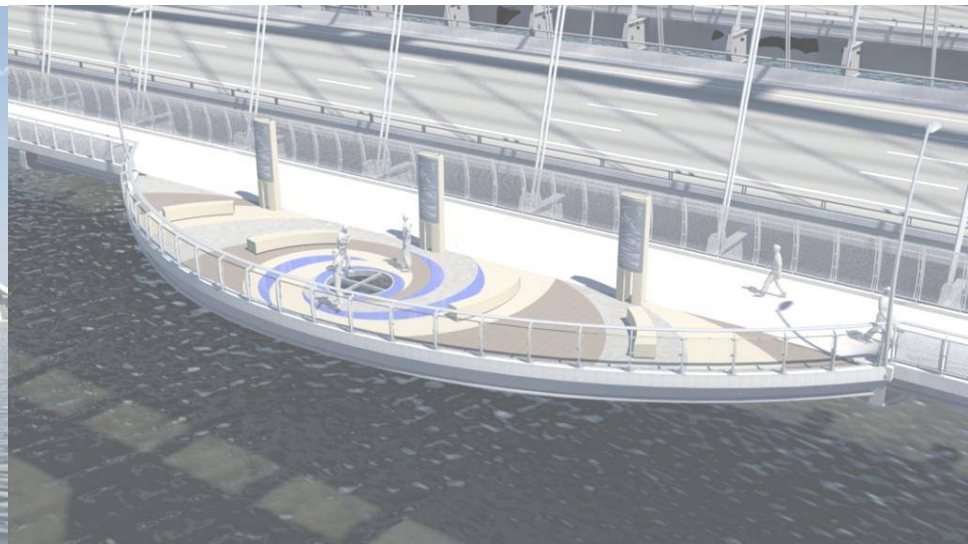
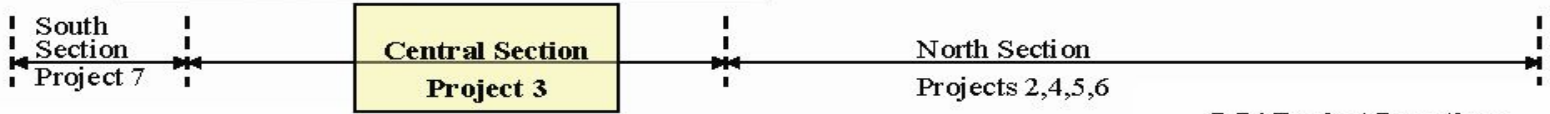
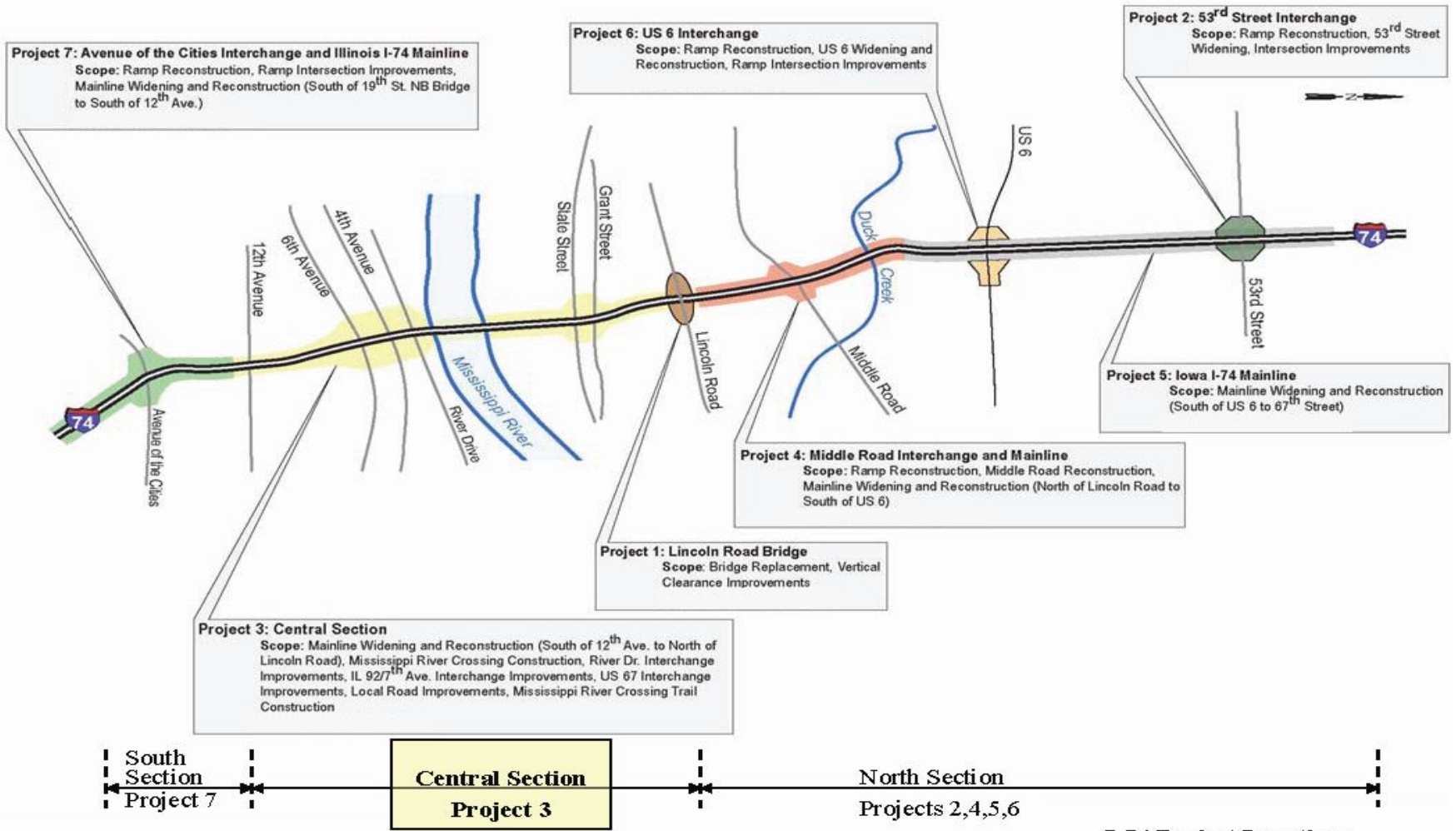


I-74 Corridor Project Update



December 6, 2010

Project Overview



I-74 Project Locations



Arch Span



Arch Span



Arch Span Deck and Hanger Study

- Steel framing supporting the deck optimized
 - Transverse steel beams tied to concrete deck and spacing decreased from 39'-9" to 26'-6"
 - Longitudinal steel beams tied to transverse beams
 - Improved performance – deck stiffness is increased
 - Cost savings of approximately \$3 million due to decreased steel weight
- Use two cables per hanger to add redundancy.
 - Loads can be carried by one cable per hanger.
 - Designed for total loss of a hanger.

Arch Span Foundation Study

- Arch Span Foundation - Spread Footing founded on rock
 - Conventional foundation for Arch / Long Span Structures
 - Minimize potential long term risks/maintenance
- Arch Span and Approach Span Foundations designed for long term rock scour

Arch Span



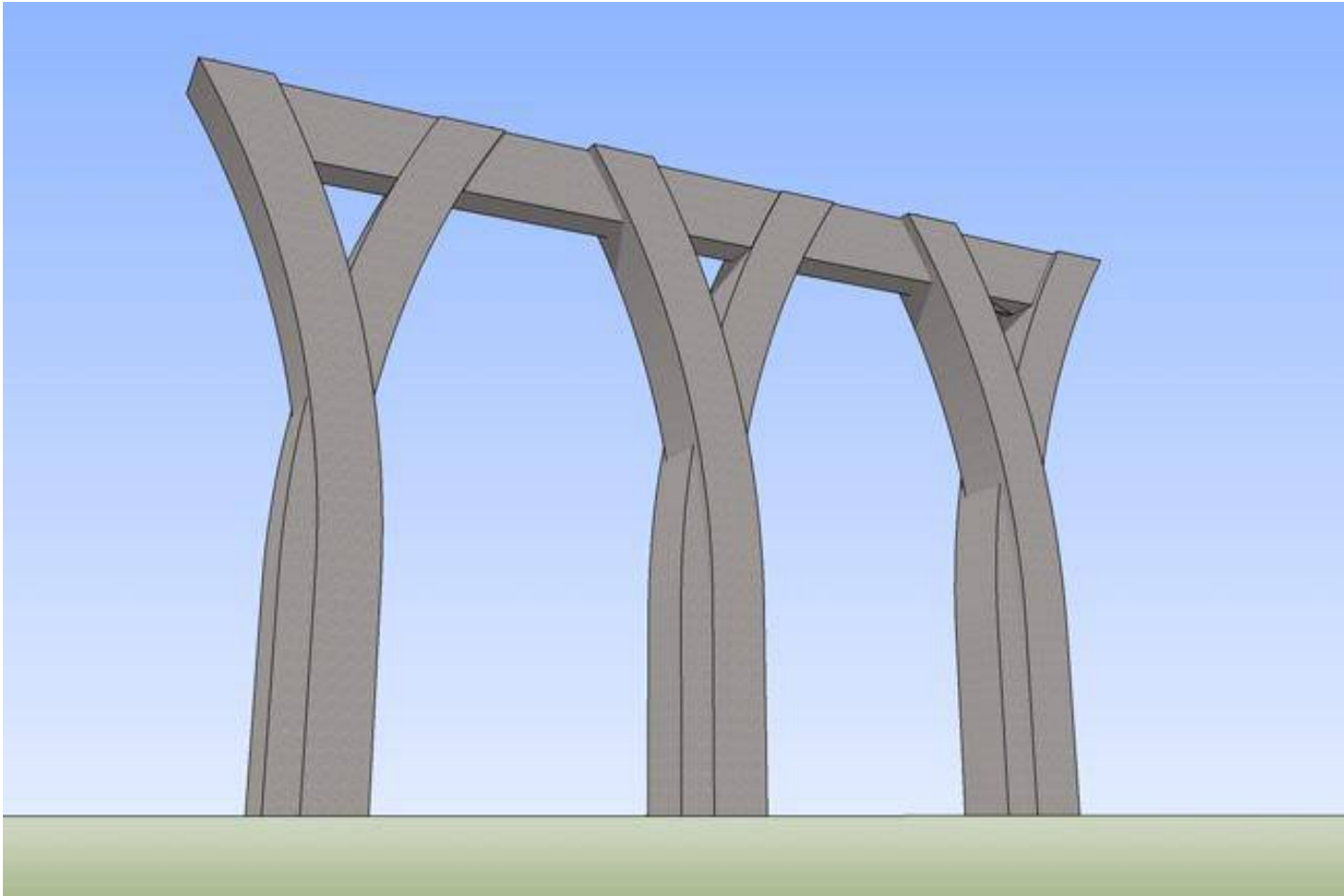
Elevated Seismic Design Criteria

- No significant cost penalty for moving from 1,000 year to 2,500 year return period
- Will use Construction Details for Seismic Zone 3 as opposed to Seismic Zone 1
- Small price to pay for added seismic resistance for this major structure

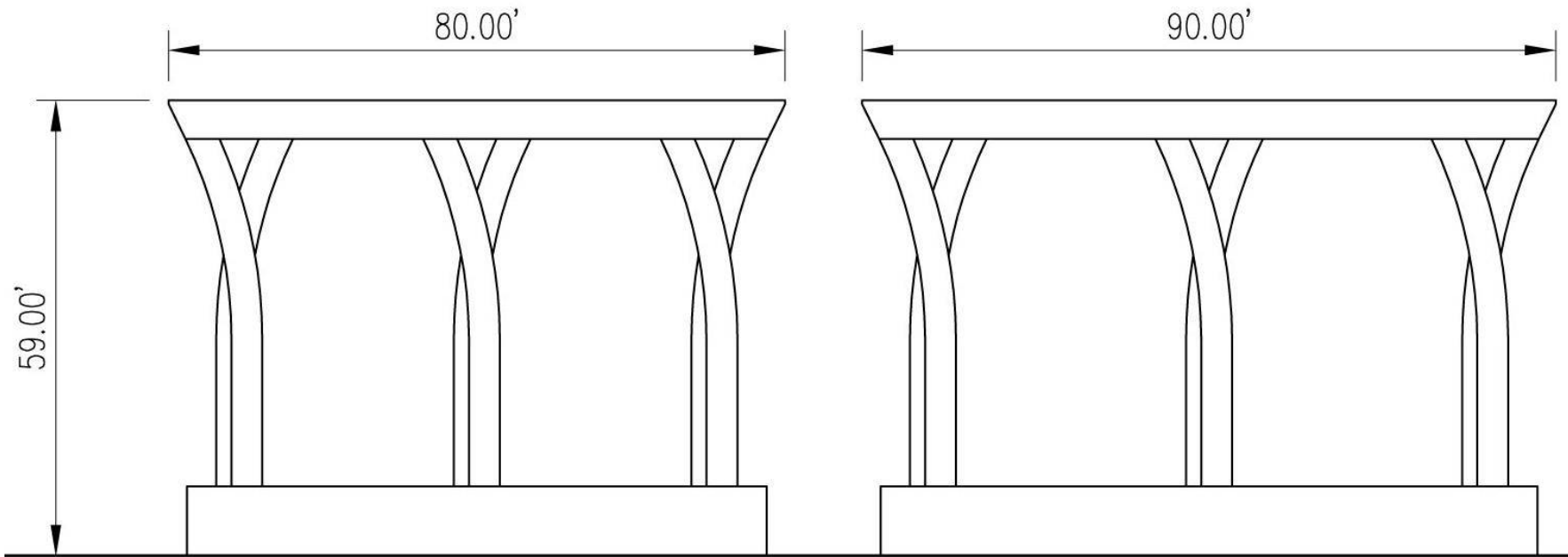
Vessel Collision Forces on Bridge Piers

- Mass of barge and tow speed are used to calculate energy transferred from barge to pier
- Tow speed varies from 8 mph to 10 mph
- Loads due to fully loaded tanker > 5,000 Kips (2,500 Tons)
- Additionally, all river piers will be designed for vessel collision loads due to a loaded runaway barge

I-74 Piers



I-74 Piers



River Piers



At Normal Pool River Levels

River Piers



At Flood Stage

Viaduct Piers



View of Bettendorf Viaduct

Viaduct Piers



View of Bettendorf Viaduct

Pedestrian Trail / Bike Path



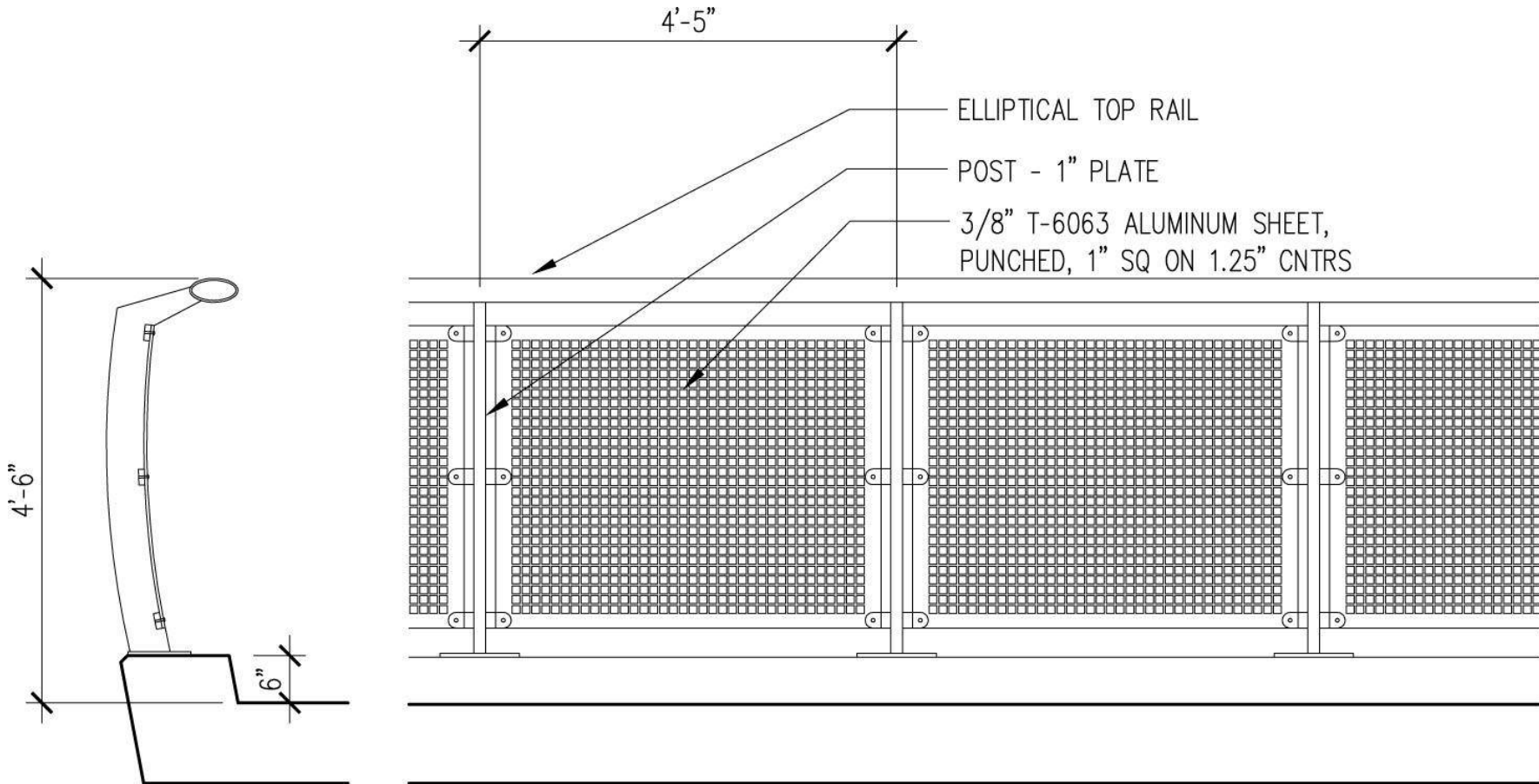
Pedestrian Railing - River Side



Pedestrian Railing - Arch Side



Pedestrian Railing - Details



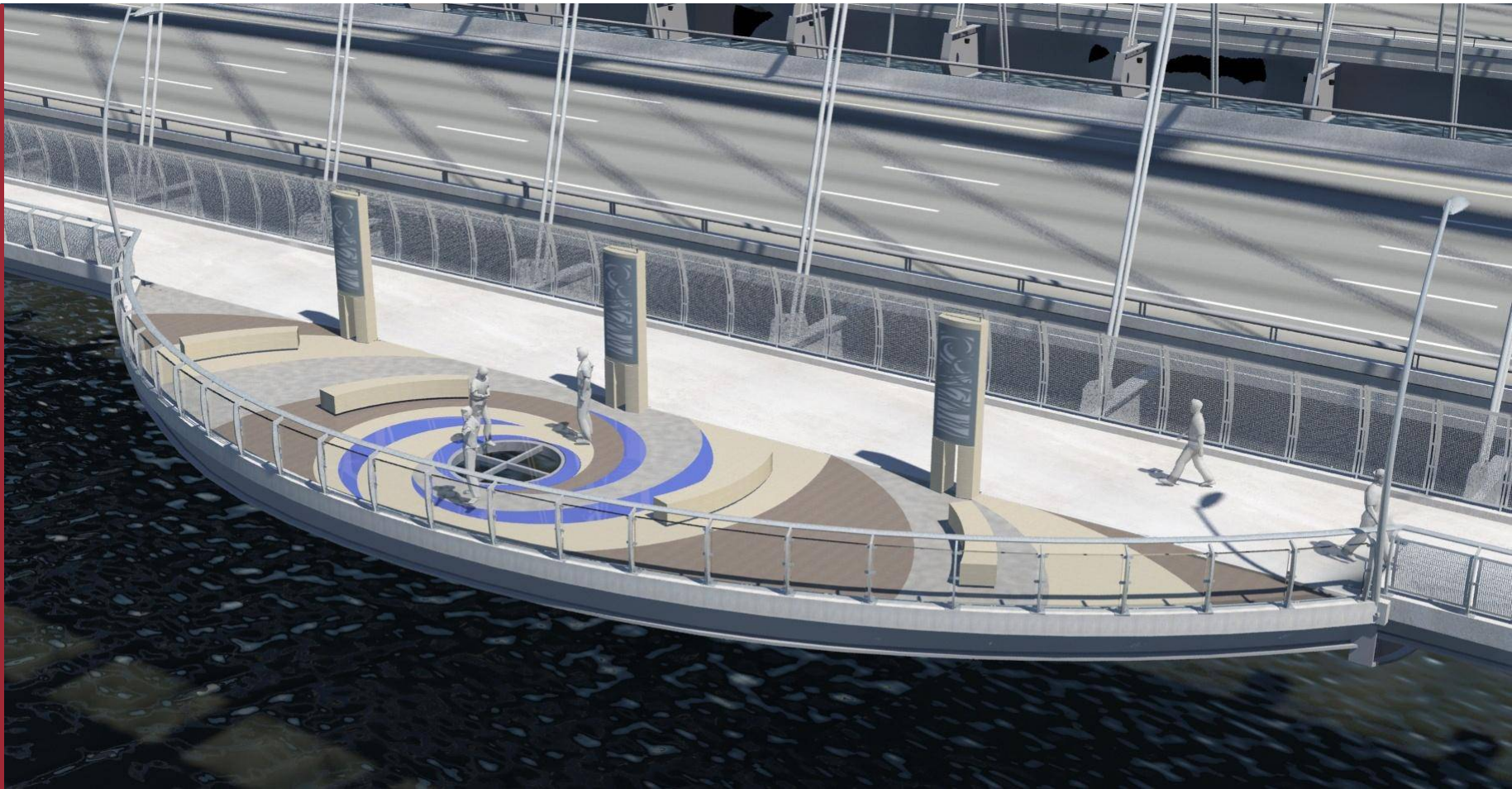
Pedestrian Trail / Bike Path Overlook



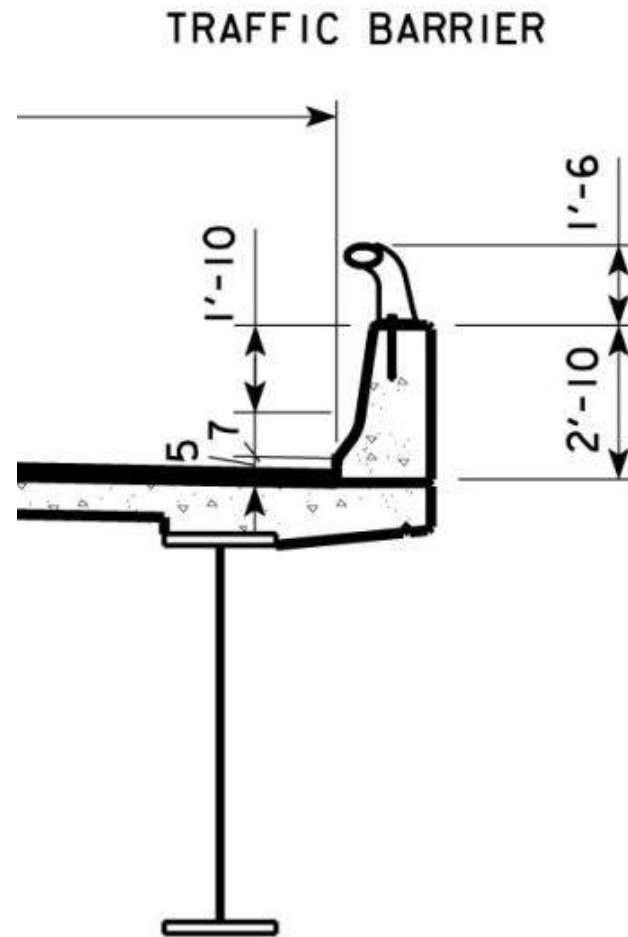
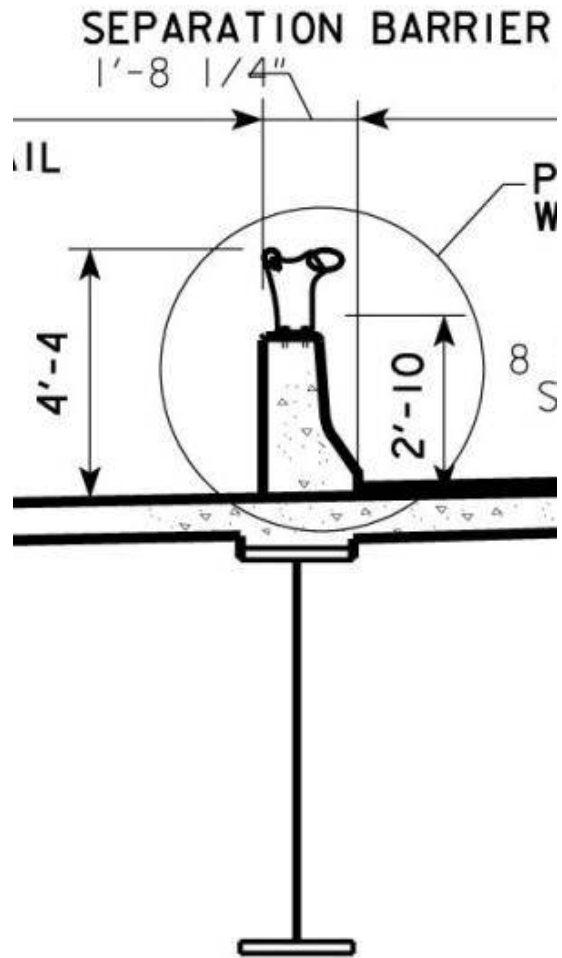
Pedestrian Overlook



Pedestrian Overlook



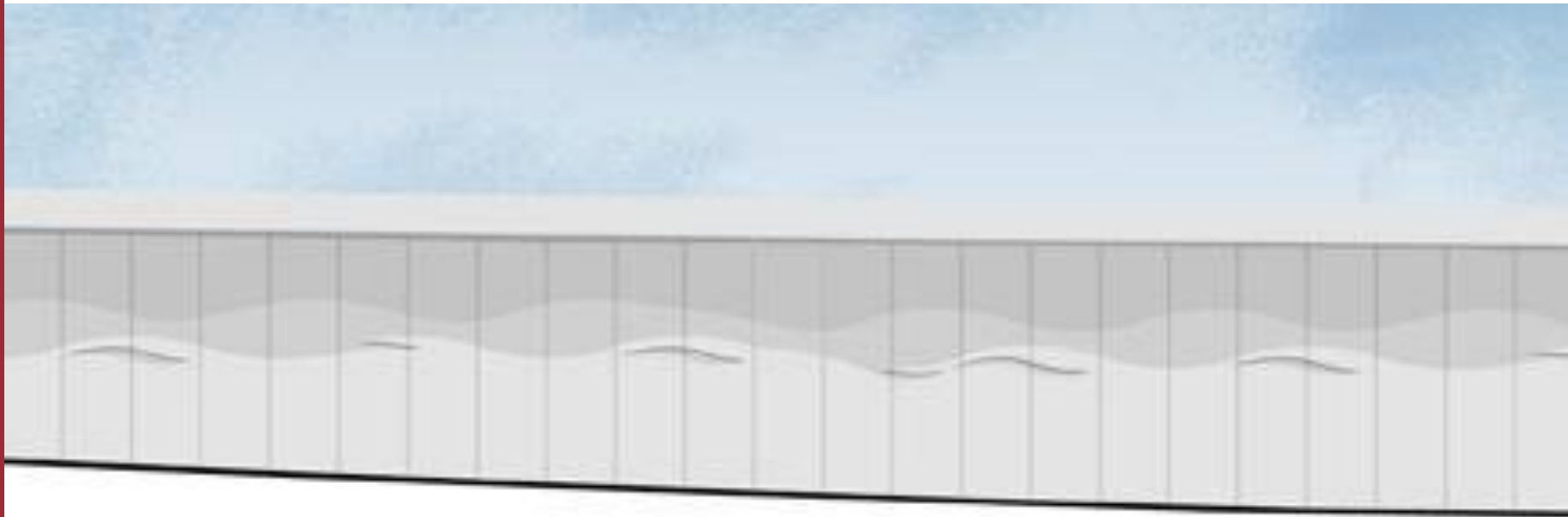
Traffic and Separation Barriers



Suggested Colors and Finishes

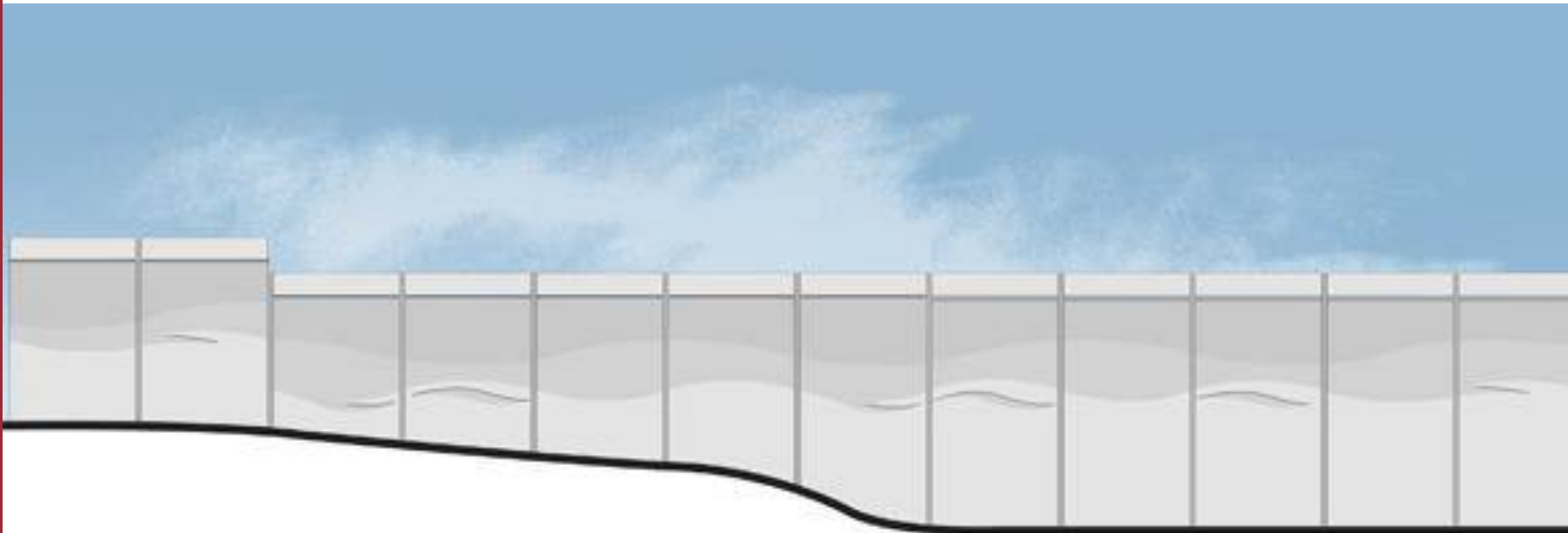
- Arch Rib
 - Structural Steel – painted white
 - Concrete – use of admixtures to “lighten”
- Steel Girders
 - Exterior of Fascia Girder – painted medium grey
 - Interior Girders – weathering steel
 - Painted either side of piers
- Railings
 - Traffic Barrier Railing – galvanized (grey color)
 - Pedestrian Railing – natural aluminum

Retaining Walls



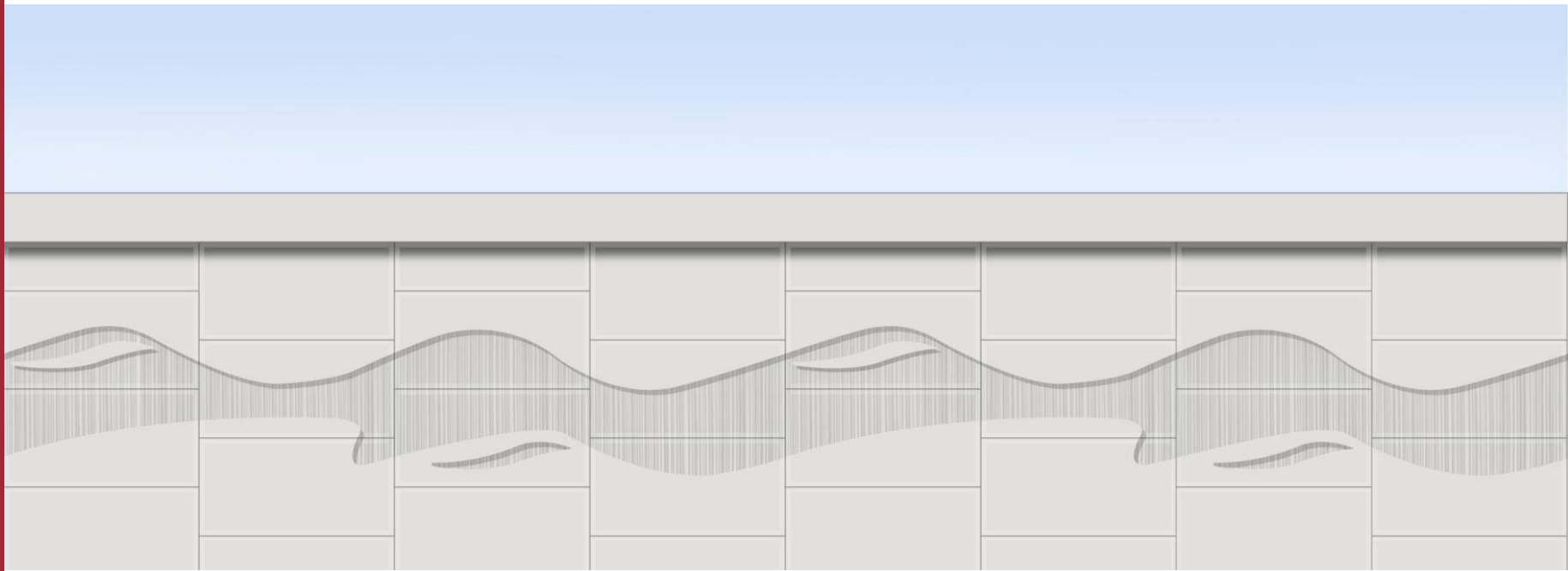
Cast-in-Place (CIP) Concrete Facing

Retaining Walls



With Variable Ground Surface

Retaining Walls



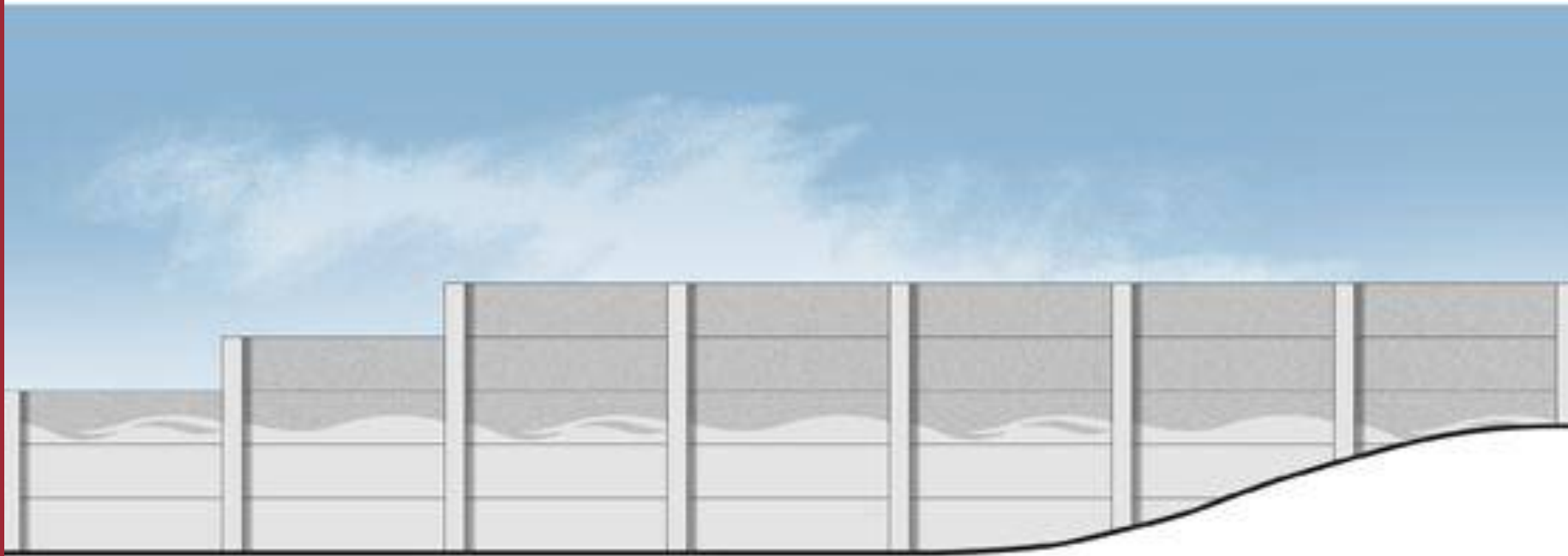
Mechanically Stabilized Earth (MSE)

Retaining Walls

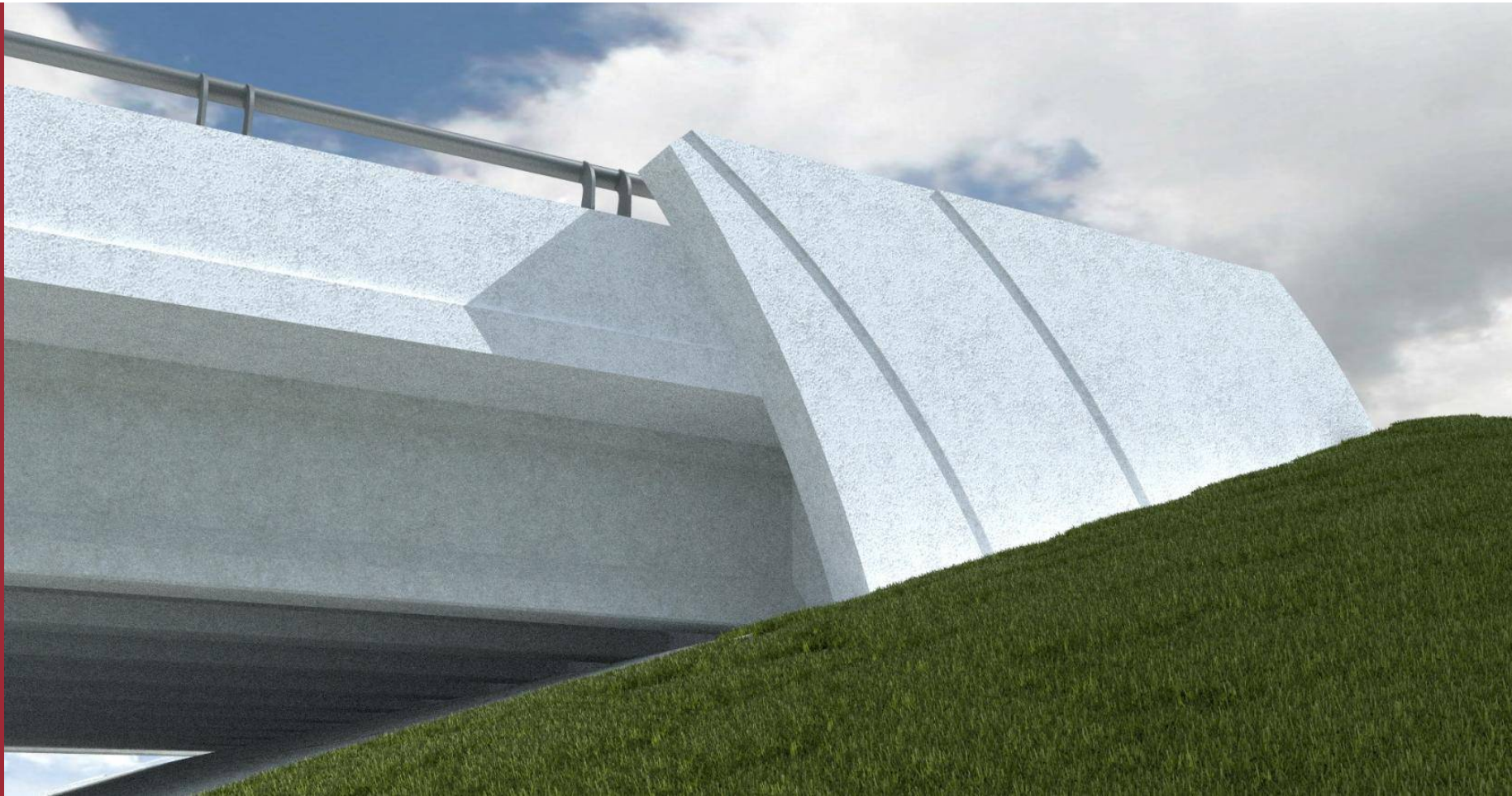


With Variable Ground Surface

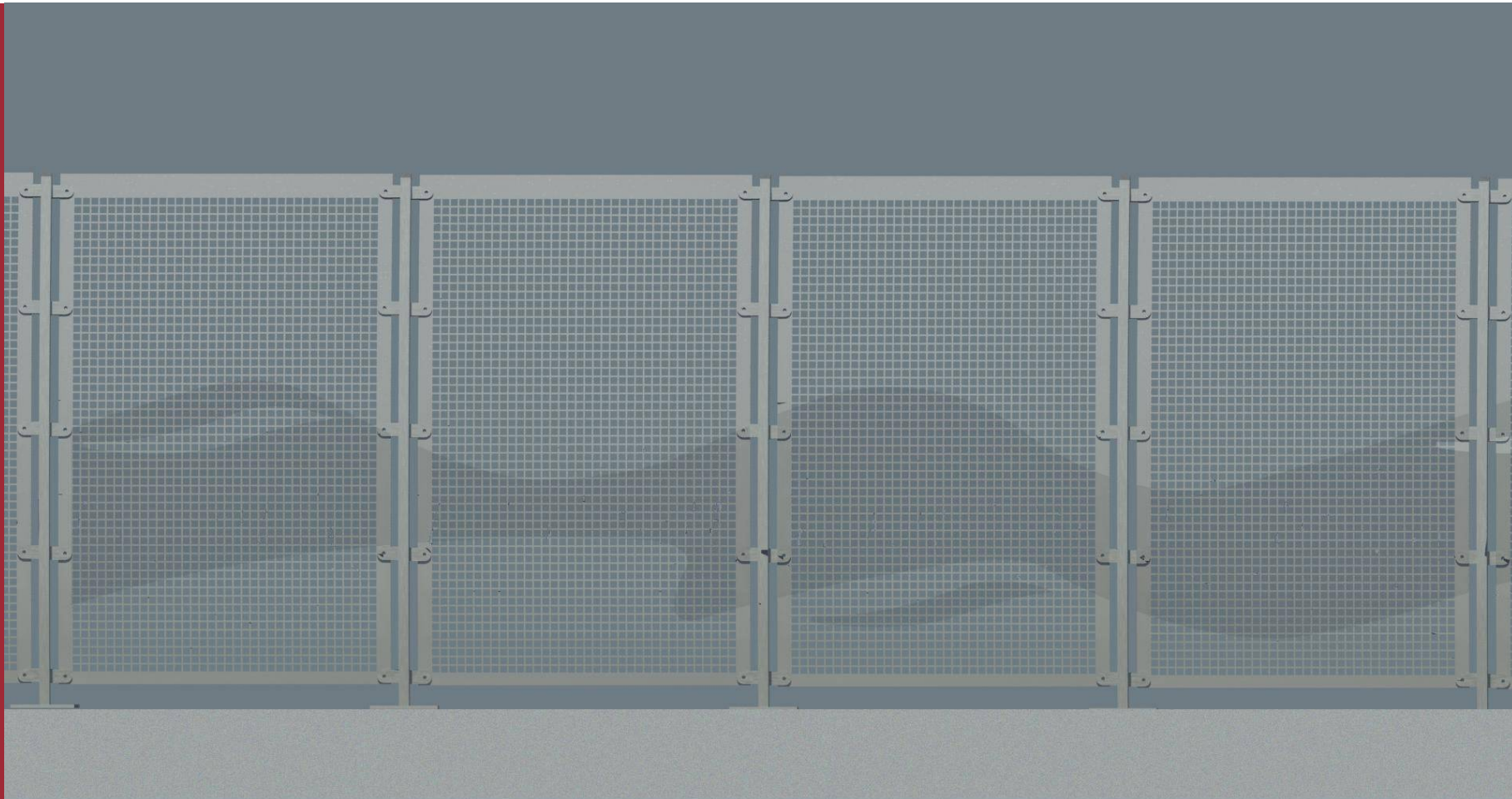
Noise Abatement Walls



Overpass Abutment and Traffic Barrier



Overpass Pedestrian Railing



Intelligent Transportation System (ITS) Elements in Current Scope

- Closed Circuit Television (CCTV) Cameras
- Video Detection System
- Side Fire Microwave Radar Sensors
- Dynamic Message Signs (DMS)
- Road Weather Information Systems (RWIS)
- Fiber Optic and Wireless Communications

ITS Elements Being Considered

- Bridge Health Monitoring Systems
 - SMART Bridge Systems
- Bridge Security Monitoring Systems
- Lane Usage Technology
- Forward Looking Infrared Camera Systems
- Automated Work Zone Technology

Light Poles - I-74 Mainline

DURANODIC ANODIZED



Clear Natural 204



Light Bronze 311

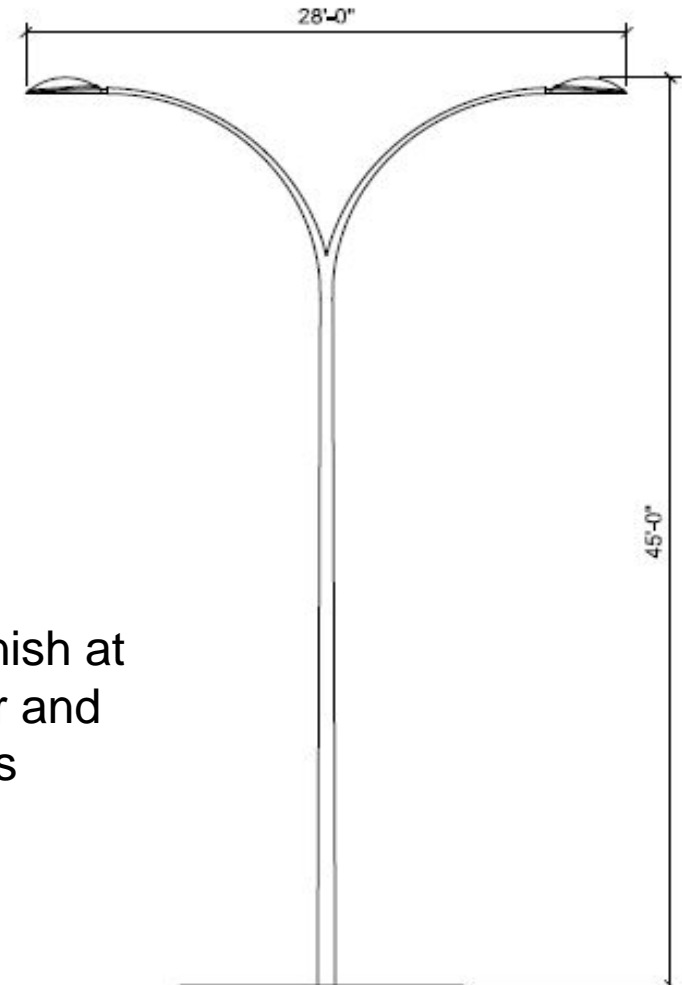


Dark Bronze 313

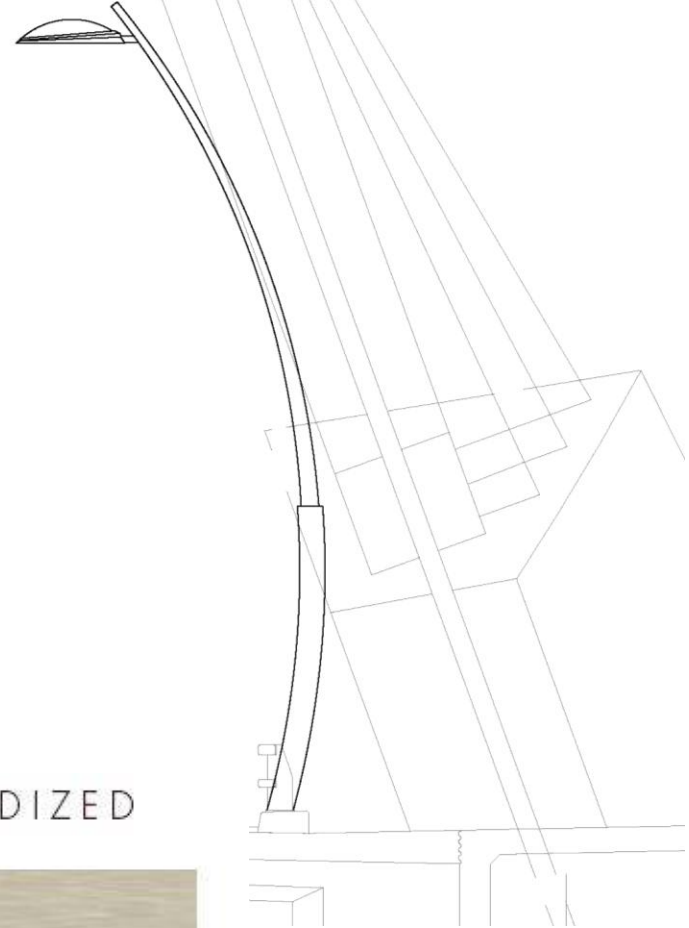


Black 335

← Pole Finish at
Corridor and
Viaducts



Light Poles - Local Road / Arch Span



DURANODIC ANODIZED

Pole Finish at Arch Span



Clear Natural 204



Light Bronze 311



I-74/Mississippi River

Lighting Type



High Pressure Sodium
(HPS) - CRI 21-23
DOT Standard

Ceramic Discharge Metal Halide
To be used in the 53rd Street
Interchange Improvements



Ceramic Discharge Metal Halide
(CDMH) - CRI 65-75

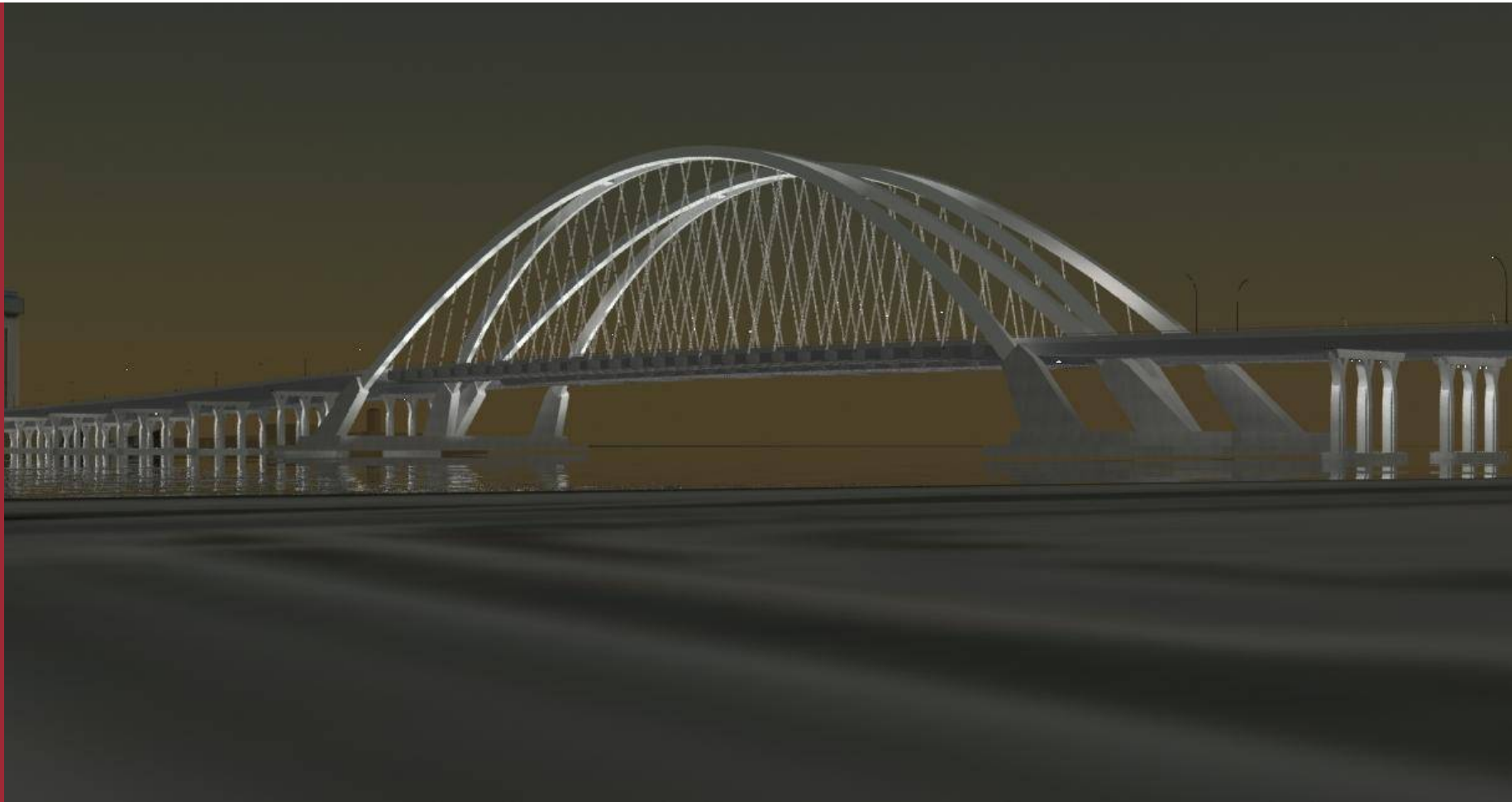
Arch Span Lighting



Arch Span Lighting



Possible Aesthetic Lighting for River Spans



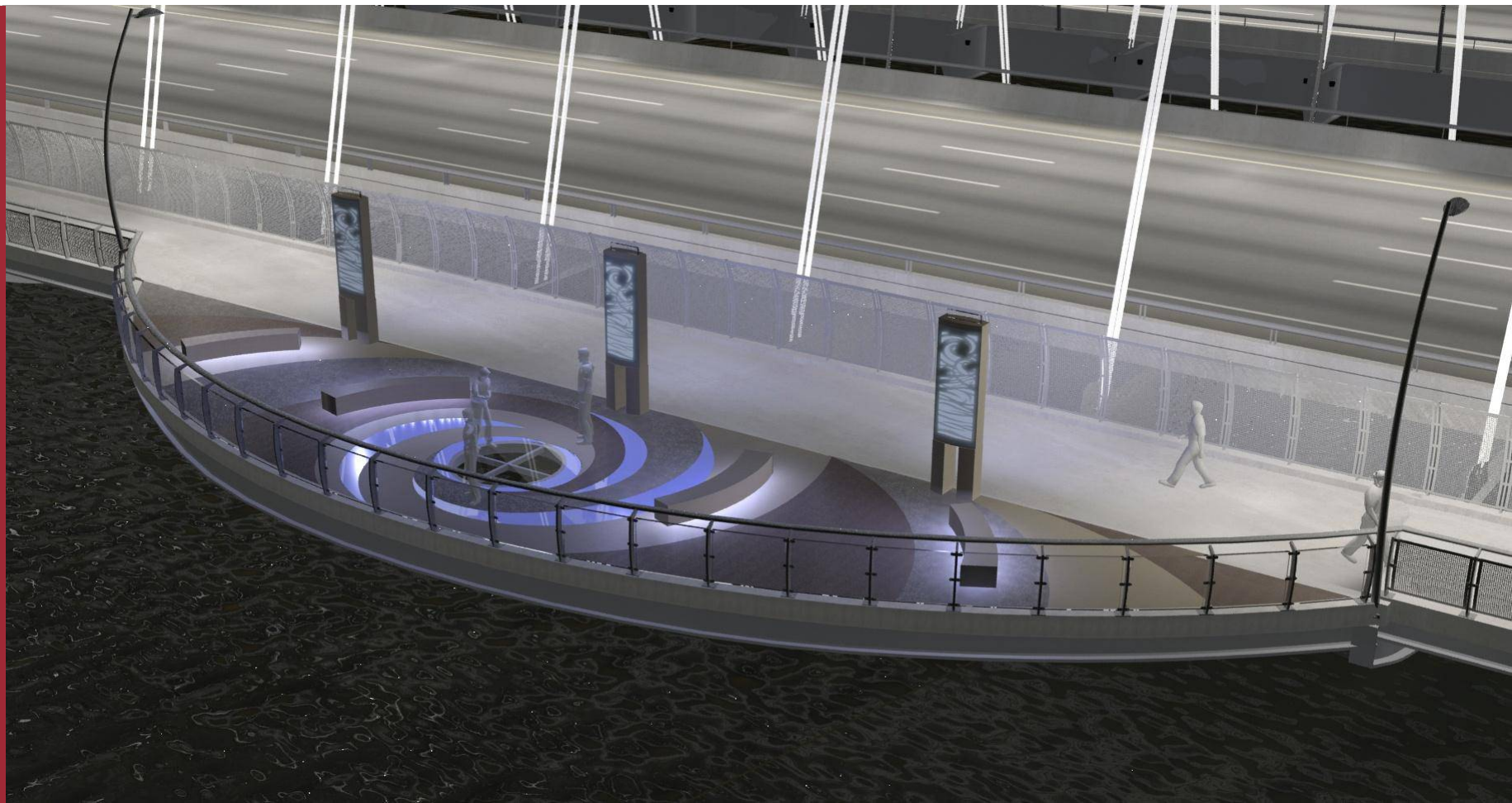
Pedestrian Trail / Bike Path Lighting



Pedestrian Overlook Lighting



Pedestrian Overlook Lighting



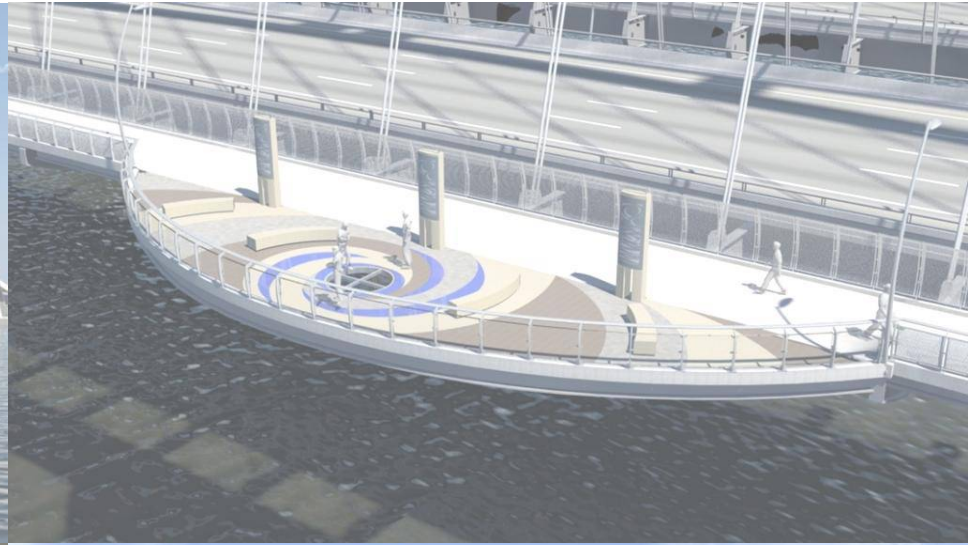
Construction Contracts

- 5 Year Construction Duration
 - Reduced from early estimates of 8 years
 - Minimize inconvenience to motorists
 - Delay impacts to I-74 traffic for as long as possible
- Contract Determination Considerations
 - Bonding capacity of local contractors
 - Dollar amount of each contract
 - Availability of labor
 - Construction staging
 - Construction efficiencies

Central and South Section Contracts

- Total of 12 Construction Contracts
 - 4 construction contracts in Illinois
 - Combined roadway and bridge
 - 8 construction contracts in Iowa and over River
 - 4 bridge contracts
 - 4 roadway contracts
- Various supply/specialty contracts
 - Intelligent Transportation Systems
 - Light poles and luminaires
 - Landscaping
 - Aesthetic features
 - Bridge demolition

I-74 Corridor Project Update



Thank You.