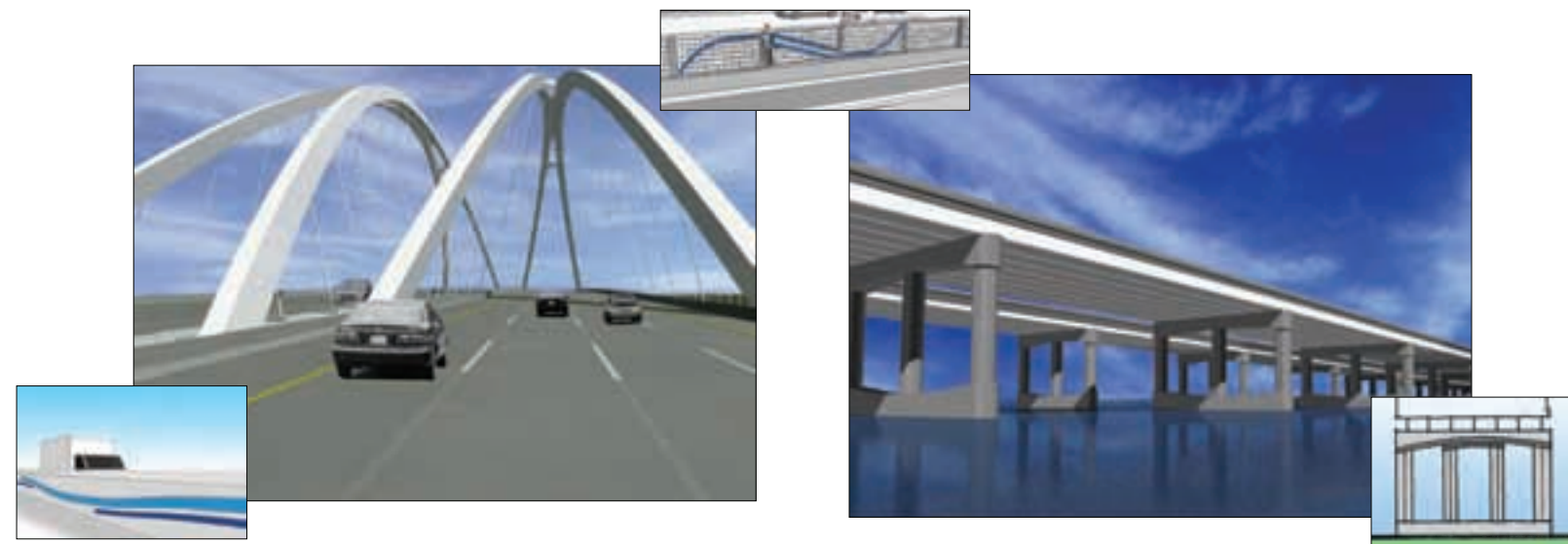


Figure 2.3 – Examples of Additional Design Coordination Necessary

Design Initiatives

Aesthetic designs for both the Mississippi River crossing and the overall corridor will require parallel development and close coordination at a variety of levels. Some design efforts have already incorporated such coordination, including the shaping and overall aesthetic features of bridge and viaduct piers.

Preliminary images and concepts are illustrated as Figures 2.3-2.6, with the following recommendations intended to guide future design efforts:

River to Land Based Pier Recommendation:

- Design Continuity
 - Curved or arched cap soffit for all piers
 - Curved or “bull-nosed” outside column edges
- Flexible Configurations for Land Based Piers
 - Multiple column options

- Appropriate Scale
 - Minimize column and cap sizes to maximize visibility

Additional Design Coordination

CAAT members suggested several areas of additional design coordination between the Mississippi River crossing and the remainder of the corridor. These include the following:

- Bridge arch aesthetic lighting
- Pedestrian railing along the proposed trail
- Barrier enhancement along bridge edges
- Continued pier design coordination



Figure 2.4 – Signature Bridge/Pier Shape



Figure 2.5 – Signature Bridge/Pier Shape

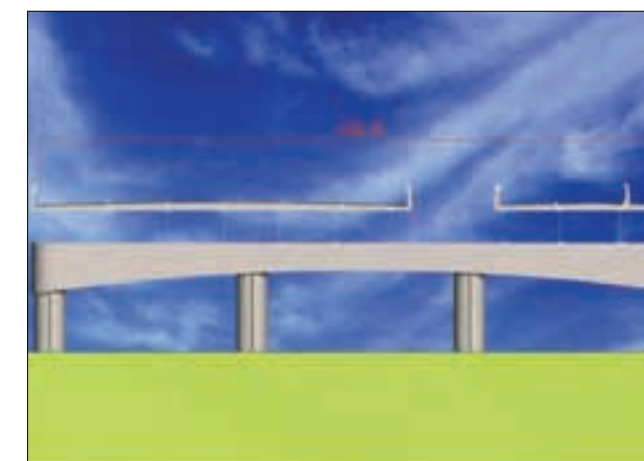


Figure 2.6 – Signature Bridge/Pier Shape

SECTION 2 - CORRIDOR WIDE ENHANCEMENT FRAMEWORK

Thresholds and Threads

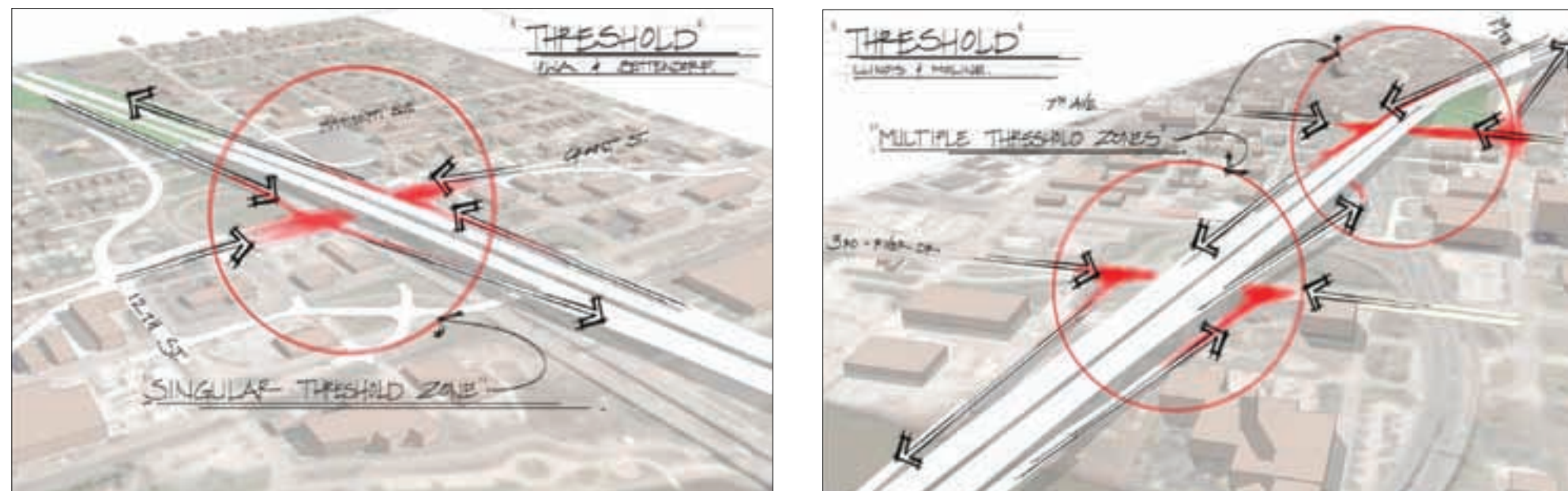


Figure 2.7 – Downtown Thresholds

Downtown and Corridor Thresholds

As identified by CAAT members during several work sessions, the significant locations of entry and exit along the I-74 corridor provide some of the best opportunities to showcase and focus corridor aesthetic enhancements. These locations act as “thresholds” along the corridor.

The I-74 corridor, stretching from Illinois to Iowa and from Moline to Bettendorf to Davenport, provides a unique opportunity to develop threshold enhancements tailored to these diverse locations. As enhancements are implemented in these areas, the following considerations will be applied:

Thresholds Into Each State

The Mississippi River crossing landings in Iowa and Illinois should celebrate the arrival experience by

focusing state related identity and uniqueness near the major interchange areas in Moline and Bettendorf. See Figure 2.7 above.

Thresholds Into Each Community

Moline, Bettendorf and Davenport all share adjacency to this relatively short segment of I-74. As travelers exit I-74, enhancements and community-based identity features can be integrated into corridor aesthetics.

Thresholds Into Each Neighborhood

The local street systems intersecting the I-74 corridor are one more opportunity to welcome vehicular and pedestrian users by incorporating aesthetic enhancement at these important neighborhood locations.

Corridor Threads

Within a building, the hallway or passageway between entries or doors is a place to keep things simple and to reinforce continuity and connections. Aesthetic enhancements to the I-74 corridor between major interchanges will reflect this same concept of simple, edge-defining enhancements.

Section 5 provides more specific recommendations for landscape-related improvements.

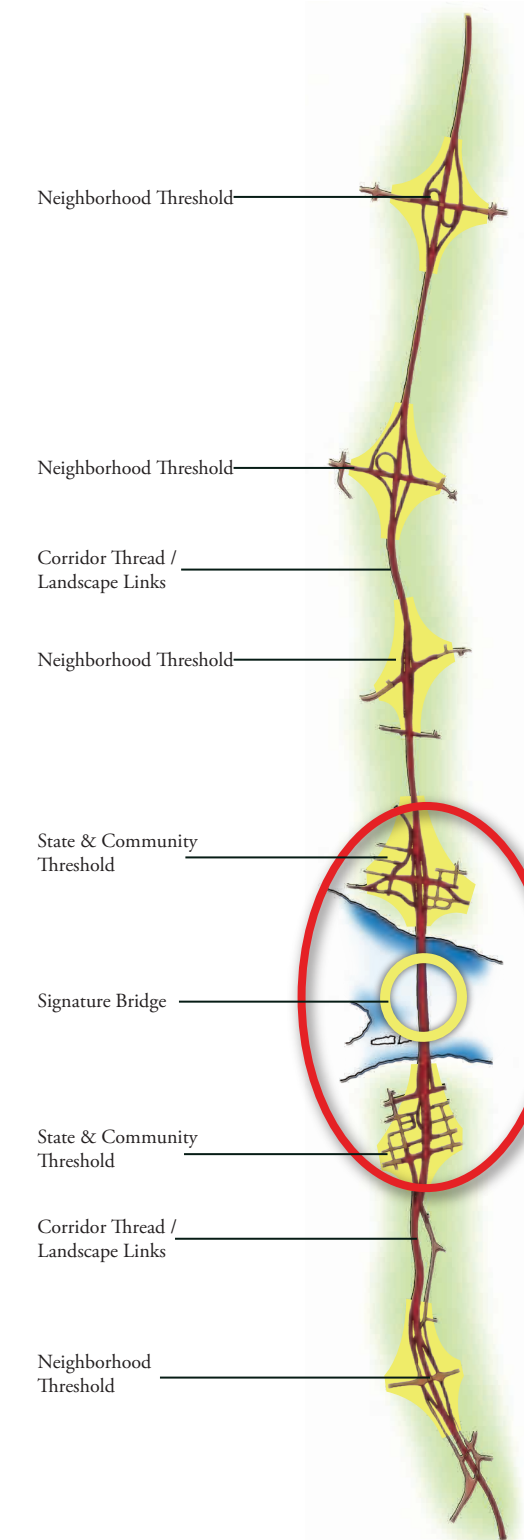


Figure 2.8 – Corridor Thresholds and Threads

SECTION 2 - CORRIDOR WIDE ENHANCEMENT FRAMEWORK

Form and Color

Form Studies

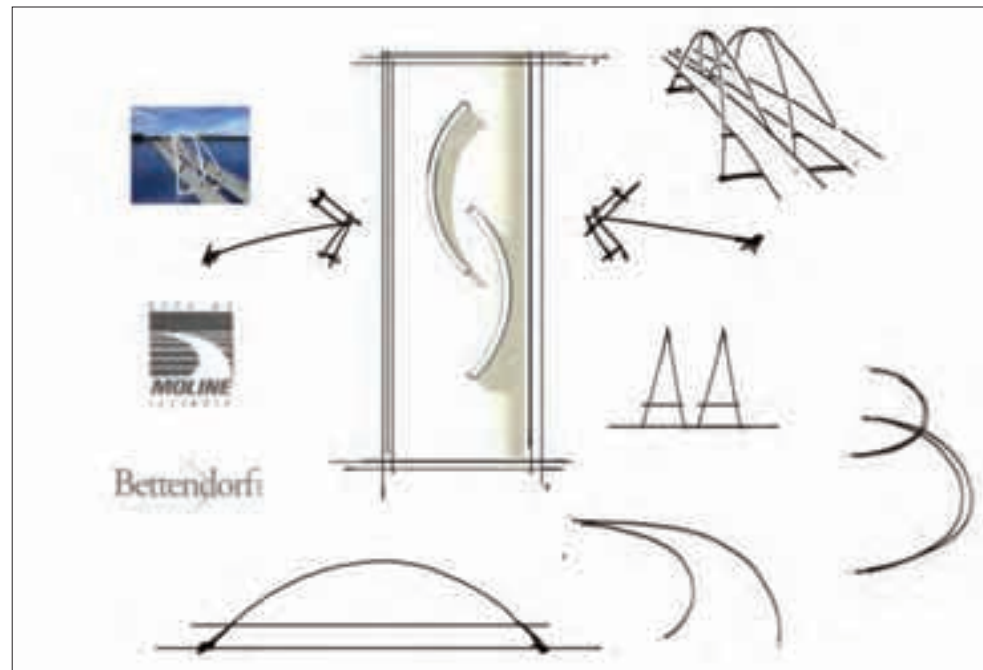


Figure 2.9 – Form Study, Icon Development

Form Giving Studies

The process of theme development ultimately becomes tangible and real when that theme takes physical form and shape. Figure 2.9 represents the process of exploring, and ultimately recommending, the establishment of the embracing curves as the foundational form-giving element for I-74 corridor enhancements.

Integrations of Form into Enhancements

Illustrations and recommendations found throughout the ADG attempt to creatively integrate the embracing curves into structure, roadway and landscape enhancement opportunities. Designs for various elements demonstrate a diversity while staying true to the basic form.

Color and Coatings

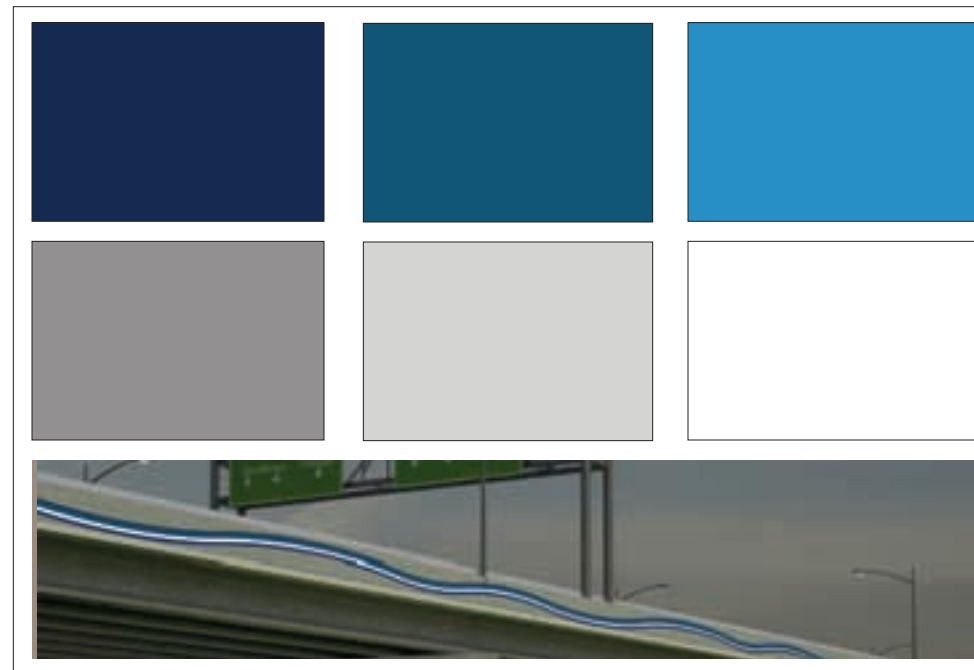


Figure 2.10 – Color Palette and Reflective Coating Applications

Color Palette

Figure 2.10 identifies a family of proposed colors to be utilized for enhancements. “Contemporary, clean and timeless” is the basis for this color palette which is rooted within the context and vision of the corridor itself.

Reflective Coatings

There is an opportunity to incorporate reflectivity as an aesthetic feature of this corridor. The Quad City’s leadership in fiber optic networks and technology offer meaning to this relatively economical and high-impact concept. Figure 2.10 and 2.13 illustrate some of the many opportunities to apply reflective films and coatings to various elements of the corridor.



Figure 2.11 – Overall “Reflections” Theme

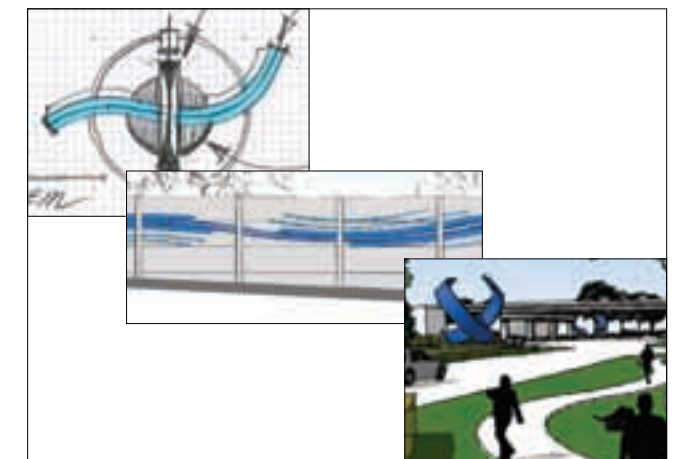


Figure 2.12 – Evolution of Theme



Figure 2.13 – Conceptual Reflective Coating Concept

SECTION 3 - BRIDGE ENHANCEMENTS

Introduction



Figure 3.1 – Example of Existing Bridge to Remain, 27th St., Moline



Figure 3.2 – Existing Bridge to be Widened or Rebuilt, E. 53rd St., Davenport



Figure 3.3– Example of Mainline/Underpass Bridge to be Rebuilt 19th St. & I-74, Moline



Figure 3.4 – Example of Mainline/Underpass Bridge to be Rebuilt, 2nd St. & 19th St., Moline



Figure 3.5 – Underpass Bridge to be Rebuilt, Duck Creek, Davenport

Aesthetic Design Parameters

The I-74 reconstruction project will impact overpass and mainline/underpass bridges in a variety of ways. Approximately six overpass and six mainline/underpass bridges will be impacted, not counting the Mississippi River crossing related viaduct and mainline/underpass bridges.

Many of the existing overpass bridges are expected to remain (see Figure 3.1) or to be widened while only a few overpass bridges are scheduled for complete reconstruction. All of the mainline/underpass bridges are scheduled for complete reconstruction (see Figures 3.3, 3.4, 3.5). Consequently, the aesthetic enhancement recommendations must provide a sufficient level of flexibility to apply to various types of structure improvements within the corridor.

Enhancement Opportunities

Given the need for flexible aesthetic enhancement design solutions applicable to both new bridge construction and the enhancement of an existing bridge, the recommendations are focused on design solutions capable of being applied to both an existing and new bridge. This concept applies to four of the five aesthetic enhancement opportunities as follows:

- Pedestrian Railings
- Abutments
- Barriers
- Lighting

Given the fact that all of the mainline/underpass bridges and associated river crossing viaducts will be completely reconstructed, the pier designs become

the singular opportunity not applicable to all bridges. Worth noting, however, is the magnitude and visibility of mainline/underpass and viaduct piers near the river crossing. While the pier design recommendations of ADG are not universally applicable, they are a very significant aesthetic enhancement opportunity for the I-74 corridor and are therefore included as a part of this document.

SECTION 3 - BRIDGE ENHANCEMENTS

Piers



Figure 3.6 – Pier Concept at Mainline Bridge Viaduct

Pier Scale and Configurations

The mainline bridge viaduct areas represent the most significant aesthetic enhancement area related to pier design. Virtually dozens of pier columns will be very visible from the downtown areas of both Bettendorf and Moline.

Given the quantity of piers required, constructability and affordability become a significant component along with aesthetic enhancement considerations. This has resulted in relatively traditional column and cap pier design configurations.

Figures 3.7, 3.8 and 3.9 illustrate 2, 3, and 4 column pier configurations. A pier configuration with 5 or more columns is possible with this design; however, the arched soffit may not be practical with that length of pier.

Pier Shape

The most distinctive enhancement feature of this pier concept is the arched pier cap soffit and associated color and reveal banding. This subtle curve recalls the river based forms including the river bridge arches.

Pier columns may have a square shape except for the outside edge of the outside pier column, which may be rounded. This rounded edge would extend upward to the outside edge of the pier cap.

The pier design utilizes an efficient column and cap approach, adjusting shapes slightly, making them compatible with other aesthetic design materials and forms.



Figure 3.7 – 4 Column Pier Concept



Figure 3.8 – 3 Column Pier Concept



Figure 3.9 – 2 Column Pier Concept

SECTION 3 - BRIDGE ENHANCEMENTS

Piers



Figure 3.10 – Perspective of Piers on a Rebuilt Overpass Bridge

Pier Cap Soffit Variability

As illustrated in Figures 3.11 and 3.12, the pier cap soffit arch may not be feasible in all situations. The arched soffit is the preferred option, especially in mainline bridge reconstruction in the river crossing viaduct locations. However, if it is not possible to implement, an arched reveal and coatings should be employed.

Pier Materials

Traditional cast-in-place concrete piers are proposed with the ability to incorporate reveals along the lower edge of the arched cap soffit. This concrete utilizes natural colored cement and no integral colors. Also, special consideration is given to form work to provide uniform smooth surfaces, sharp edges and corners.

Pier Color and Reflective Coatings

The use of color on the piers can be focused on the arched cap soffit. Figure 3.13 illustrates the use of blue and white to accentuate this arch. The use of reflective coatings or films could be considered along the edge of this arch and on the soffit itself.



Figure 3.11 – 4 Column Pier with Arched Soffit



Figure 3.12 – 5 Column Pier without Arched Soffit



Figure 3.13 – Enlargement of Pier Cap

SECTION 3 - BRIDGE ENHANCEMENTS

Railings

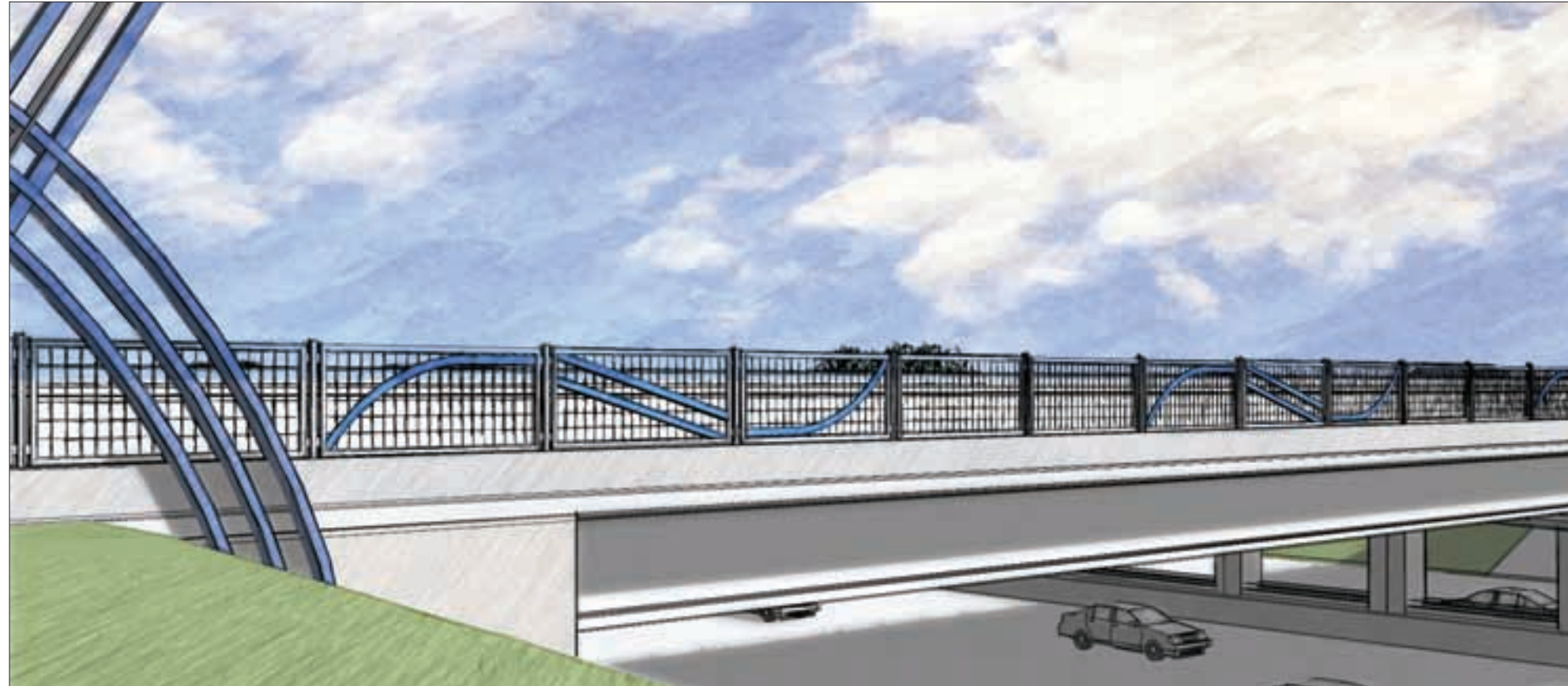


Figure 3.14 – Bridge Pedestrian Railing Perspective

Aesthetic Design Parameters

One overpass bridge scheduled for reconstruction and three existing overpass bridges scheduled to remain would need to incorporate pedestrian rails/fences along the exterior edge of the bridges. In addition, the south edge of the eastbound river crossing bridge will also require a pedestrian rail/fence.

Enhancement Opportunities

Pedestrian rails can serve an important role in unifying the corridor and adding some level of continuity to the mix of existing and new overpass bridge configurations. They also provide a prime opportunity to showcase the corridor theme.

Pedestrian Railings

A metal post and panel railing system can be utilized atop a concrete parapet wall. The panels can be composed of a wire mesh and tubular metal framework with an applied element to represent the embracing curve design theme. Panels can be attached to metal posts connected directly to the concrete parapet.

Texture and Color

Finishing the metal components of the railing system will adhere to DOT standards. The expectation is to utilize a galvanization system for the majority of the railings with color integrated into the applied design theme element.

Transparency & Visibility

The railing system, especially at the river crossing, should strive to maximize visibility of the river corridor. Enhancements should be limited to maintain the overall transparency of the rail system.



Figure 3.15 – Railing Option



Figure 3.16 – Railing Option



Figure 3.17 – Railing Option

SECTION 3 - BRIDGE ENHANCEMENTS

Abutments

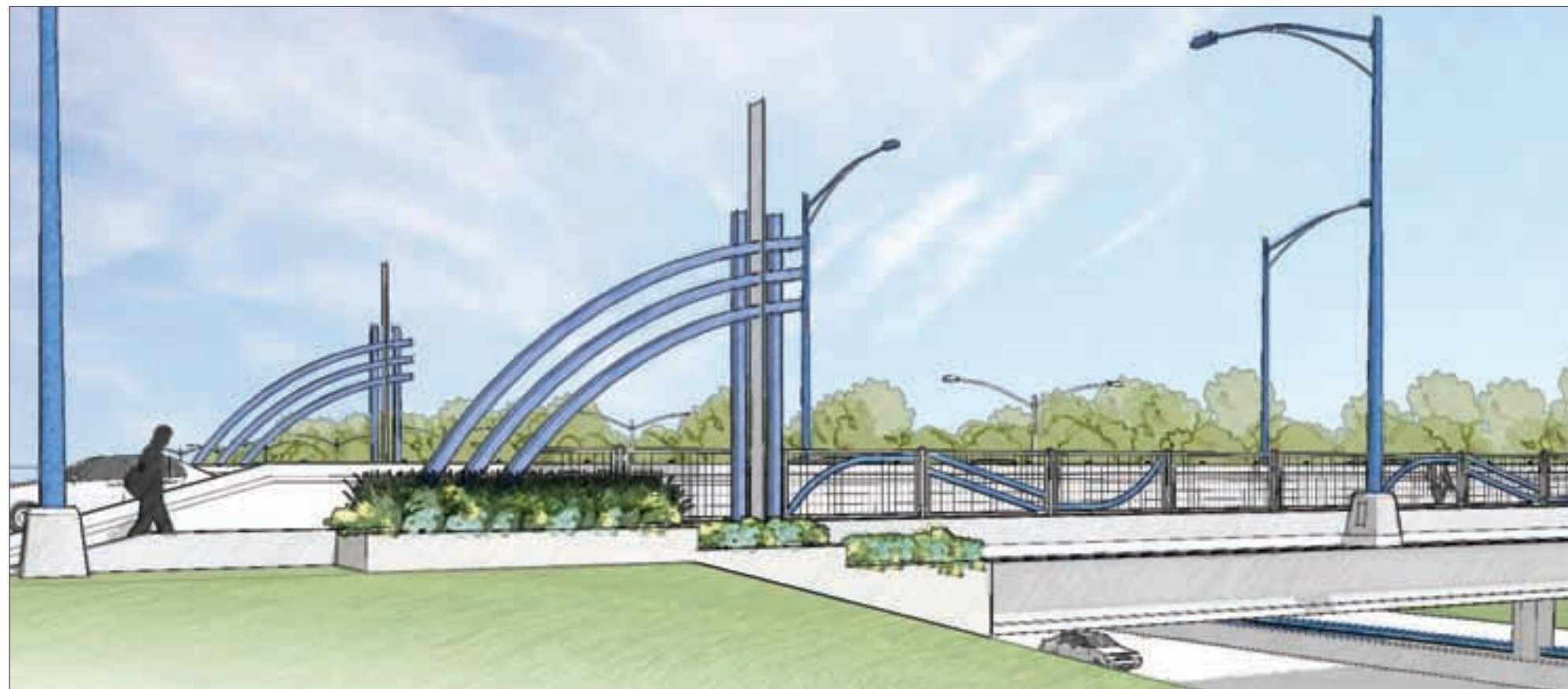


Figure 3.18 – Bridge Abutment Perspective

Aesthetic Design Parameters

Bridge abutments and related slope protection will vary based on some new and existing bridges throughout the corridor. In addition, some existing bridges have vertical walls associated with the abutments.

Enhancement Opportunities

As with bridge pedestrian railings/fencing, the primary enhancement opportunity is to integrate above-grade abutment features at the collection of existing and proposed overpass bridges. These areas offer the most visibility and serve as focal points for interchange areas.

Paved slope protection should be utilized with stepped planters flanking the abutments.

Overpass Bridge Abutments

At each overpass bridge, four metal features are proposed to be placed at grade just beyond the four corners of the bridge abutments. These metal features, as illustrated within various options shown on this page, are to have intersecting straight and curved components with a height above grade of approximately eighteen feet. The features can be mounted on traditional frost footings and can be located just outside the pedestrian walk.

In order to introduce some diversity within the corridor, each bridge location could be developed with a different option.

Materials and Color

The features are envisioned to be constructed primarily of metal and finished with a color to complement the colors on the railing curves.

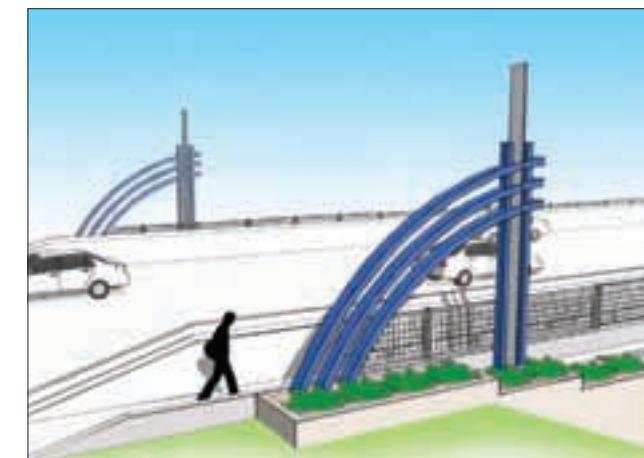


Figure 3.19 – Abutment Option

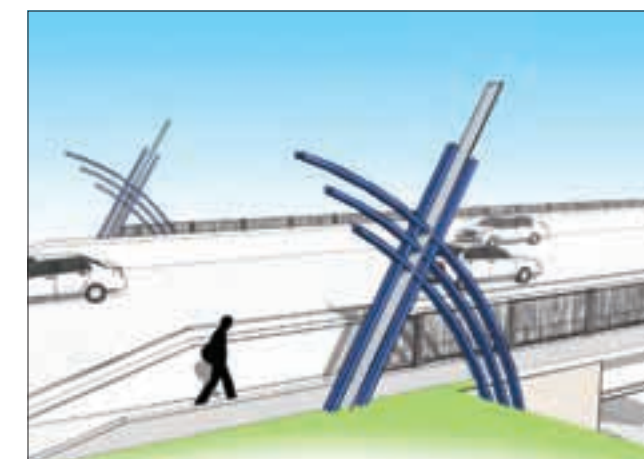


Figure 3.20 – Abutment Option

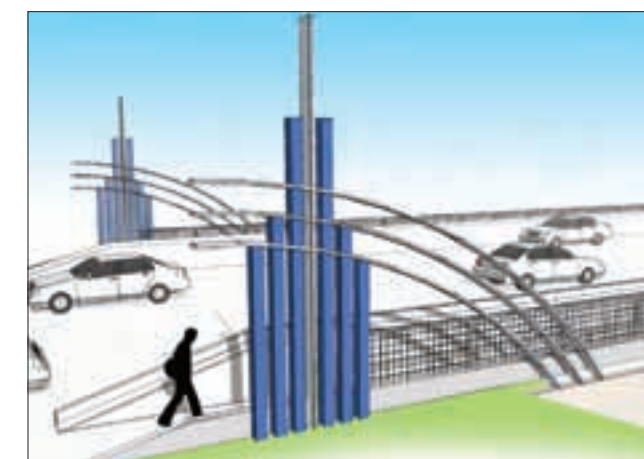


Figure 3.21 – Abutment Option

SECTION 3 - BRIDGE ENHANCEMENTS

Barriers

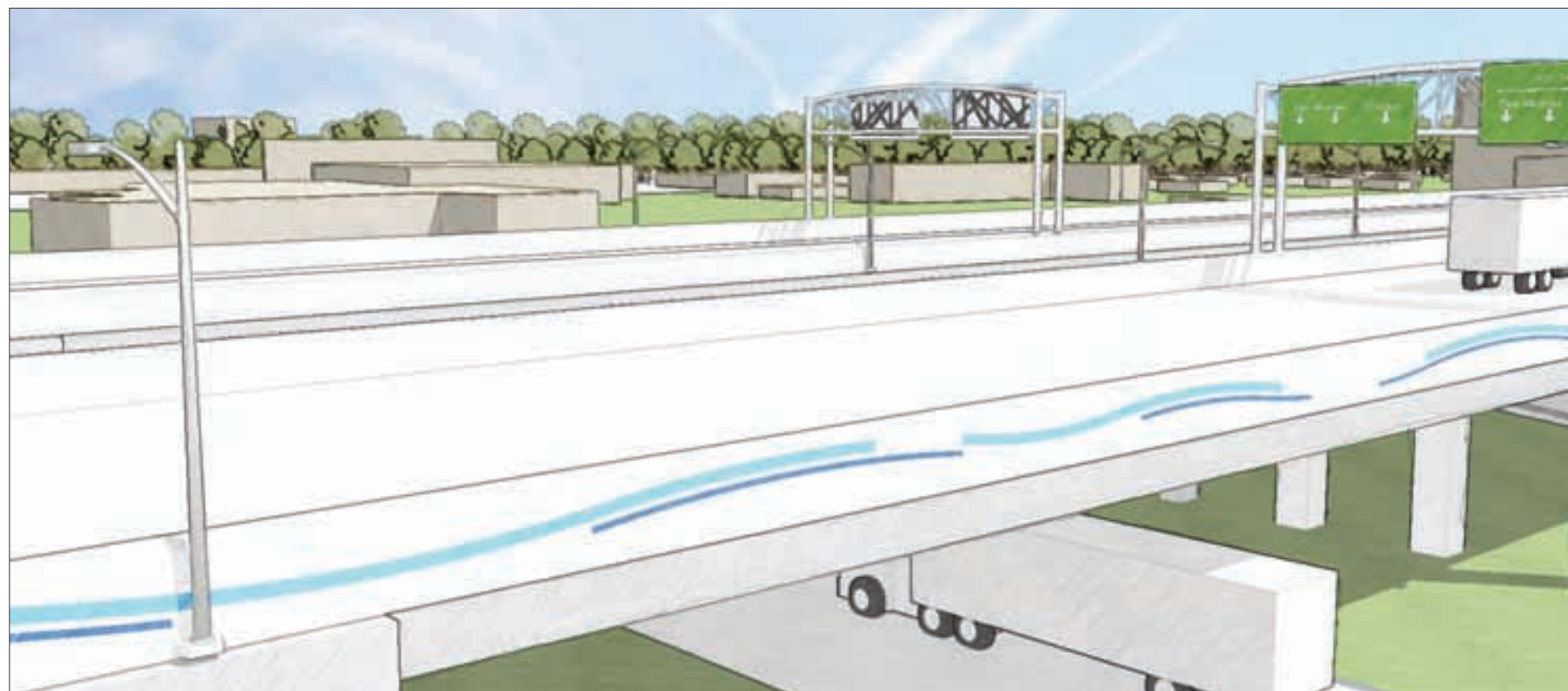


Figure 3.22 – Mainline Bridge Barrier Perspective

Aesthetic Design Parameters

Currently, the bridge-related traffic barriers are planned to be standard Iowa or Illinois concrete barriers, which meet all required traffic safety and crash criteria for the project. In most cases, mainline/underpass bridges, including the viaduct and river crossing structures, will have vehicular barriers along the bridge edges.

Enhancement Opportunities

Seasonal roadside conditions and the associated road maintenance operations will make the annual maintenance of traffic side barriers more costly. For this reason, enhancement of the traffic side of barriers is not recommended.

The non-traffic side of barriers, especially in high visibility areas including the viaduct and river crossing areas, present a logical opportunity for enhancement.

Integrating the embracing curve form into the non-traffic side of some barriers along the river crossing viaducts is recommended. Depending on final design parameters on the river crossing bridge, these barrier enhancements may extend across the river.

Texture and Color

As illustrated in Figures 3.24 and 3.25, the embracing curved form can be integrated into the barrier in various ways. A reveal may be appropriate in certain situations while an applied coating may be the solution in more widespread areas. In addition, the integration of reflected coatings, whether continuously or as an accent, could be considered.

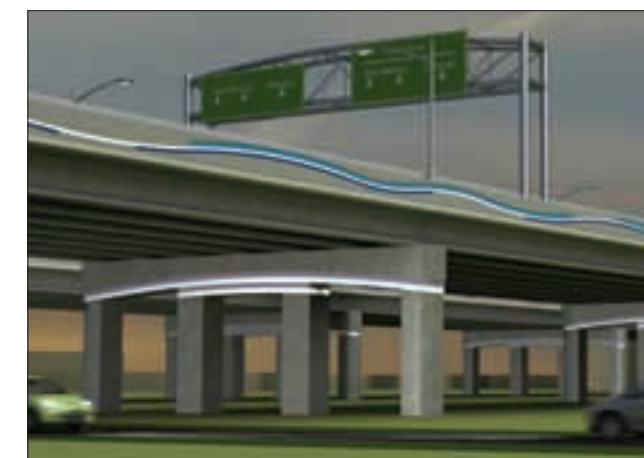


Figure 3.23 – Barrier with Reflective Coating

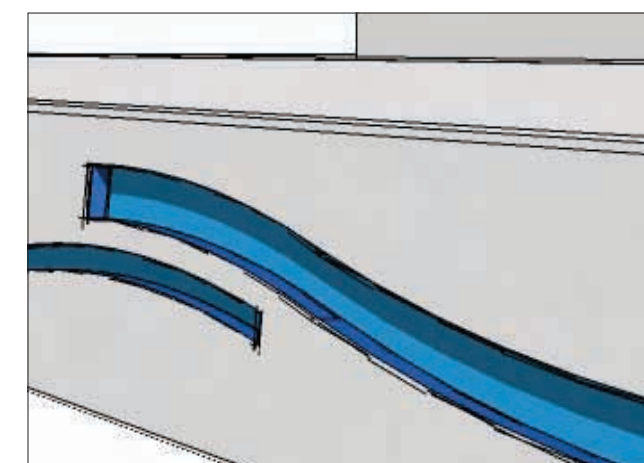


Figure 3.24 – Barrier with Reveal and Color

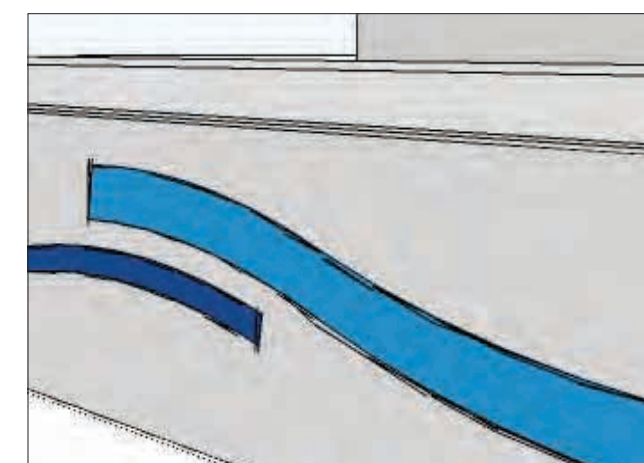


Figure 3.25 – Barrier with Color Stain/Coating

SECTION 3 - BRIDGE ENHANCEMENTS

Lighting

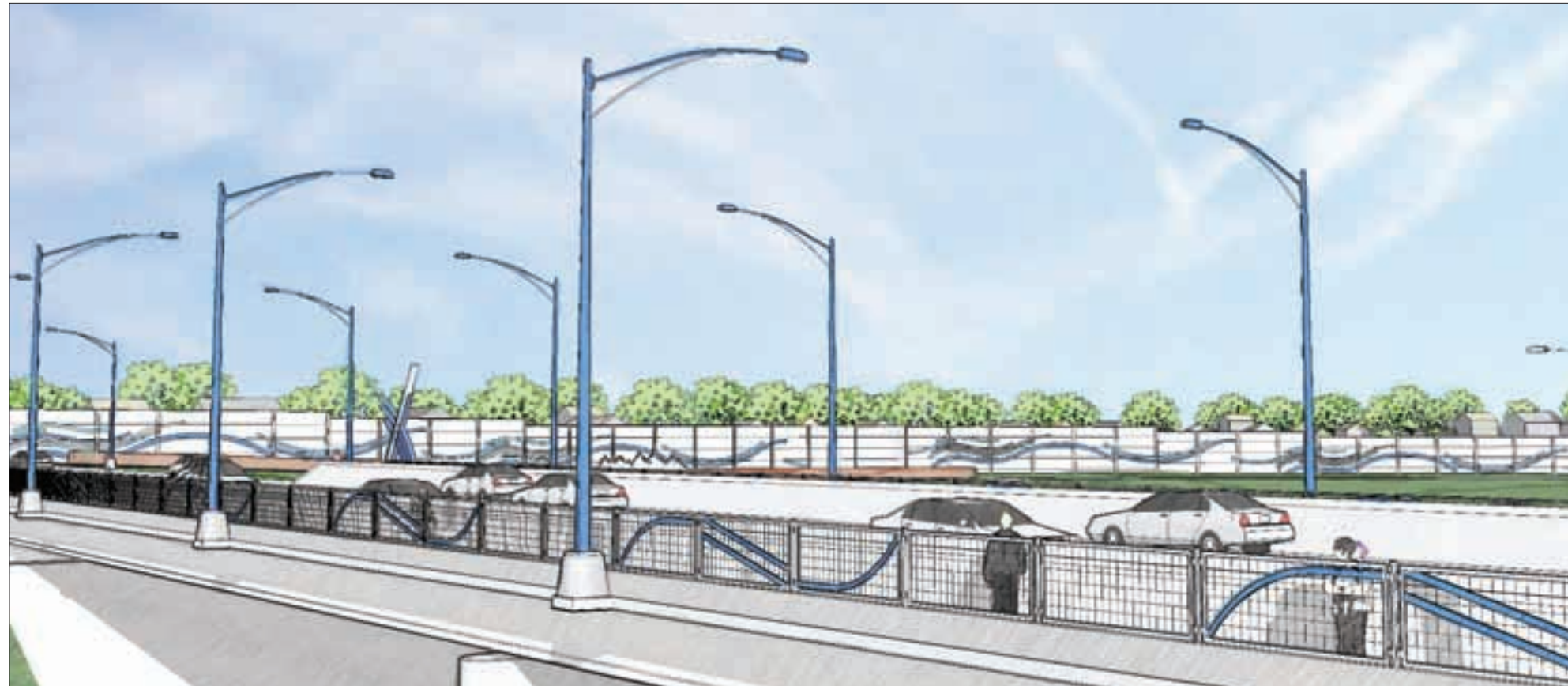


Figure 3.26 – Bridge Lighting Perspective

Overpass Bridge Lighting

The vehicular and pedestrian accommodations on all overpass bridges will be illuminated to conform to appropriate guidelines. Each pole and fixture location is intended to serve both vehicular and pedestrian needs. Lighting of local road bridges and pedestrian pathways is a local/municipal responsibility. The DOTs will accommodate local lighting initiatives on the structures.

All overpass bridge lighting may be upgraded from the roadway lighting in the following ways:

- The fixtures can be provided with a manufacturer's high quality colored finish to complement the railing and abutment colors.

- The fixture arm can include a custom metal arched bracket and be provided with a high quality colored finish.
- The pole can be provided with a high quality colored finish.

River Crossing Trail Lighting

A prime opportunity to integrate customized, distinctive pedestrian-scale lighting exists along the proposed river crossing trail. These lights can help distinguish the bridge and need to be designed in coordination with the potential overall river crossing bridge illumination,



Figure 3.27 – Bridge Lighting Enhancement Options



Figure 3.28 – Bridge Lighting Enhancement Options

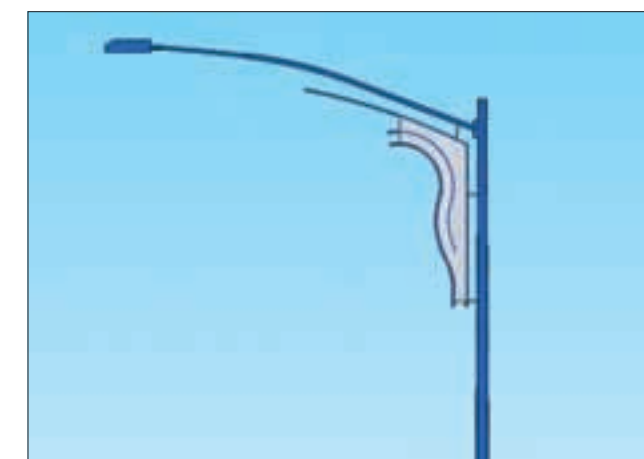


Figure 3.29 - Bridge Lighting Enhancement Options

SECTION 3 - BRIDGE ENHANCEMENTS

Summary - Priorities as Funding Becomes Available

1: Piers



Figure 3.6 – Pier Concept at Mainline Bridge Viaduct

2: Railings



Figure 3.14 – Bridge Pedestrian Railing Perspective

3: Abutments



Figure 3.18 – Bridge Abutment Perspective

4: Barriers



Figure 3.22 – Mainline Bridge Barrier Perspective

5: Lighting



Figure 3.26 – Bridge Lighting Perspective

SECTION 4 - ROADWAY ENHANCEMENTS

Introduction



Figure 4.1 – Existing Roadway

Aesthetic Design Parameters

The reconstruction of I-74 will impact approximately six miles of roadway with project limits extending north of 53rd Street in Iowa to just south of the Avenue of the Cities in Illinois. The roadway related elements being considered for enhancements are listed below in the order of priority to receive enhancements as funding becomes available:

- Retaining Walls (highest priority)
- Sound Walls
- Barriers
- Sign Trusses and Lighting (lowest priority)

Enhancement Opportunities

The corridor aesthetics design team considered several factors in prioritizing enhancement opportunities for all the roadway elements including:

- Retaining walls will be constructed almost exclusively in the river zone and therefore are strong candidates for enhancements based on the overall corridor “anticipation” (see page 8) concept resulting in a higher intensity of enhancements.
- Sound walls are not a significant component of the overall roadway with only relatively short segments being candidates for these elements. However, they are very visible and should relate well to retaining wall enhancements.



Figure 4.2 – Existing Roadway



Figure 4.3 – Existing Roadway



Figure 4.4 – Existing Roadway

SECTION 4 - ROADWAY ENHANCEMENTS

Retaining Walls

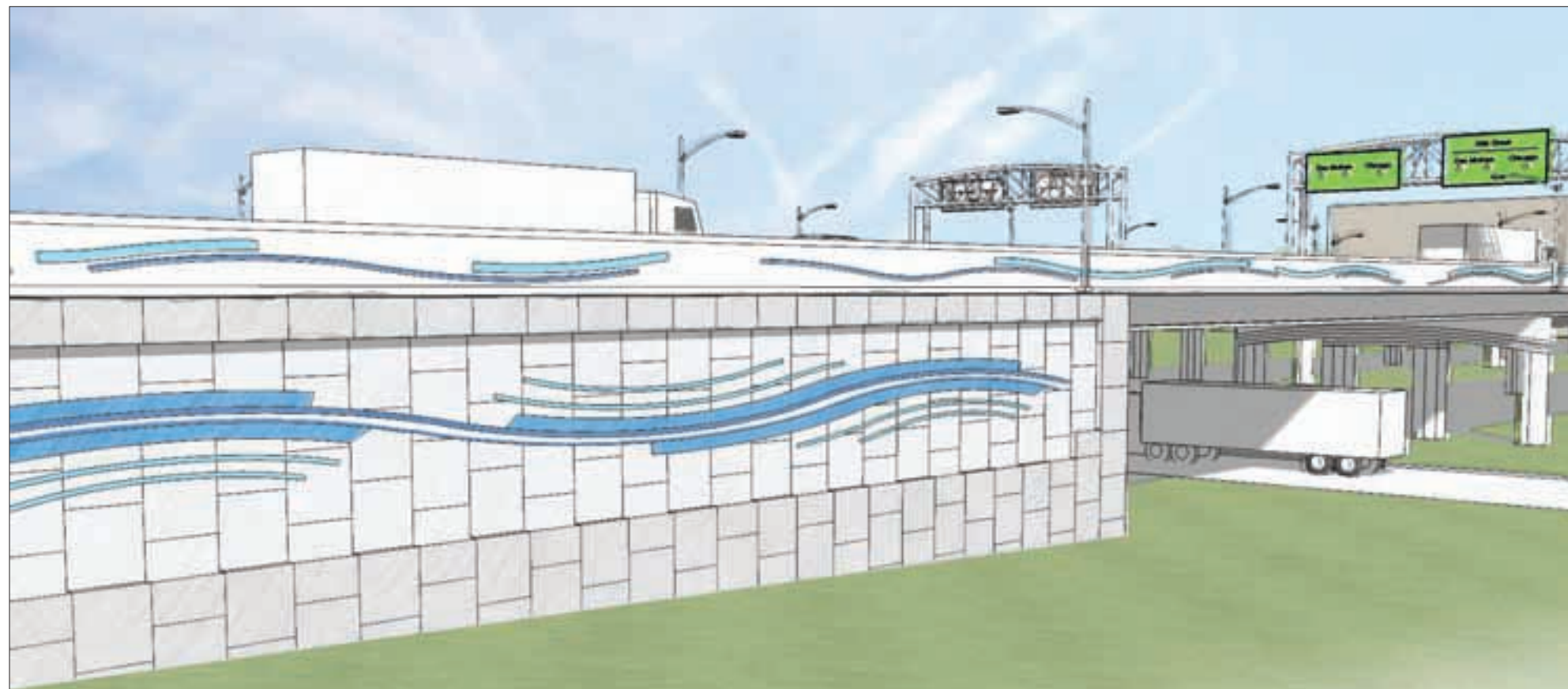


Figure 4.5 – Retaining Wall Perspective

The majority of the retaining walls along the I-74 corridor will be associated with on and off ramps and bridge abutment construction. Some roadside earth retaining walls may be required, and the detailed earthwork plans for the roadway will determine specific locations and horizontal and vertical extents of the walls.

Depending upon soils engineering recommendations and other construction constraints, walls may be mechanically stabilized earth (MSE) walls or cast-in-place (CIP) concrete walls.

Where MSE walls are required, they will be faced with precast concrete panels. For both MSE and CIP concrete walls, the base of the walls could be expressed. With MSE walls the wall base can be expressed with

thicker panels. With CIP concrete walls the base can be expressed with a horizontal rustication joint which will de-mark the wall base.

All wall surfaces could be enhanced with texture and color, and the “reflections” theme graphic should be integrated in wall surfaces which are prominently visible to motorists. Texture enhancements should be fractured fin or stone aggregate patterns. Color can be integral with the concrete or surface applied using an approved color sealer.

The most cost-effective means of incorporating the “reflections” theme graphic is with relief, surface applied color sealer, surface applied reflective coating or a combination of relief and color sealer or coating.

Since MSE walls will be capped, consideration should be given to expressing a cap feature on the top of cast-in-place concrete walls. A cast-in-place concrete wall cap may be expressed with rustication. The cap width should be a function of the proportional relationship of the wall cap, base and body.

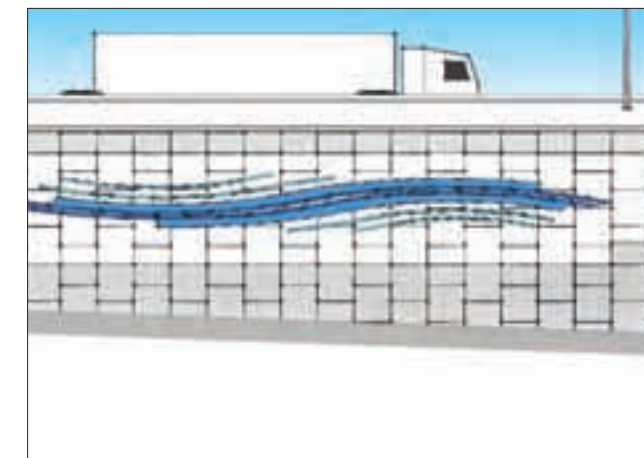


Figure 4.6 – Retaining Wall Option

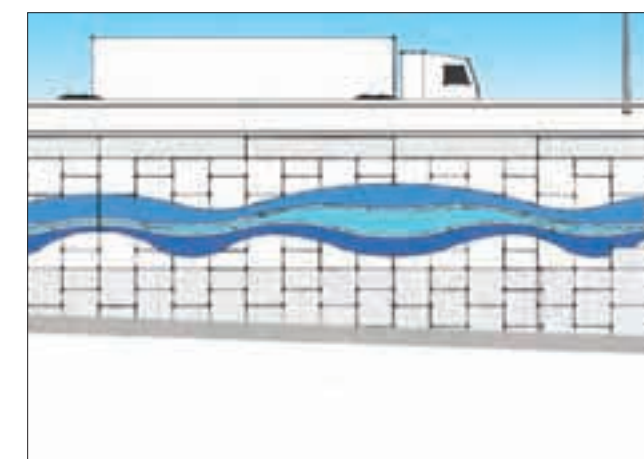


Figure 4.7 – Retaining Wall Option

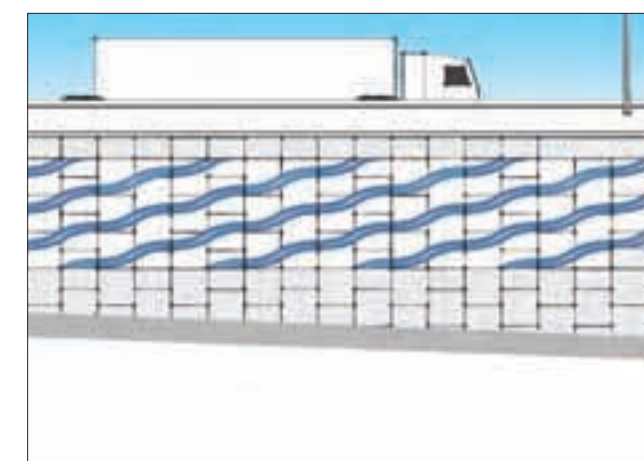


Figure 4.8 – Retaining Wall Option

SECTION 4 - ROADWAY ENHANCEMENTS

Sound Walls and Visual Screens



Figure 4.9 – Soundwall Perspective

Soundwalls and visual screens which acoustically and visually improve the physical and functional relationships between adjacent land uses and roadway traffic along the I-74 corridor can be canvases for aesthetic enhancement.

Concrete will likely be the most efficient and cost-effective construction material. A soundwall system of precast concrete panels and posts would provide the most flexibility in developing a consistent roadside element which can be visually unified with other wall construction in the corridor.

In this regard, minimizing the expression of the post and incorporating texture and color in the wall panels and posts would be important. Soundwall textures can also be fractured fin or stone aggregate textures and wall colors may be integral with the concrete or surface applied using an approved color sealer.

The “reflections” theme graphic can be expressed on the highway side of the soundwalls. This graphic can be expressed as relief, surface applied color sealer, surface applied reflective coating or a combination of all three.

Consideration should also be given to expressing the “reflections” theme graphic as appliquéd painted metal. This treatment should be unique to slower traffic areas along ramp roads where the visual effect of surface mounted artwork would be more appealing.

In addition to enhancement of the roadside face of the soundwall panels, the neighborhood side of the panels may also be enhanced with texture and color. Rather than vary the neighborhood side treatment from neighborhood to neighborhood, a unifying surface articulation would be more appropriate.



Figure 4.10 – Soundwall Form Option



Figure 4.11 – Soundwall Form Option



Figure 4.12 – Soundwall Form Option

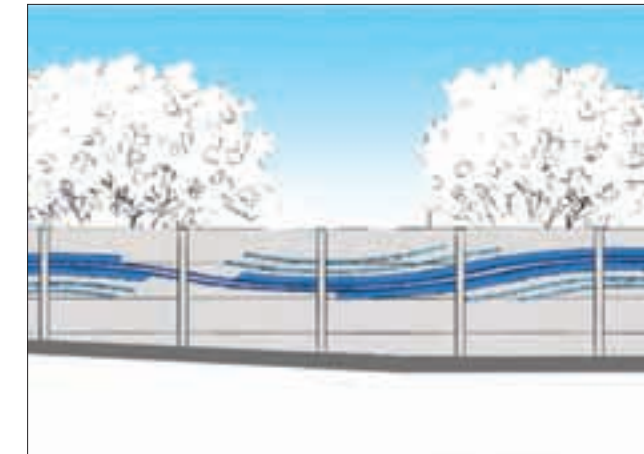


Figure 4.13 – Soundwall Surface Option

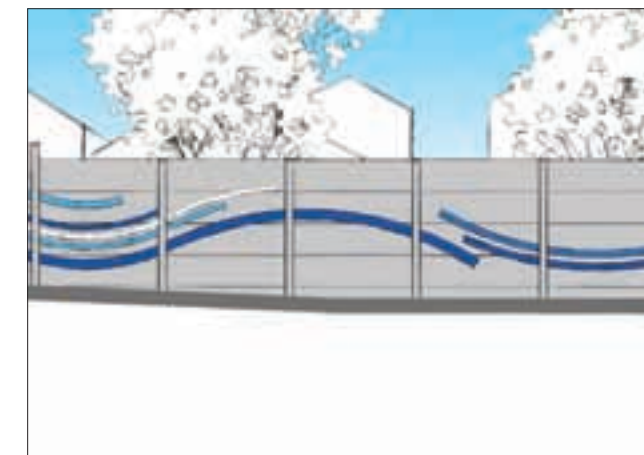


Figure 4.14 – Soundwall Surface Option



Figure 4.15 – Soundwall Surface Option

Finally, consideration should be given to creating a unique soundwall section which would facilitate a more graceful transitions in horizontal and vertical wall alignment and allow for a potentially unique aspect of the “reflections” theme imagery to be incorporated in the wall.

SECTION 4 - ROADWAY ENHANCEMENTS

Traffic Barriers

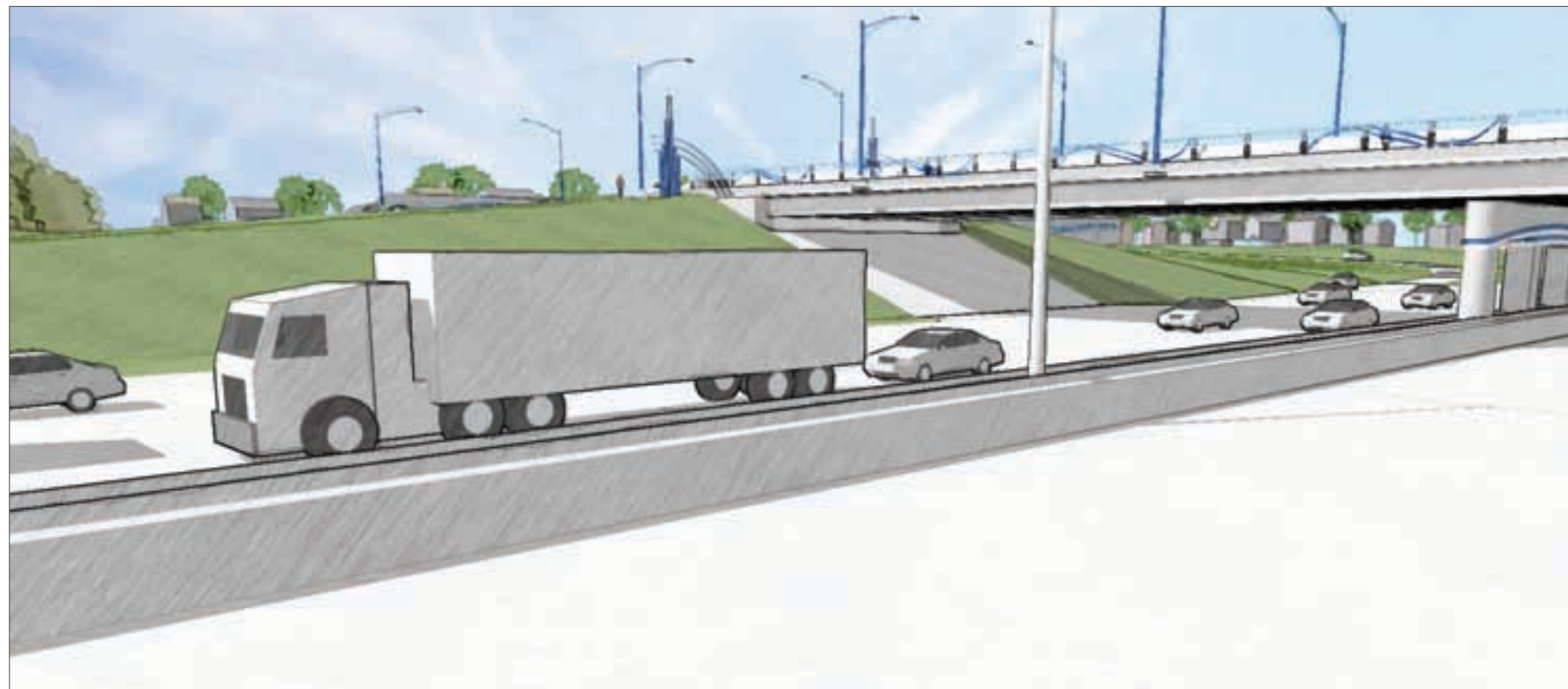


Figure 4.16 – Median Barrier Perspective without Top Enhancements

Median Barriers

The I-74 roadway traffic barriers will include median traffic barriers separating north bound and south bound traffic lanes and roadside traffic barriers (guard rails), which will be installed to protect drivers from crashing into fixed improvements installed in the roadside clear zones and from travel onto steep roadside foreslopes.

The specific barrier types and the barrier locations will be selected during the final engineering phase of the project.

Currently, the median traffic barrier is planned to be concrete, and it will be an Iowa or Illinois DOT standard concrete barrier which meets all required traffic safety and crash criteria for the project.

Seasonal roadside conditions and the associated road maintenance operations will cause the annual maintenance of an aesthetically enhanced traffic barrier to be expensive. For this reason, enhancement of the median traffic barrier is not recommended.

Barrier Top Enhancement Options

Several options have been considered to incorporate color near the top portion of the median barriers to help unify the aesthetics of all roadway enhancements. As illustrated in Figures 4.17-4.19, this color could be added to the top of the barrier itself, or it could be an added component above the barrier top.



Figure 4.17 – Barrier Top Enhancement Option



Figure 4.18 – Barrier Top Enhancement Option



Figure 4.19 – Barrier Top Enhancement Option

SECTION 4 - ROADWAY ENHANCEMENTS

Sign Trusses and Lighting

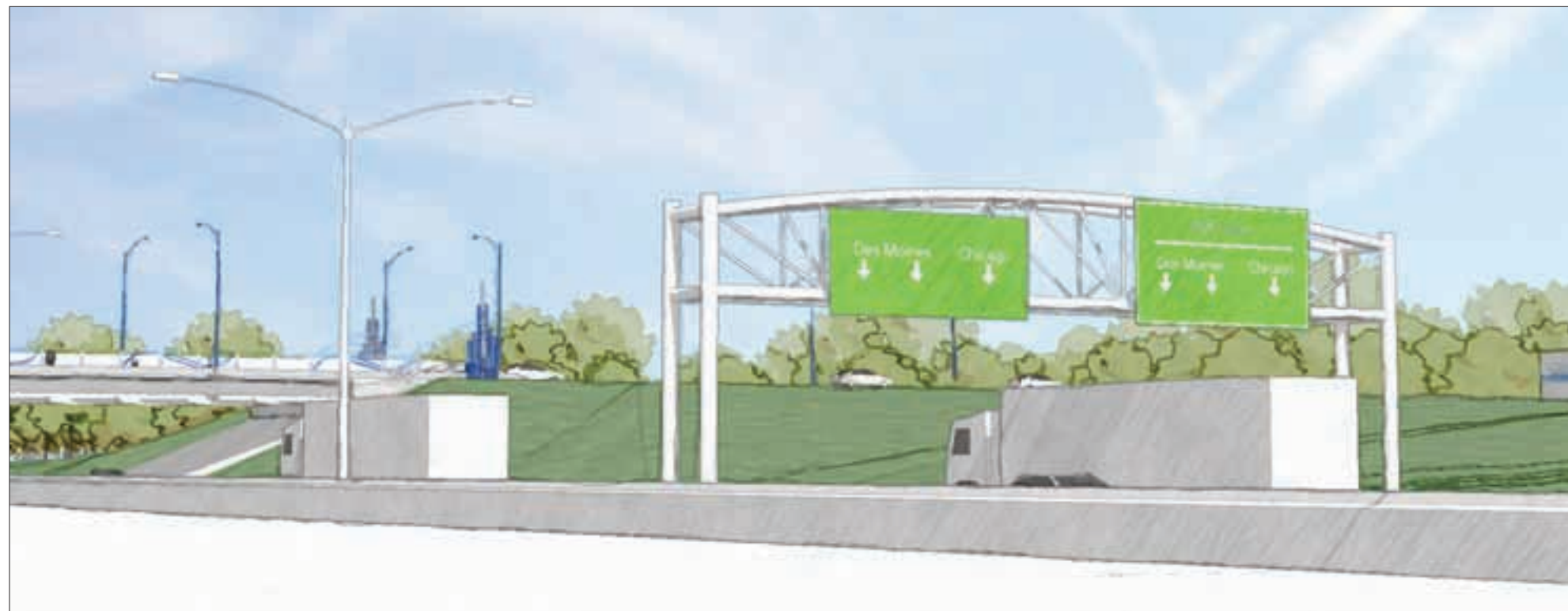


Figure 4.20 – Sign Truss and Lighting Perspective

Sign Trusses

The signage support system for the corridor should include a family of structural supports that are consistent in shape and color. A standard arched truss form with variations for cantilevered single post structures could be considered. The trusses should be simple and as open as structurally possible.

All signage structures should be constructed with circular galvanized steel or aluminum members.

The sign trusses could be augmented with “reflection” theme art appliquéd to the structural elements of the truss support system. The appliqué would need to be evaluated for safety and structural integrity. The appliqué should be powder coated aluminum or powder coated galvanized steel. The finish paint color should be a part of the “reflection” theme color palette. If the appliqué is aluminum, the connections between the appliqué and the steel truss members will need to be separated with a nonferrous or stainless steel gasket.

Lighting

The I-74 Roadway lighting will be mounted both along the roadside and atop the center median barriers. Roadway light fixtures should be highly efficient “shoe box” style fixtures.

Pole location will be determined by final roadway lighting design, which will be based on achieving functional criteria and lighting uniformity.



Figure 4.21 – Sign Truss Option

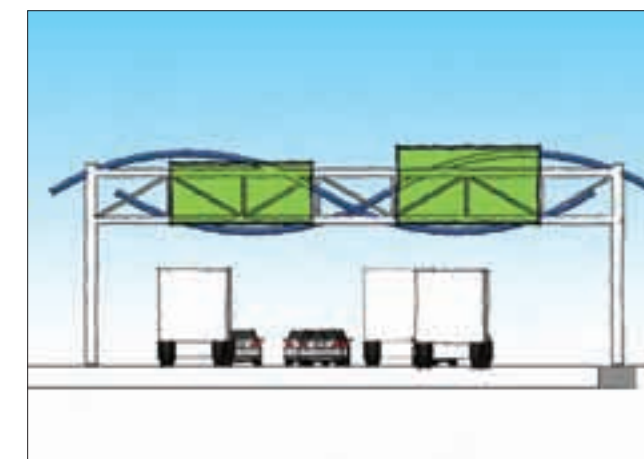


Figure 4.22 – Sign Truss Option

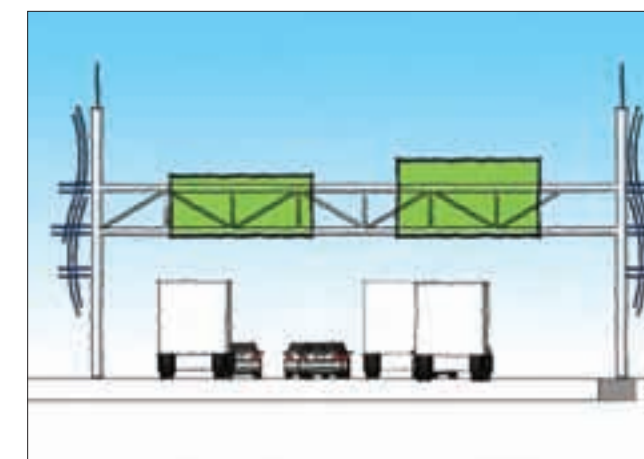


Figure 4.23 – Sign Truss Option

SECTION 4 - ROADWAY ENHANCEMENTS

Summary - Priorities as Funding Becomes Available

1: Retaining Walls

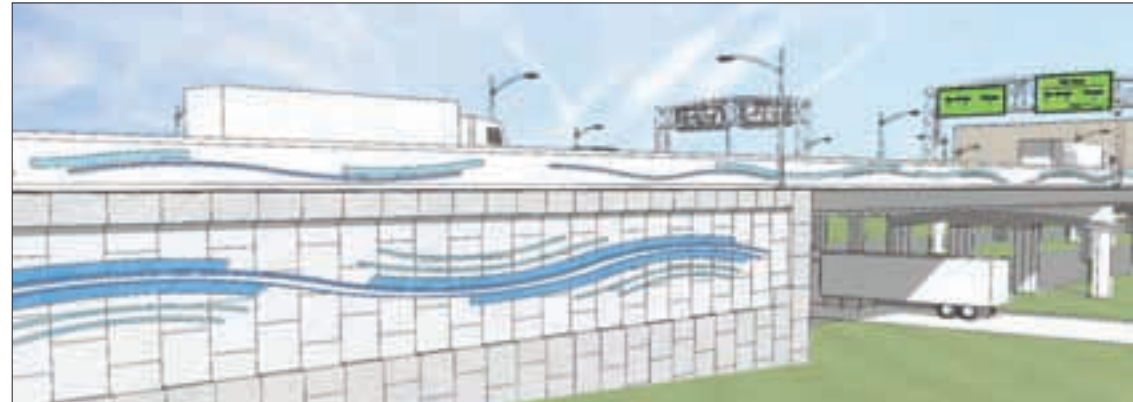


Figure 4.5 – Retaining Wall Perspective

2: Sound Walls

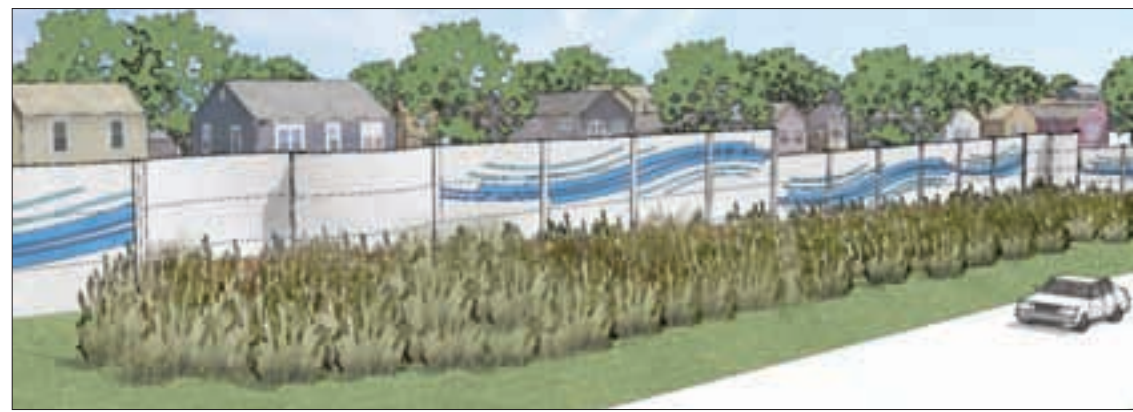


Figure 4.9 – Soundwall Perspective

3: Barriers



Figure 4.16 – Median Barrier Perspective without Top Enhancements

4: Sign Trusses & Lighting



Figure 4.20 – Sign Truss and Lighting Perspective

SECTION 5 - LANDSCAPE ENHANCEMENTS

Introduction

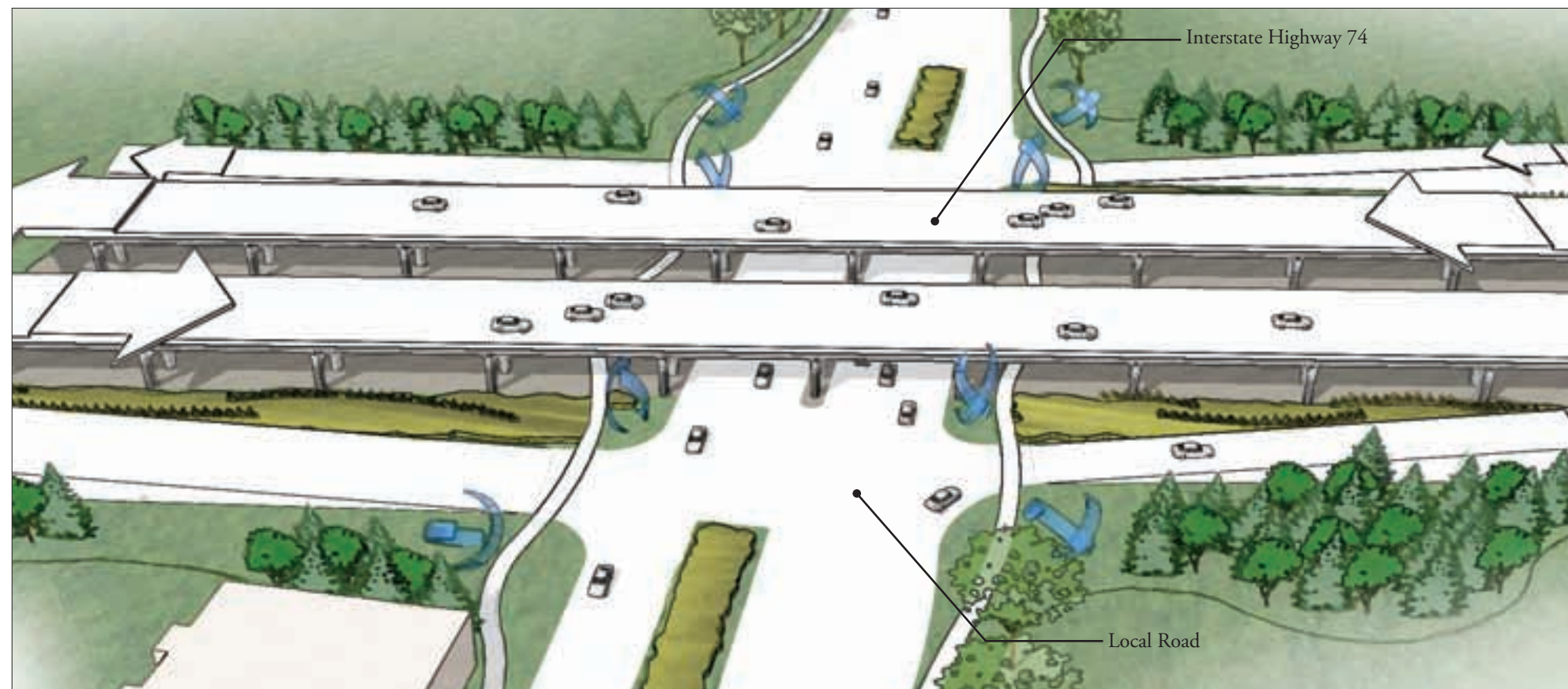


Figure 5.1 – Landscape Enhancement Concept - Urban Threshold

Aesthetic Design Parameters

The reconstruction of the I-74 corridor will impact the existing roadside landscape in several ways. For much of the corridor, the outside edge of roadway will not significantly expand and therefore the construction of the roadway will have little impact on the existing landscape. For other areas of the corridor, a completely new alignment will eliminate some areas of existing plant material. For all areas, the following design parameters have evolved:

- Build upon and reinforce the existing vegetative edge along the right-of-way.
- Use native and proven cultivators for longevity and landscape stewardship.
- Incorporate informality into planting areas.
- Focus enhancements at threshold areas and in areas closer to the river crossing.

Enhancement Opportunities

Three distinct areas within the corridor have been identified with regard to landscape enhancements:

- Urban threshold plantings
- Neighborhood threshold plantings
- Mainline thread plantings

Within each of these areas, there are several enhancement opportunities, including:

- Plantings
- Earthforms
- Landscape lighting
- Right-of-way fencing
- Public art

Character and Themes

The character and themes within the corridor are extensions of the guiding principles. Plant massings and earthforms should reflect one another (see Figure 5.2 above). The potential also exists to incorporate the “reflection” theme into community-led public art installations at the gateway features.

Sustainable Cultures

- Native trees, shrubs, grasses and forms
- Proven native hybrids
- Existing plants

Sustainable Attributes

- Energy efficiency
- Nonpolluting
- Irrigation independence
- Recyclable

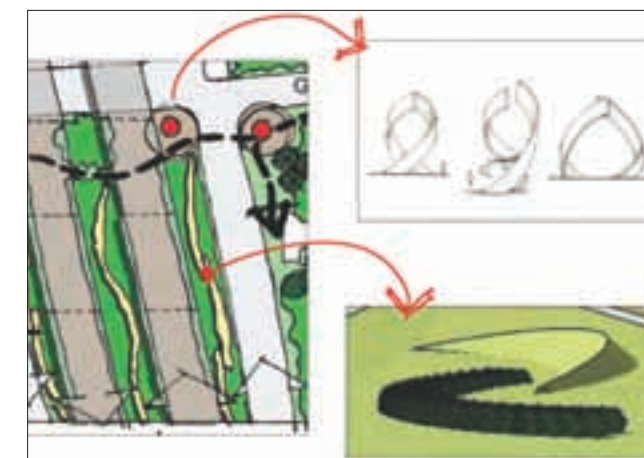


Figure 5.2 – Form Study, Gateway & Landscape Features

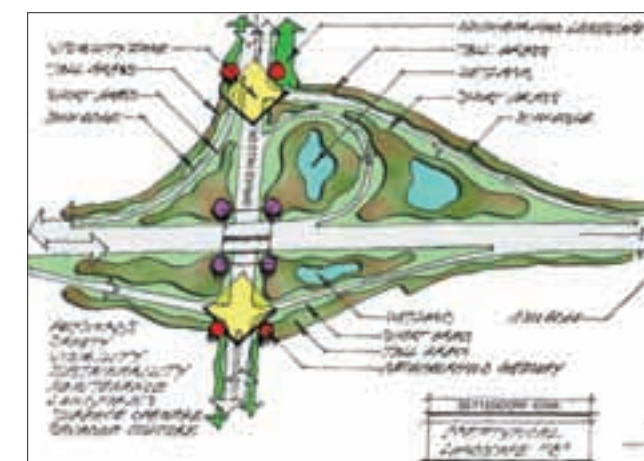


Figure 5.3 – Landscape Enhancement Concept Sketch

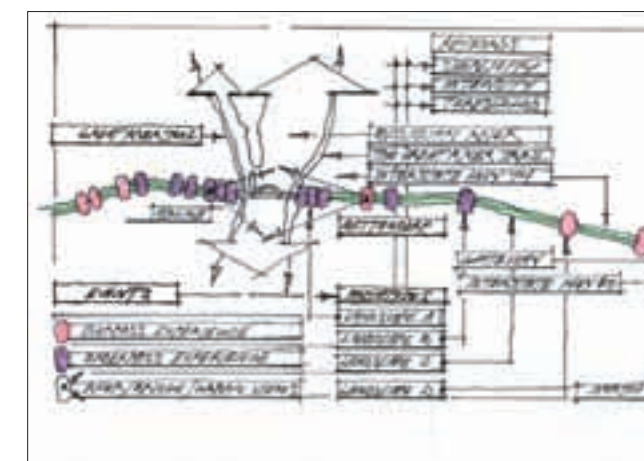


Figure 5.4 – Landscape Enhancement Guiding Principles

SECTION 5 - LANDSCAPE ENHANCEMENTS

Urban Thresholds

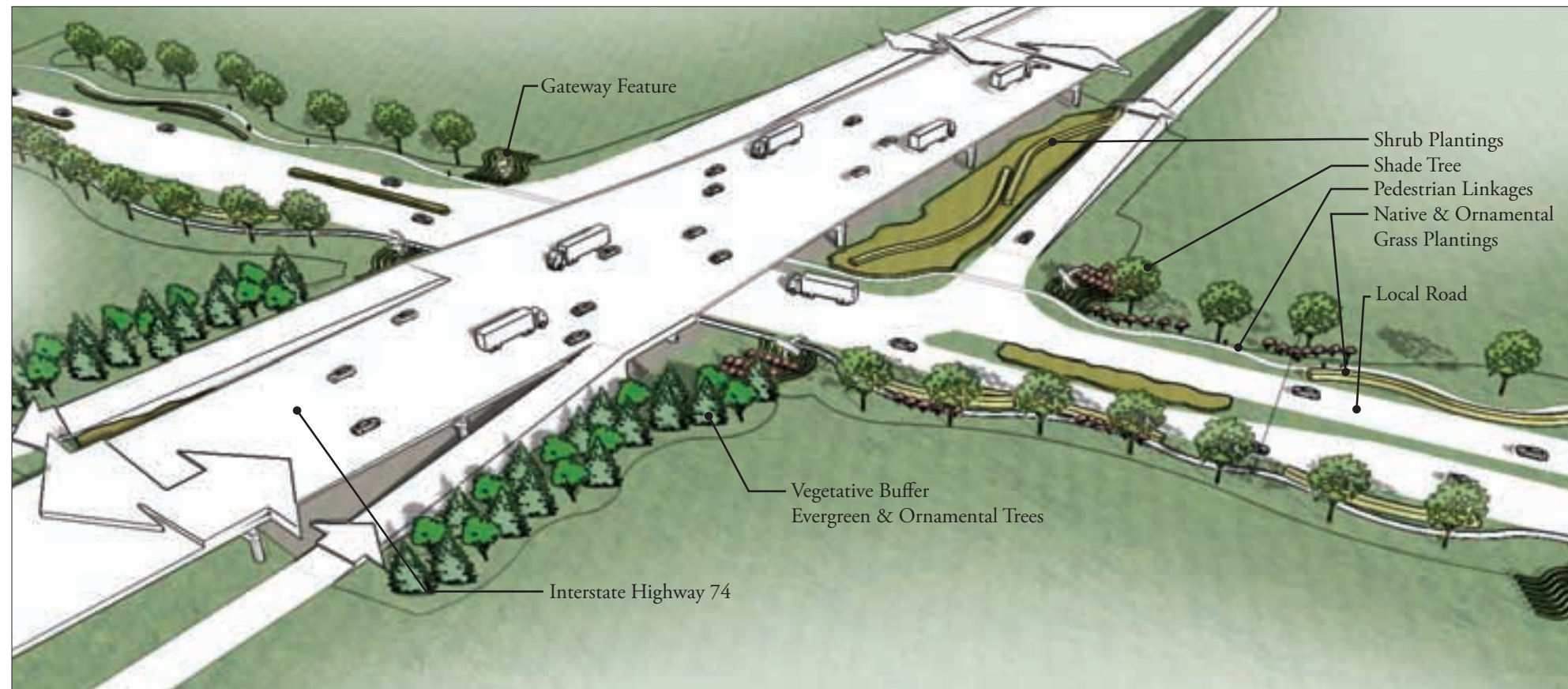


Figure 5.5 – Urban Threshold Bird's Eye Perspective

Urban Thresholds

Figures 5.5 and 5.8 depict urban threshold areas characterized by extensive mainline/underpass bridges, multiple local roads passing below I-74, and significant pedestrian accommodations along these local roads. The experience of entering and exiting the I-74 corridor at these points represents a key opportunity to enhance a threshold into multiple states, local communities, and downtown neighborhoods.

The reflections guiding principle and the “anticipation” experience are at their peak in this zone. The landscape has built up to this point, embracing the river front, the respective downtown and the signature bridge.

Key Characteristics

- Pedestrian Focus
- Community Connectivity
- Intensity/Diversity
- State and City Gateways

Major Components

- Gateway Features
- Pedestrian Linkages
- Vegetative Buffers
- Shade, Ornamental & Evergreen Tree Plantings
- Shrub Plantings
- Native and Ornamental Grass and Perennial Plantings



Figure 5.6 – Urban Threshold Character Sketch



Figure 5.7 – Urban Threshold Character Sketch



Figure 5.8 – Urban Threshold Concept Plan

SECTION 5 - LANDSCAPE ENHANCEMENTS

Neighborhood Thresholds

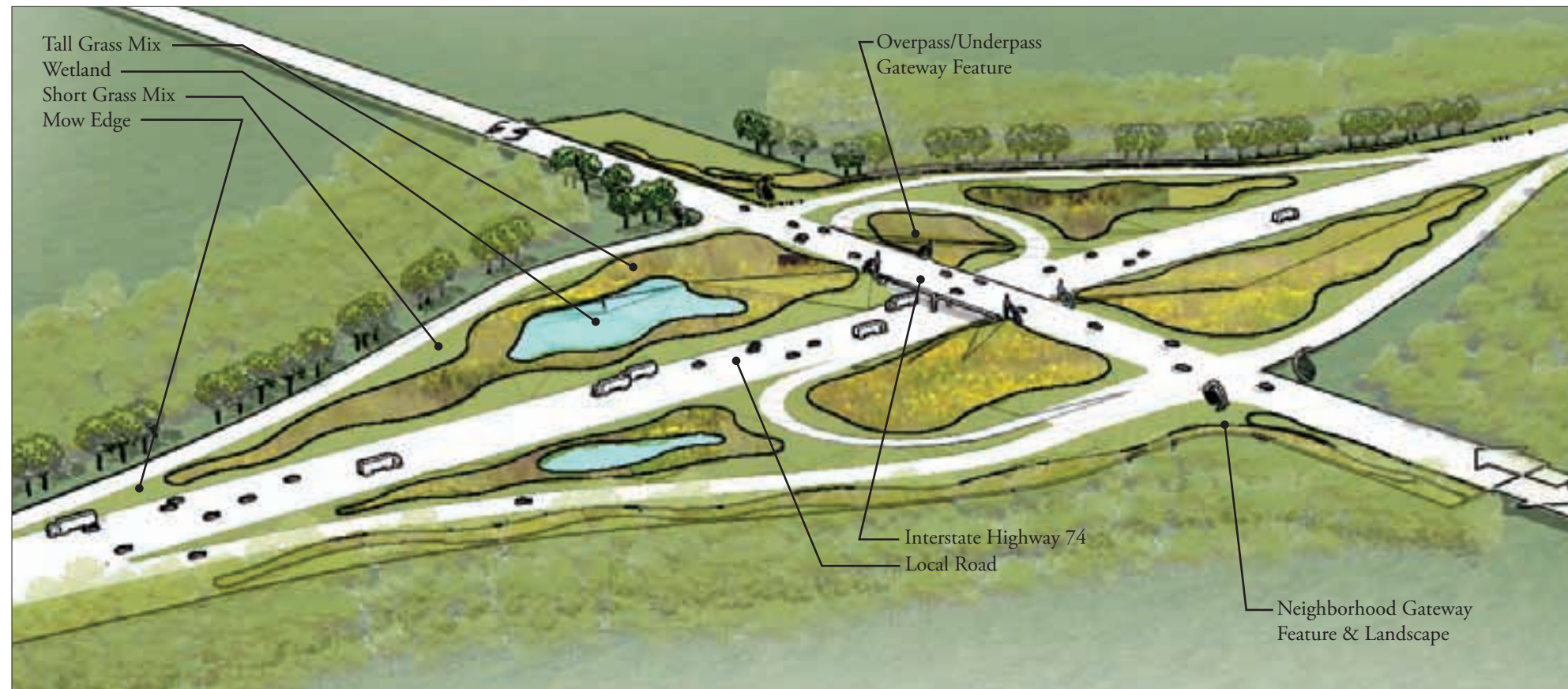


Figure 5.9 – Neighborhood Threshold Bird's Eye Perspective

Neighborhood Thresholds

The neighborhood thresholds provide unique opportunities for the many neighborhoods touched by the I-74 corridor to not only incorporate into the corridor experience, but to also provide a site specific experience.

The reflections guiding principle and the “anticipation” theme are highlighted in the neighborhood gateway opportunities, while the planting and earthforms provide a simple and open experience, focusing long views for the user.

Key Characteristics

- Openness
- Simple
- Long Views
- Neighborhood Context

Major Components

- Neighborhood Gateway Features & Landscaping
- Overpass/Underpass Gateway Features
- Native Tall Grass Mixes
- Native Short Grass Mixes
- Wetland Plantings
- Mow Edge



Figure 5.10 – Neighborhood Threshold Character Sketch

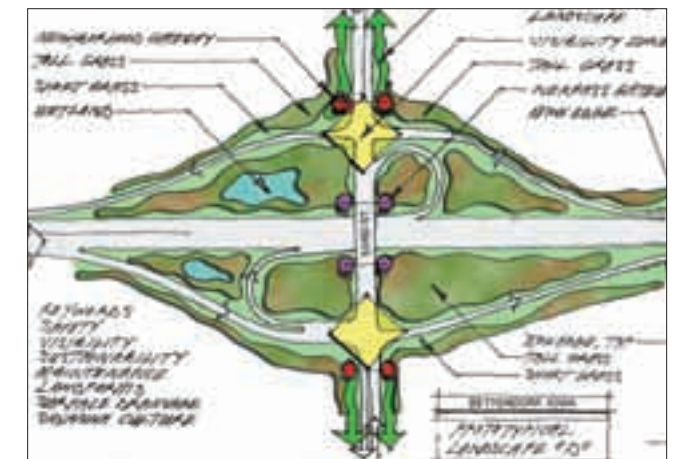


Figure 5.11 – Neighborhood Threshold Concept Plan

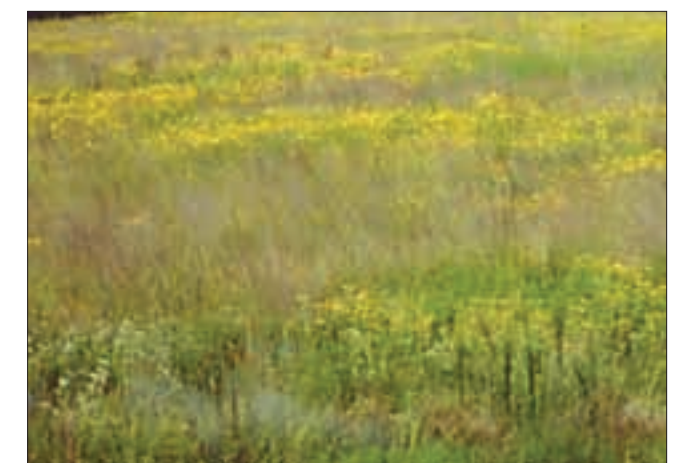


Figure 5.12 – Native Tall Grass Planting Example

SECTION 5 - LANDSCAPE ENHANCEMENTS

Mainline Thread

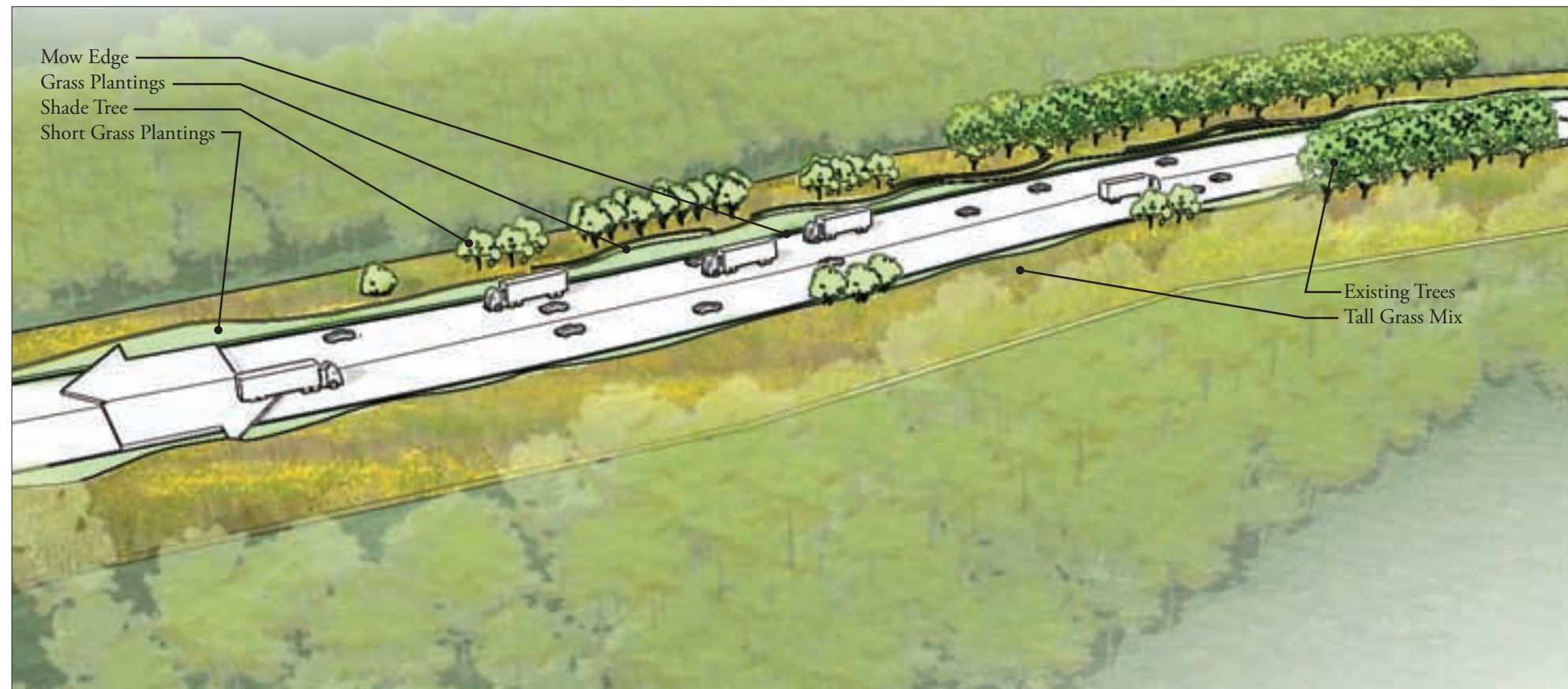


Figure 5.13 – Mainline Thread Bird's Eye Perspective

Mainline Thread

The mainline threads are the links that connect the thresholds. These threads provide a continuity to the corridor while defining the edge and buffer the adjacencies.

The reflections guiding principle and the “anticipation” theme are reinforced by strategically placed bands of shrubs and grasses on a backdrop of native grass mixes and a mow edge. The existing vegetation can be reinforced throughout the corridor to enhance the buffer and link between thresholds.

Key Characteristics

- Continuity
- Edge Definition
- Linkages
- Buffer

Major Components

- Existing Vegetation
- Shade Trees
- Ornamental Trees
- Shrubs
- Native Tall Grass Mixes
- Native Short Grass Mixes
- Mow Edge



Figure 5.14 – Mainline Thread Character Sketch

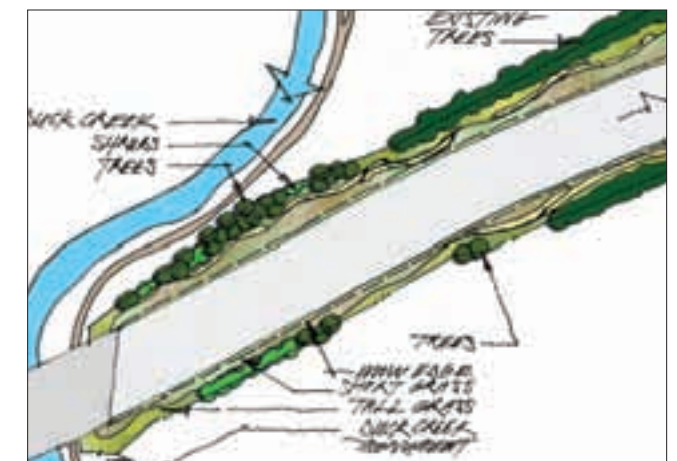


Figure 5.15 – Mainline Thread Concept Plan



Figure 5.16 – Native Short Grass Planting Example

SECTION 5 - LANDSCAPE ENHANCEMENTS

Public Art / Landscape Lighting



Figure 5.17 – Gateway Feature/Public Art Character Sketch

Public Art

There are multiple opportunities to integrate public art at state, community and neighborhood thresholds. There will be a need to adjust the scale and quantity of these features to reinforce the increased intensity near the river crossing.

Each public art installation will be initiated and funded at the local level and needs to be evaluated based on the following criteria:

- Relevance to the site
- Context to the site
- Respectful of the Corridor Theme
- Site Integrated
- Public Funded
- Public Domain

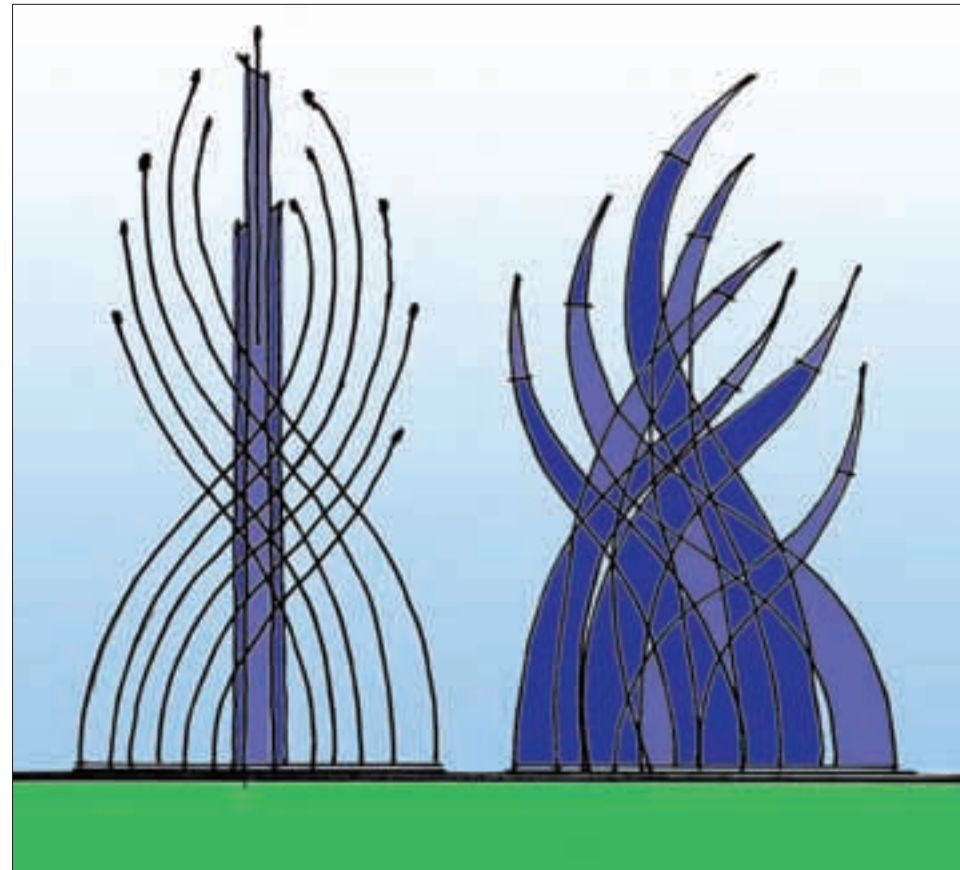


Figure 5.18 – Gateway Features/Public Art Concept Sketches

Landscape Lighting

Landscape lighting can dramatically enhance the night time experience of an interstate corridor. Landscape lighting is recommended for all gateway features. Tree uplighting and downlighting should be utilized in key locations.



Figure 5.19 – *Gateway Feature/Lighting Example



Figure 5.20 – *Neighborhood Gateway Example



Figure 5.21 – *Gateway Feature/Lighting Example

* Images from the publication *On the Road Again...an Exhibit of Creative Transportation Design*

SECTION 5 - LANDSCAPE ENHANCEMENTS

Summary - Priorities as Funding Becomes Available

1: Urban Thresholds



Figure 5.1 – Landscape Enhancement Concept – Urban Threshold

2: Neighborhood Thresholds



Figure 5.9 – Neighborhood Threshold Bird's Eye Perspective

3: Mainline Thread



Figure 5.13 – Mainline Thread Bird's Eye Perspective

4: Public Art and Landscape Lighting



Figure 5.17 – Gateway Features/Public Art Character Sketch



Figure 5.18 – Gateway Features/Public Art Concept Sketches

I-74 AESTHETIC DESIGN GUIDELINE

Summary

Corridor Aesthetic Advisory Team (CAAT)

Final Comments:

The CAAT members have endorsed this design guide and look forward to the integration of these concepts into the final design process. The members also wish to amplify the following three components to this document and the overall I-74 process:

1. Overall Design Concept

The concept of designing enhancements based on the overall corridor theme of “Reflections” has received widespread approval and acceptance. Feedback at all levels, including the public meetings, informal meetings, CAAT meetings and Advisory Committee meetings has confirmed this as appropriate for the corridor and for the Quad Cities.

2. River Crossing Enhancements

This Aesthetic Design Guideline focused the majority of its recommendations on non-river crossing bridge opportunities. That is not to say the CAAT members do not believe strongly in the need to prioritize ongoing effort to enhance this structure. The elegance of the bridge type deserves careful attention to the more subtle design considerations including unique lighting of the main structure and the trail crossing.

3. Process

The CAAT members wish to strongly encourage the continued advocacy for the contents of this document during the upcoming final design process. The look and feel of this corridor can be a focus of pride and is a reflection of the entire community.

Reflections

