



SH 82

GRAND AVENUE BRIDGE

Design Elements Issue Task Force

March 12, 2014

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Historic Character



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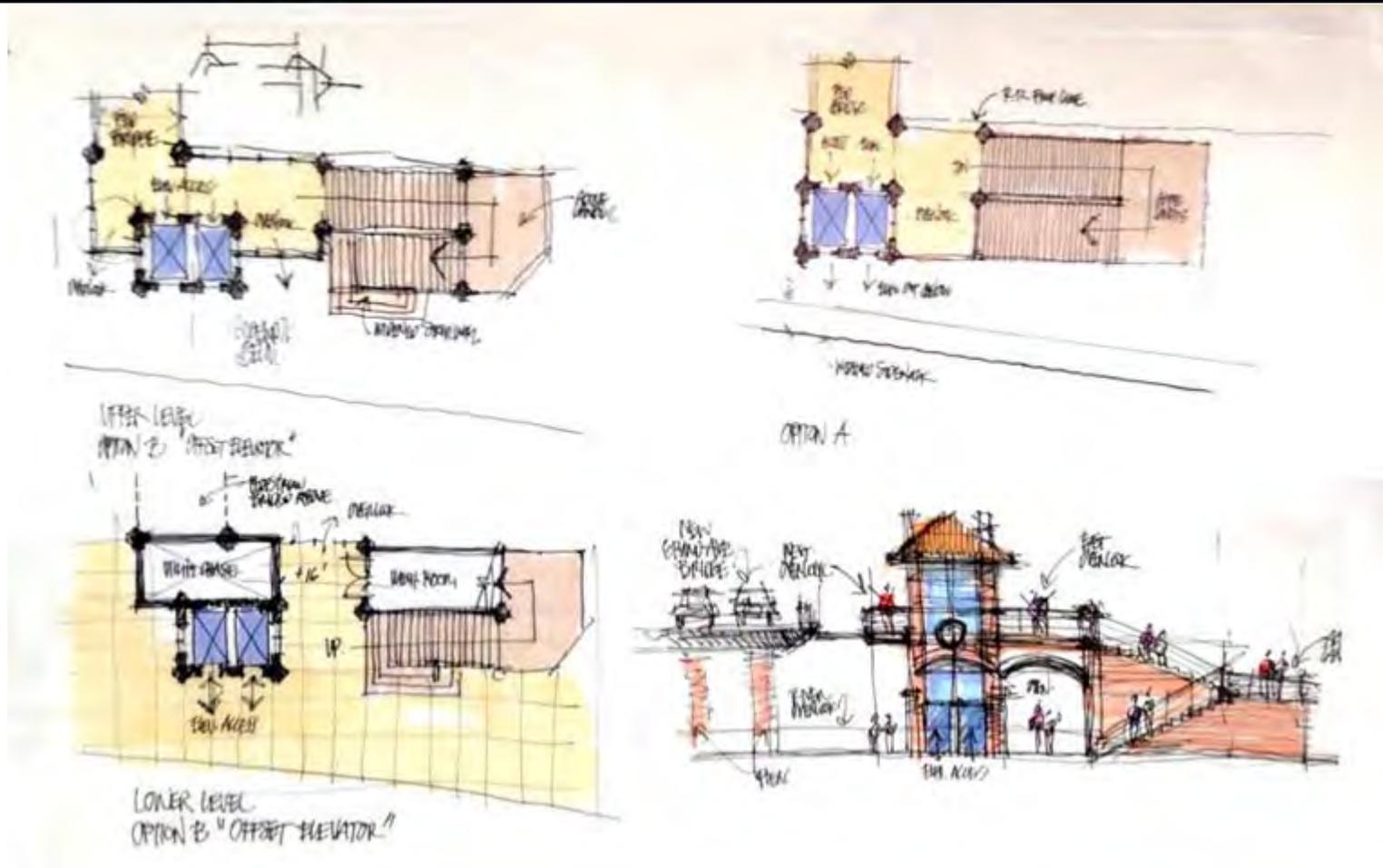




7th Street DDA Charrette and Public Open House

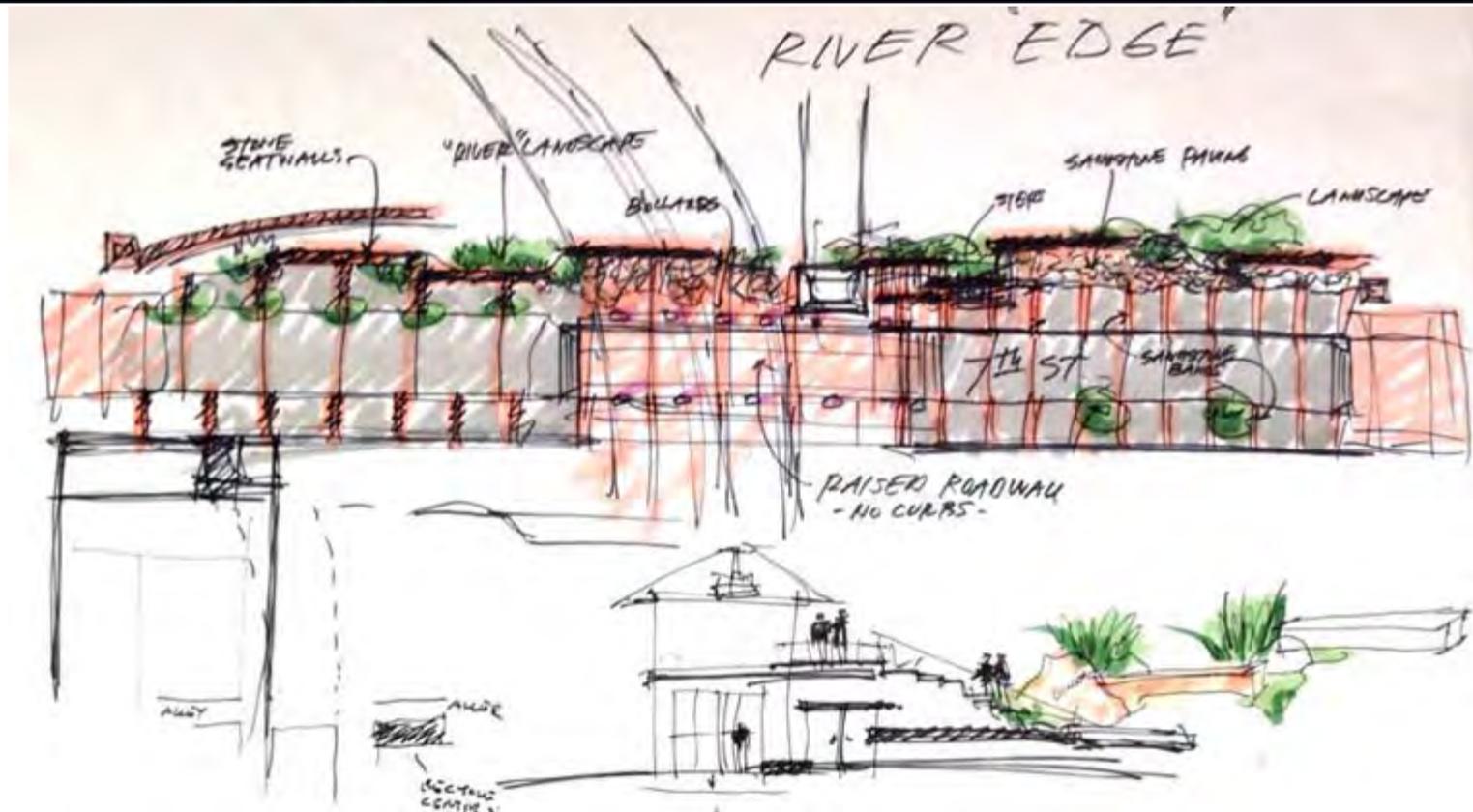


7th Street DDA Charrette and Public Open House



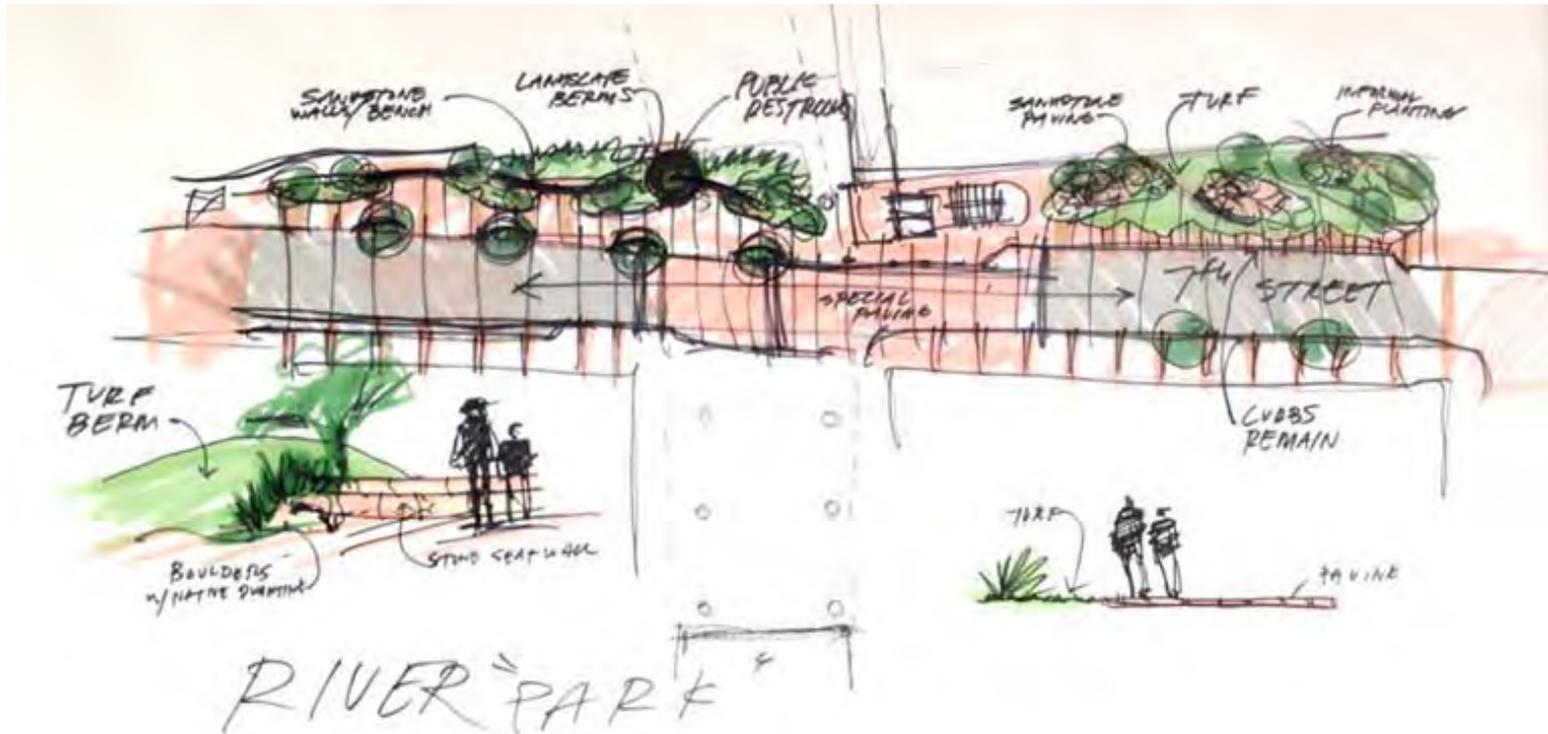
Elevator Tower Studies

- Doors facing north and south preferred option over rotated elevator cab in which doors face east and west (not shown)



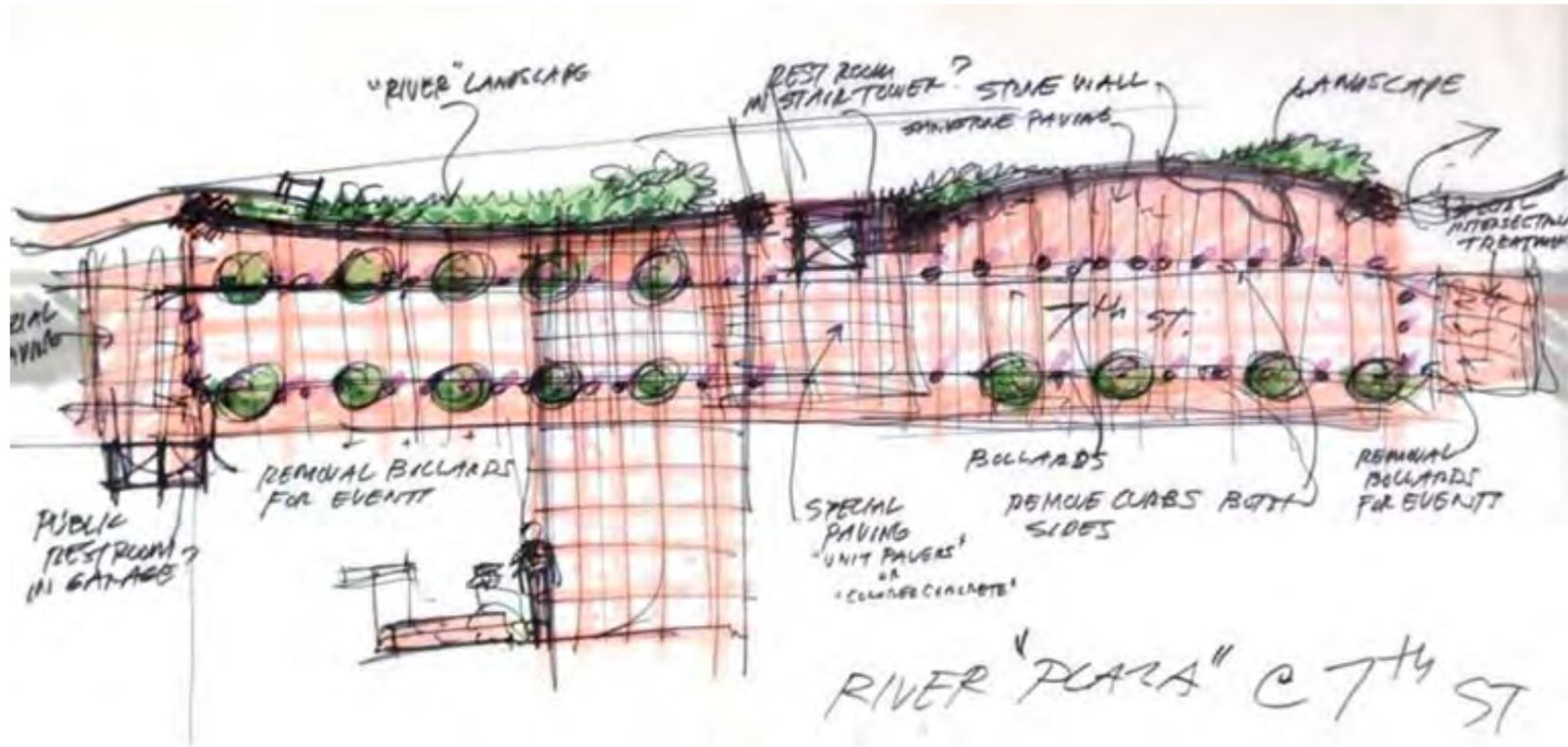
River "Edge" Option

- Application of canyon "landscape" to plaza
- Linear walls transition to boulders/mountain landscape
- Extend 7th Street paving theme to north side of street
- Raise intersection at Grand Avenue to sidewalk level



River "Park" Option

- Introduce "green" into the plaza space
- Provide moments of stone plazas to support sitting
- Special paving at intersection with Grand Avenue



River "Plaza" Option

- Street as plaza
- Strong stone seat walls to define river edge
- Extend 7th Street paving across street and through plaza
- Raise street to level of sidewalk
- Potential to close street for events

Two Layout Options:

- Layout A – Tower Facing North-South Direction
- Layout B – Tower Facing East-West Direction

Depot right-of-way consideration

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Elevators and Stairs



Elevators and Stairs



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Elevators and Stairs



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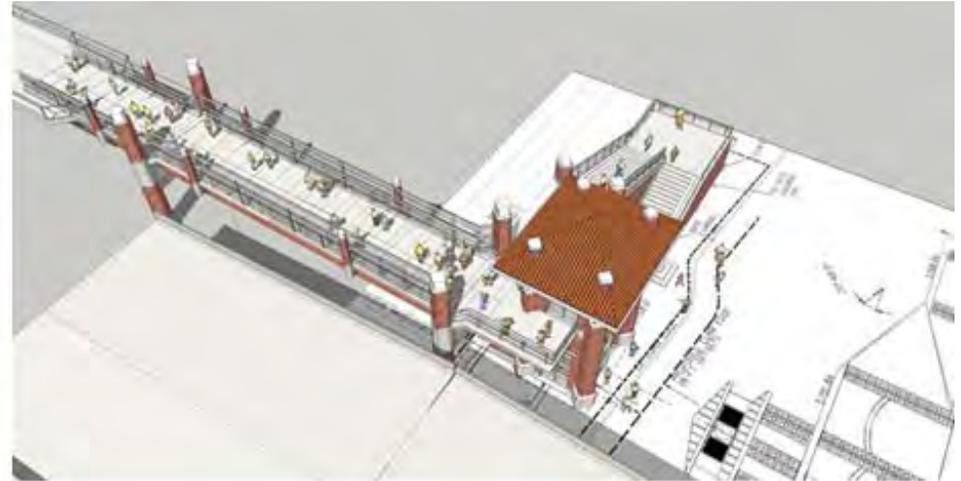
Elevators and Stairs



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Elevators and Stairs



Layout A

Pros:

- Provides more direct path to elevator from Pedestrian Bridge
- Tower location is more visible from Grand Avenue
- Layout requires less upper landing area (less cost)

Cons:

- Requires relocating 7th Street up to 6 feet (construction phasing coordination)
- Tower location creates pinch point at upper level elevator doors
- Tower location is only about 16 feet away from Grand Avenue Bridge

Layout B

Pros:

- Does not require realignment of 7th Street
- Tower location has more waiting area at elevators
- Tower location is about 32 feet away from Grand Avenue Bridge

Cons:

- Tower layout requires pedestrians to walk around elevators when using stair access
- Lower level access for elevators and stairs will be in the same area

Amtrak Retaining Walls

(If working in Depot right-of-way)

- Stairs will be removed for Pedestrian Bridge abutment
- Condition assessment of existing walls
- Replace required portion or full wall alignment
- Can use caissons to minimize impact on walls



Elevator Type and Operations

Elevator Design Criteria

- Ride-in / ride-out function
- Sized for bikes with trailers
- As much glass as possible

Elevator Type – Traction vs. Hydraulic

- Recommend – hydraulic hole less two piston type
- Better option for application
- Traction requires additional room on top of elevator shaft
- Traction Estimated to be twice the cost of hydraulic

Elevator Controls

- Pedestal option for call button
- Doors on timer (no hold open or close button)
- Motion detectors for lighting (exterior and interior)
- Climate control (not required)

Elevator Type and Operations

Mechanical Room

- Estimated Size = 8 feet by 10 feet
- Less than 50 feet from elevator
- Environmental controls – requires ventilation and heating (to 50 deg F)
- Machine room less elevator option – requires much larger, deeper shaft

Elevators and Stairs

Handrails

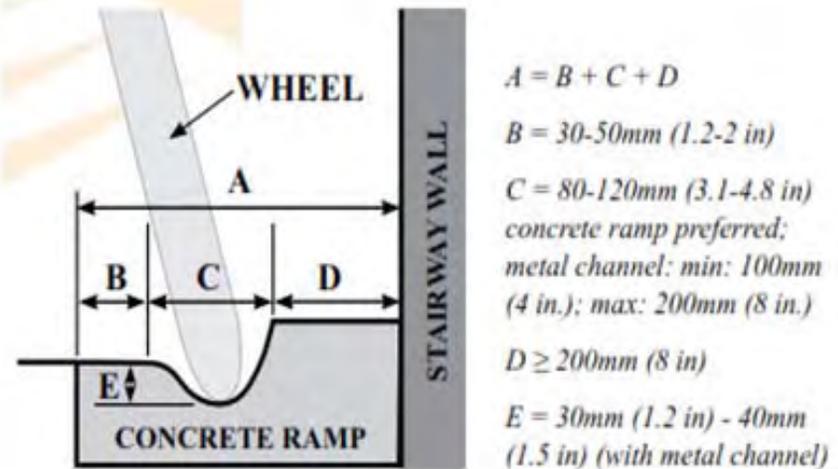
- Woven wire fabric type
- Materials
- Finishes
- Removable option
- Costs



Elevators and Stairs

Bike Channels

- Concrete cast-in-place
- Stair tread slope ~ 25%



After Cycling England's "Design Portfolio B.10 Wheeling Channels" diagram.



Pedestrian Bridge Layout and Tie-ins

- Follow elevator column
- Build false wall or room option
- Other concepts?

Size and Service Level

- Project replacing in kind

Location Options:

- Incorporated into tower stairs
 - Space is limited
 - Close proximity to elevator pedestrians (odor concerns)
- Under Grand Avenue Bridge
 - Not preferred location for structural reasons
- With County parking garage
 - Location approximately one block from tower

Priority of Aesthetic Enhancements

- What are the aesthetic priority areas for the residents of Glenwood Springs?
 - Pedestrian Bridge
 - Grand Avenue Bridge
 - Underpass - Safety
 - Plaza under Grand Avenue Bridge
 - Wing Street Connection to 8th Street
 - Landscaping
 - Retaining Walls
 - Sidewalks/Streetscape Furniture

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South Side Aesthetics

Plaza Under Grand Avenue Bridge

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South Side Aesthetics



- The Under Bridge Environment Design Challenge
 - There are three planes to design – floor, ceiling, and the in between space.
 - Dark – introduce light to make feel safe - even in daytime.
 - Security – design to activate the space with right people and activities.
 - Vegetation struggles to grow – design primarily with hard surfaces.
 - Grade changes- Plaza is 2 feet lower than Wing Street on the east.
 - Tying in with the proposed sidewalk improvements on the south side of 7th Street.
 - Design flexible and desirable environment.
 - Make it memorable – a place people want to return to.



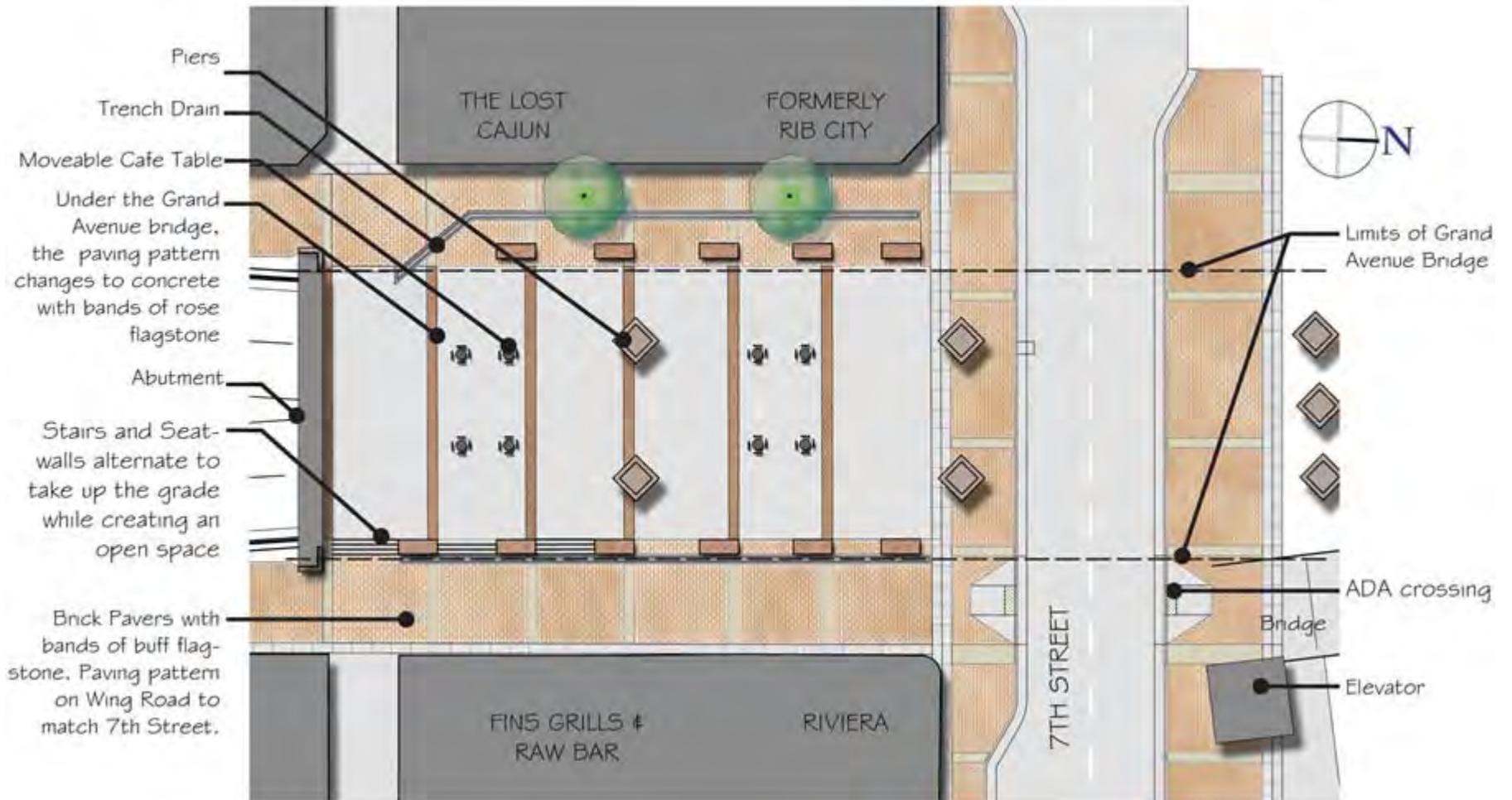
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Concept One:

Continuation of 7th Street Improvements

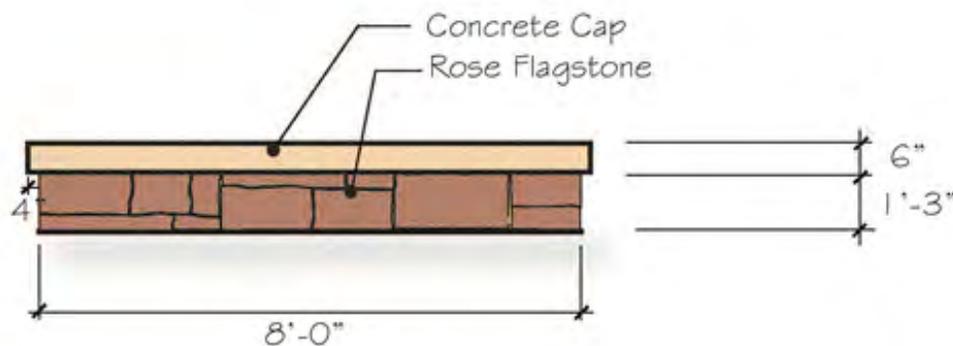
South Side Aesthetics



South Side Aesthetics



Elevation of Plaza under Grand Avenue Bridge



Stone Seat walls to alternate with concrete stairs

South Side Aesthetics



Concrete with bands of sandstone. Continues the feel and the paving pattern from 7th Street.



Abutment faced with sandstone.



Trench drain



Moveable Café furniture to maintain flexibility

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South Side Aesthetics



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South Side Aesthetics





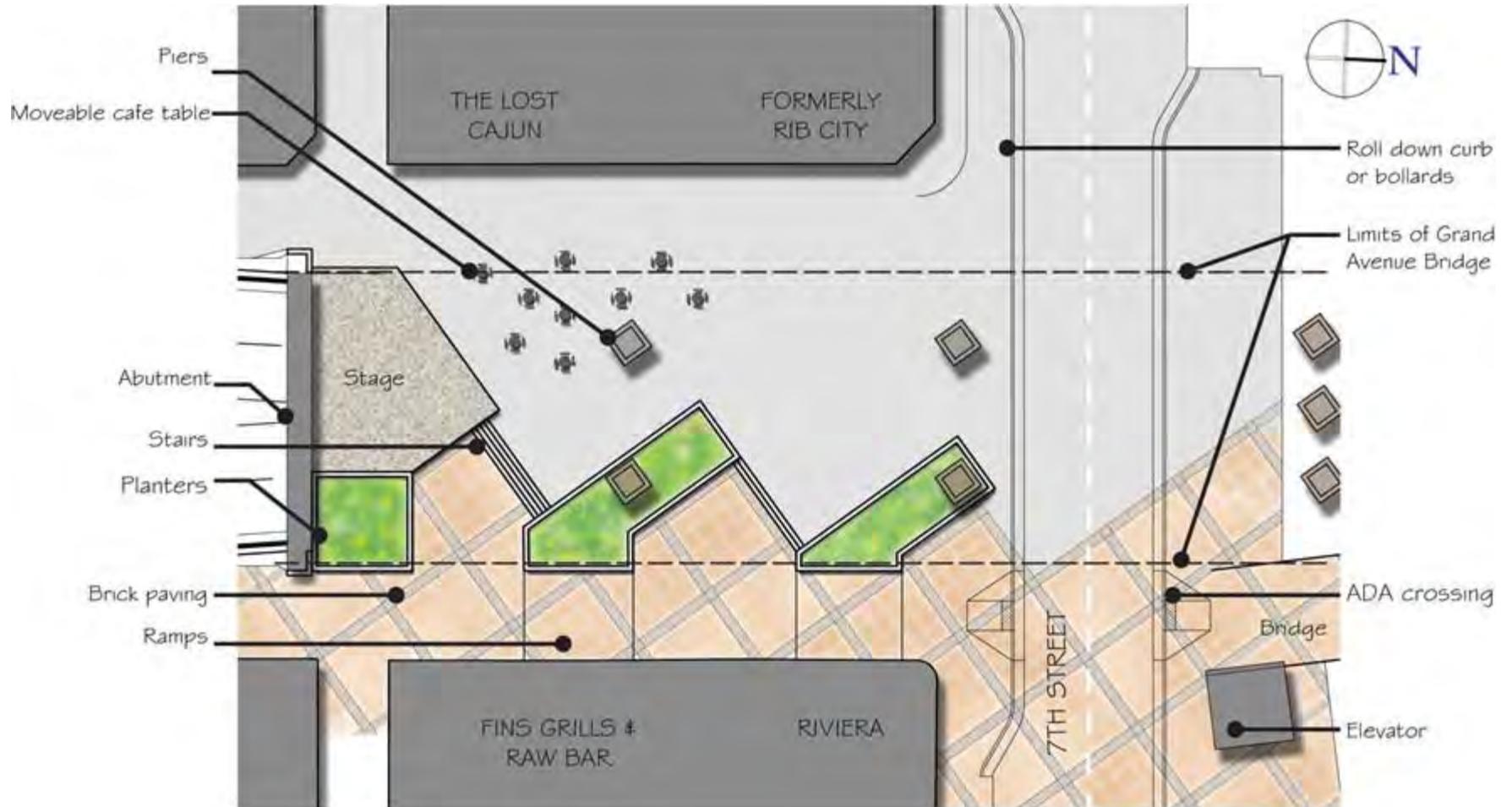
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Concept Two:

Connecting the plaza across 7th Street

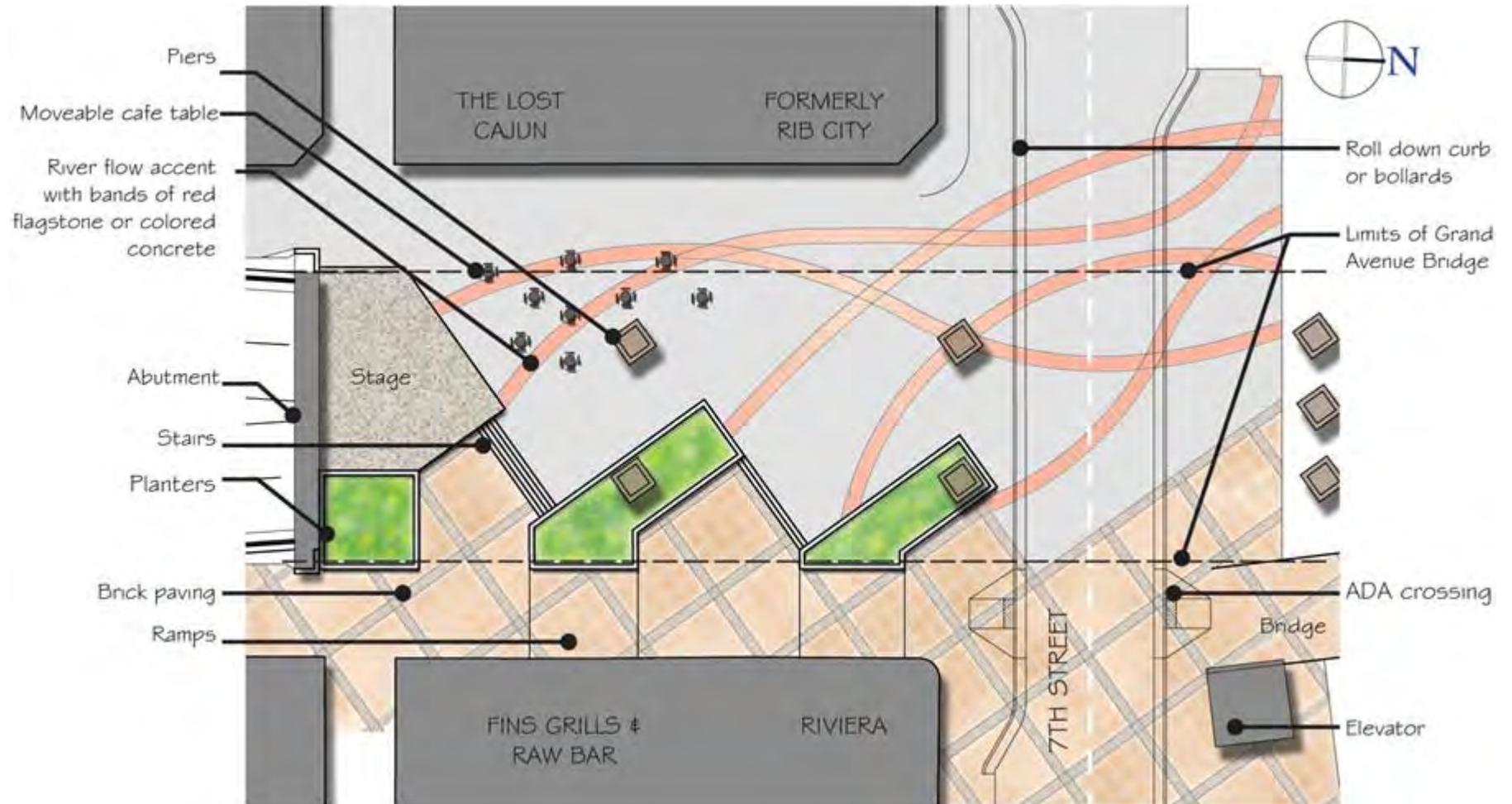
South Side Aesthetics



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South Side Aesthetics



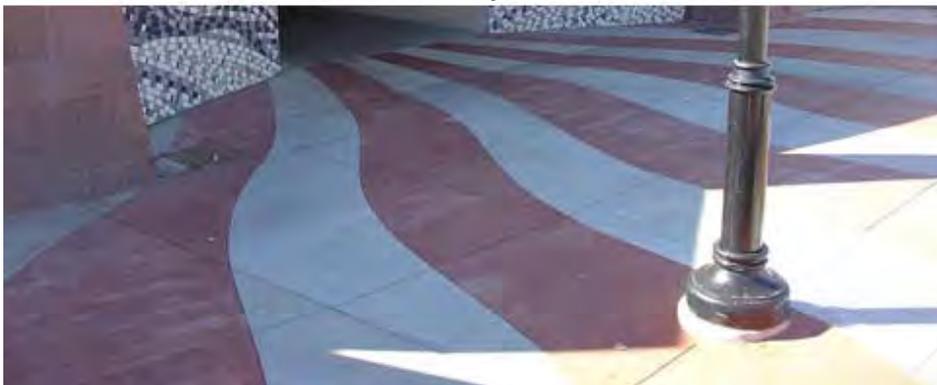
South Side Aesthetics



Concrete planters



Moveable Café furniture
to maintain flexibility



Ribbons of colored concrete

South Side Aesthetics

- Abutment wall and Grand Ave walls provide an opportunity to incorporate Todd Wadsworth artwork with R.L.Wadsworth/Granite.



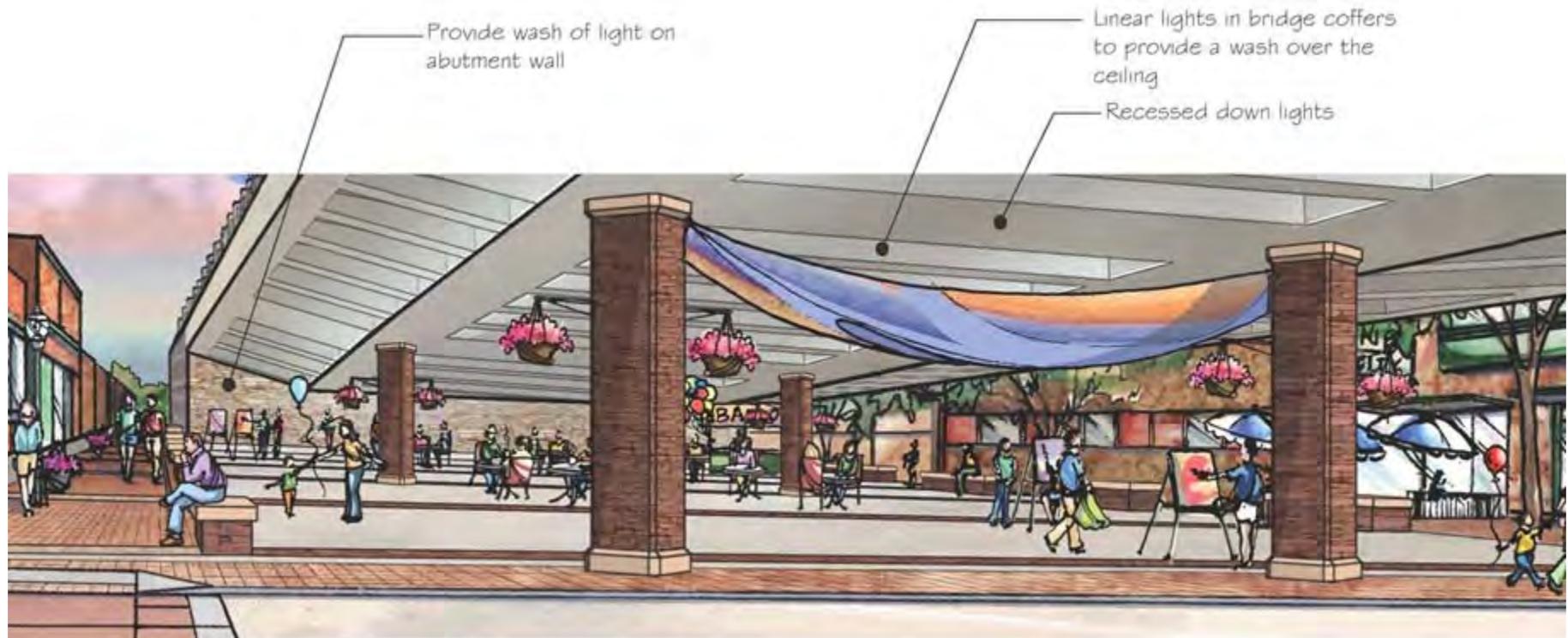
South Side Aesthetics

- Incorporate memorial bricks in plaza



South Side Aesthetics

- Lighting opportunities to create a dynamic, active, safe environment.



South Side Aesthetics

- Wing Street connections to 8th Street
 - Incorporate quality materials
 - Planter walls or planters
 - Streetscape furniture
 - Street lighting



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Pedestrian Bridge



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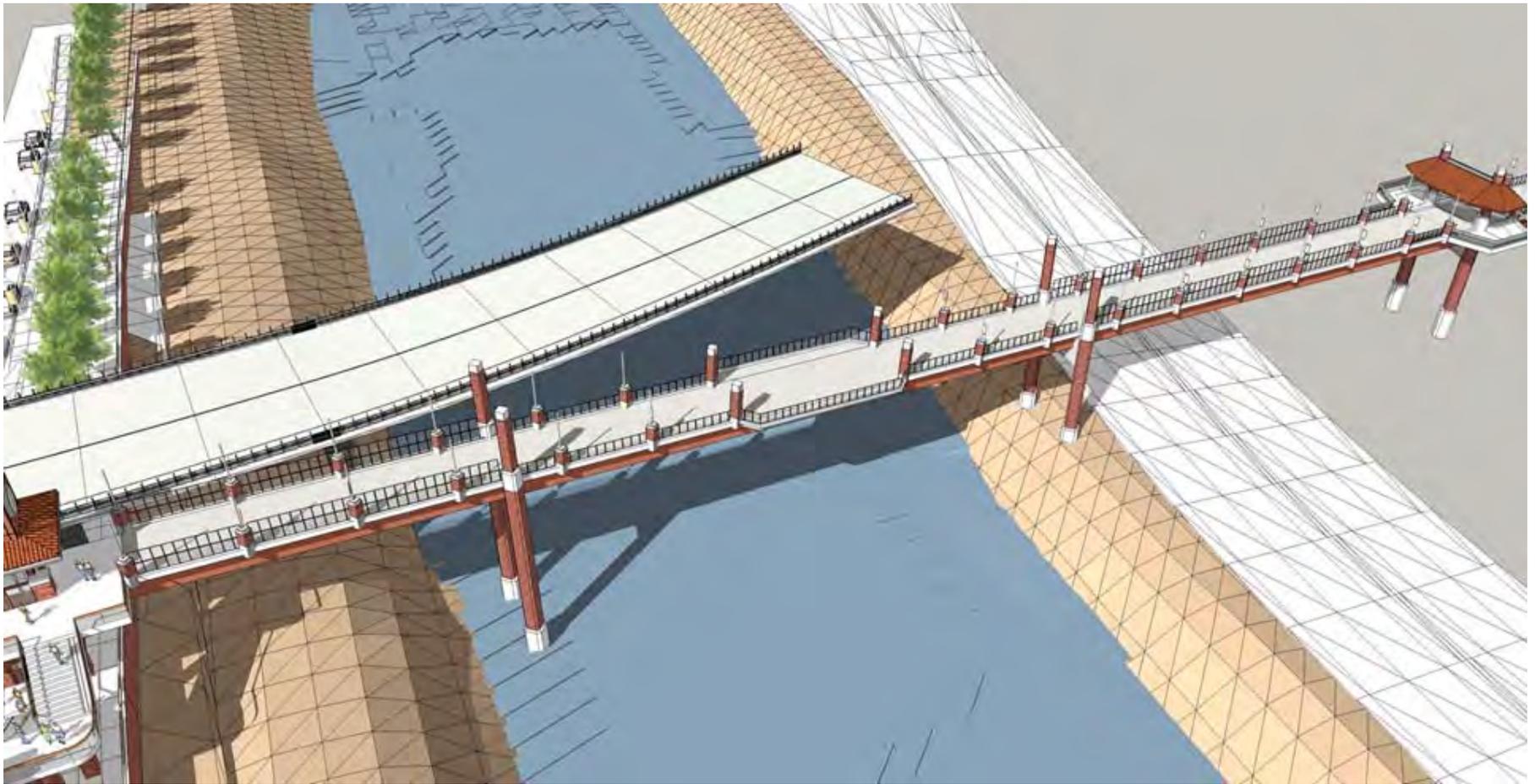
Pedestrian Bridge



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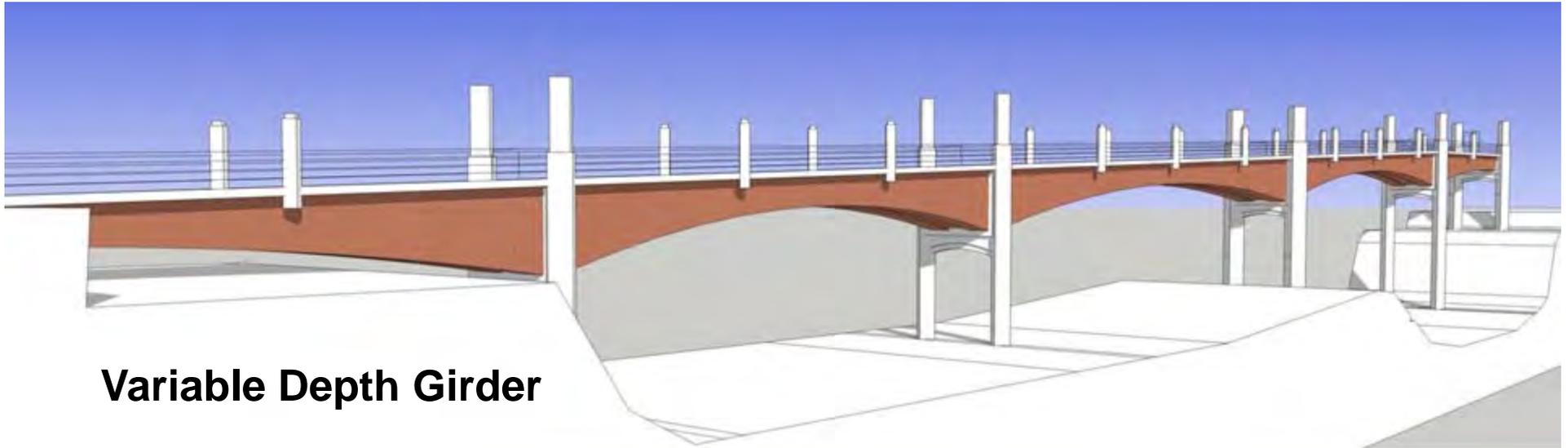
Pedestrian Bridge



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Pedestrian Bridge

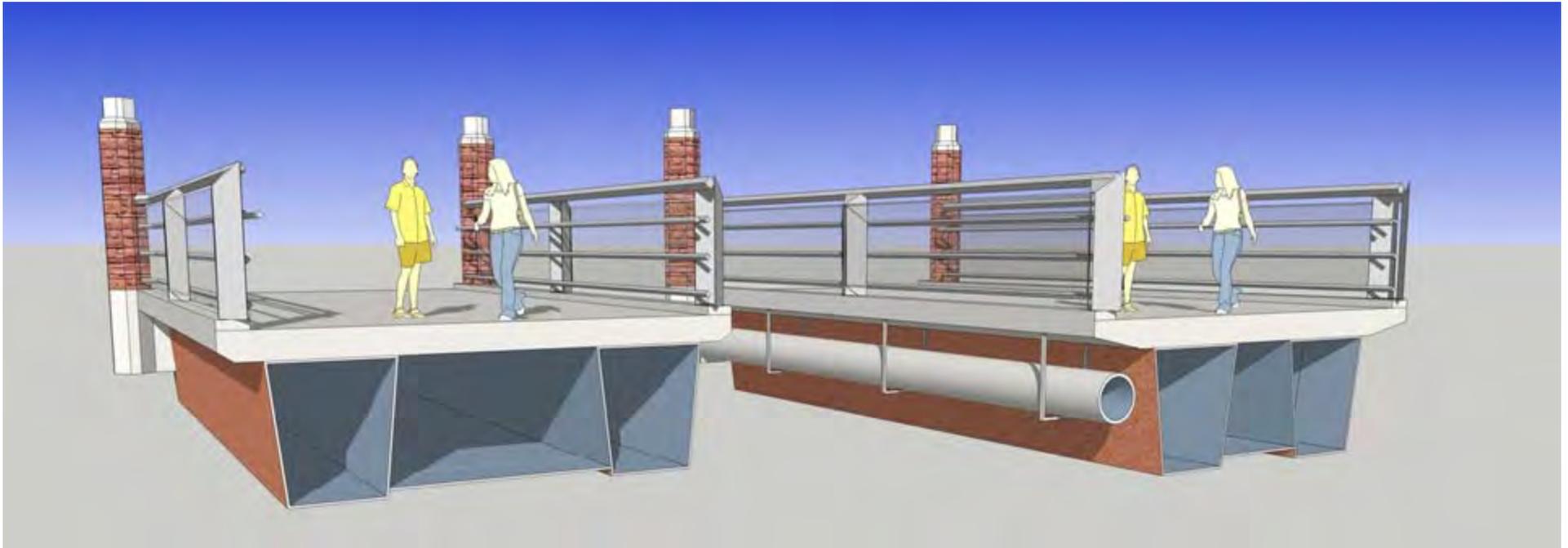


Variable Depth Girder



Constant Depth Girder

Pedestrian Bridge



Constant Depth Girder

- All utilities are concealed
- Slim profile with 5' section
- Easier access for maintenance

Variable Depth Girder

- 15 inch water line exposed
- Varying depth section
- More challenging to maintain

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Pedestrian Bridge



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Pedestrian Bridge



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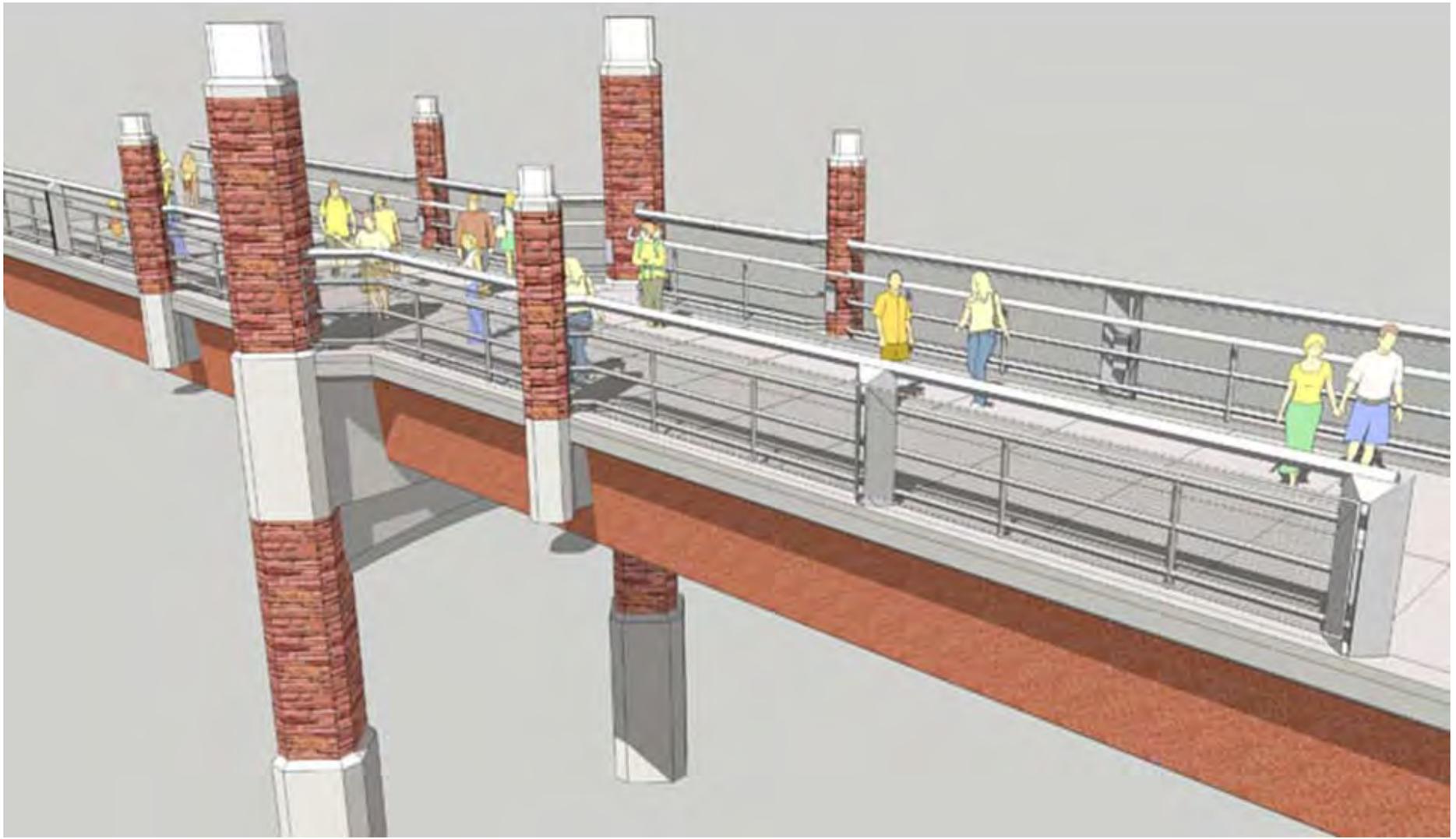
Pedestrian Bridge



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Pedestrian Bridge



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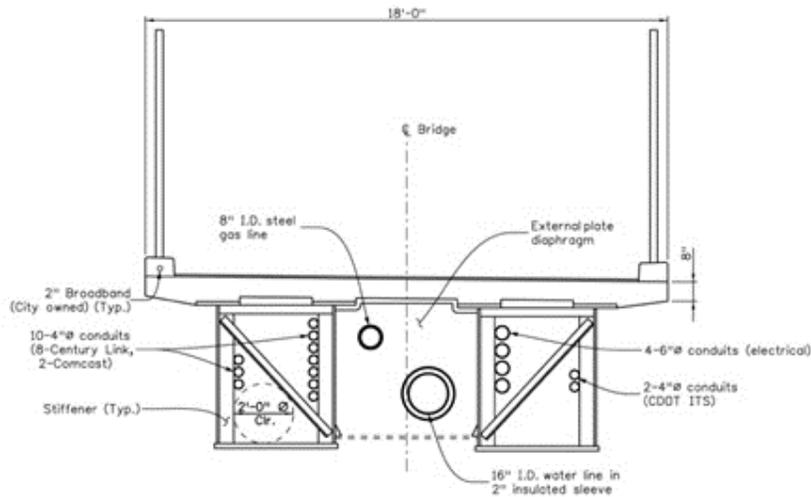
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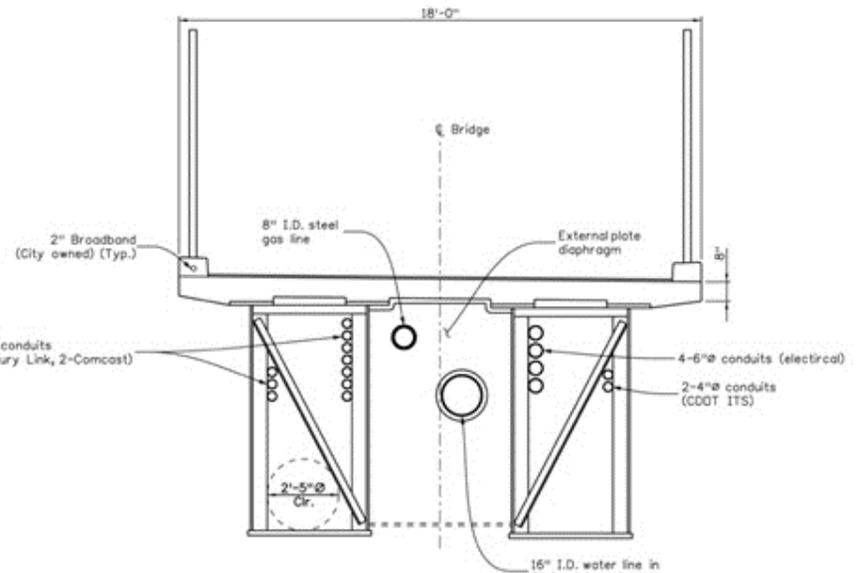
Pedestrian Bridge



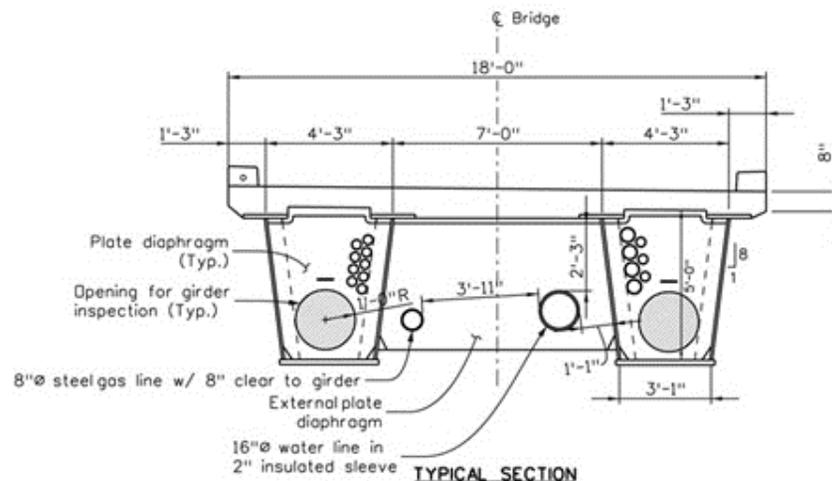
Pedestrian Bridge



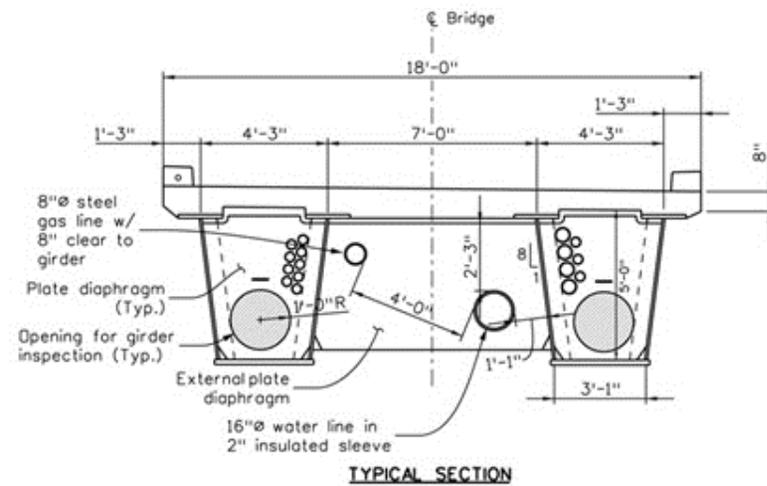
SECTION AT MIDSPAN



SECTION AT MIDSPAN



TYPICAL SECTION

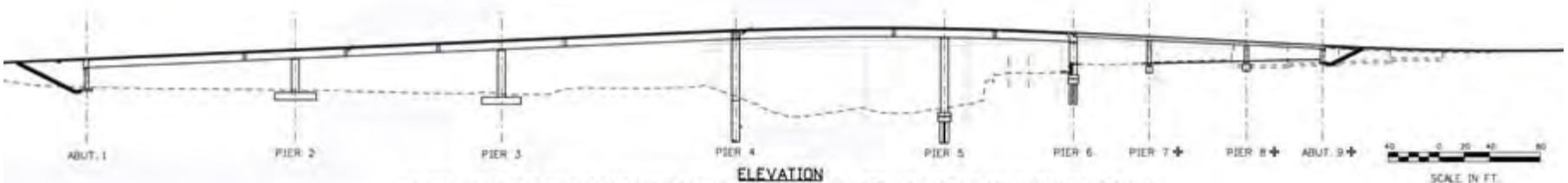


TYPICAL SECTION

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Grand Avenue Bridge

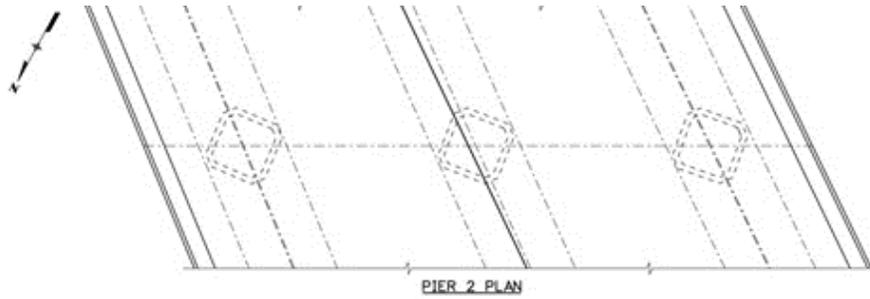


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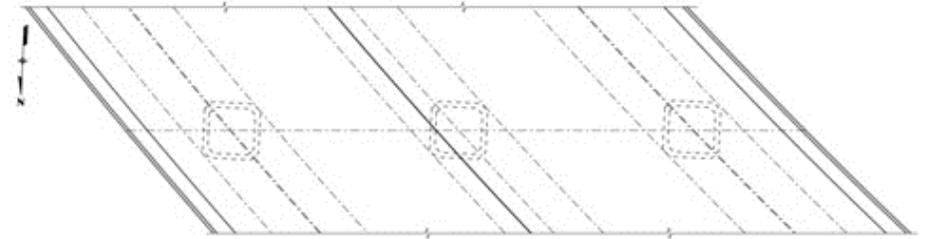
GRAND AVENUE BRIDGE



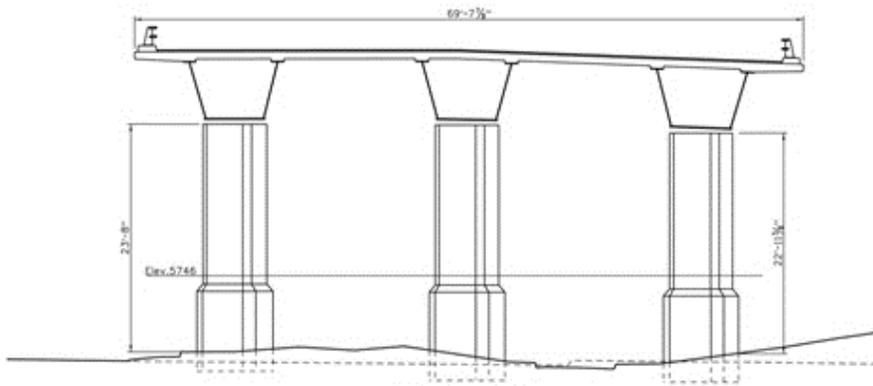
Grand Avenue Bridge



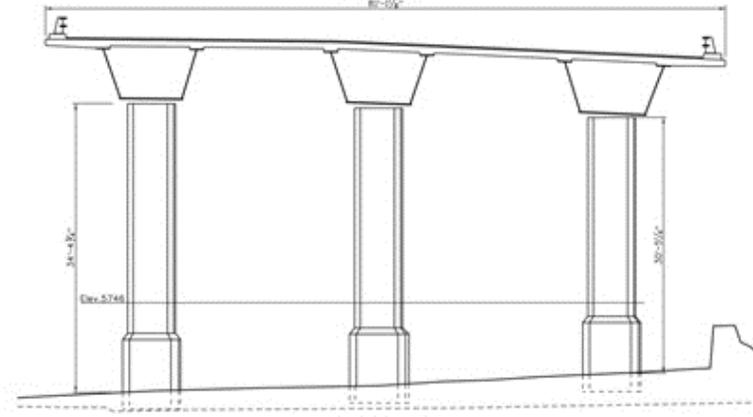
PIER 2 PLAN



PIER 3 PLAN



PIER 2 SECTION



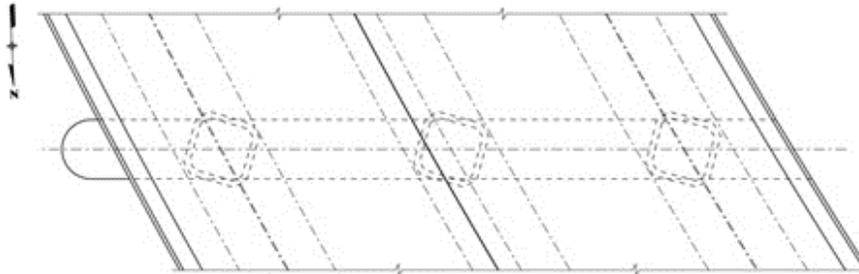
PIER 3 SECTION

SH 82

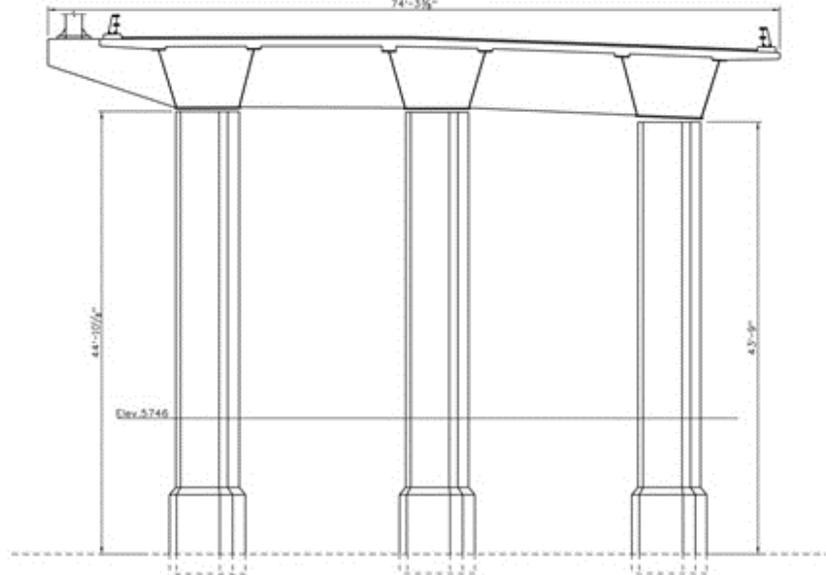
GRAND AVENUE BRIDGE



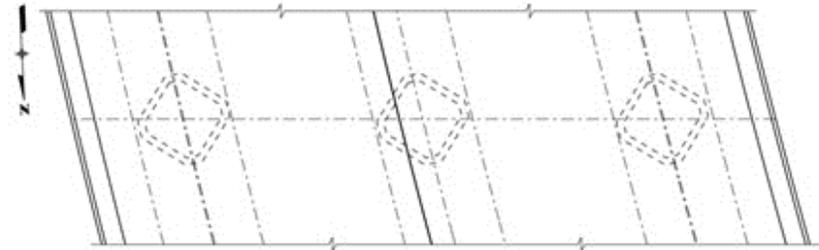
Grand Avenue Bridge



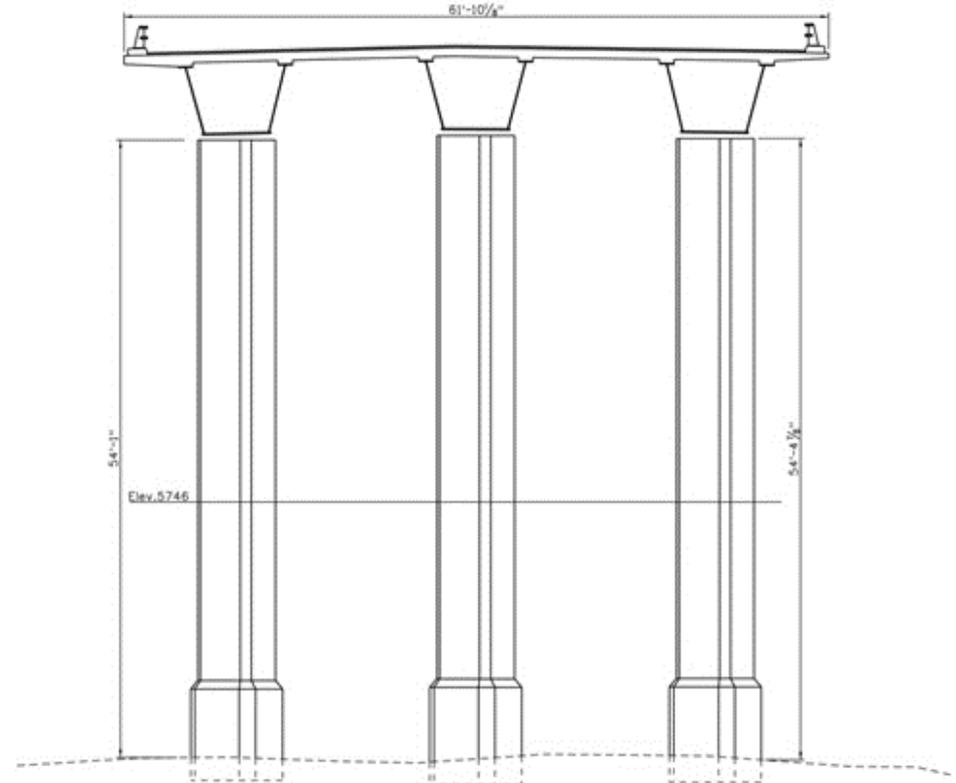
PIER 4 PLAN
74'-3 3/4"



PIER 4 SECTION



PIER 5 PLAN
61'-10 1/4"

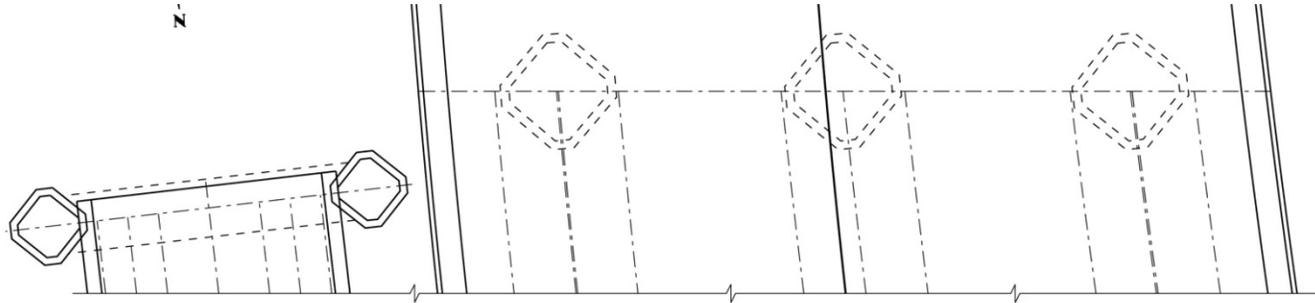


PIER 5 SECTION

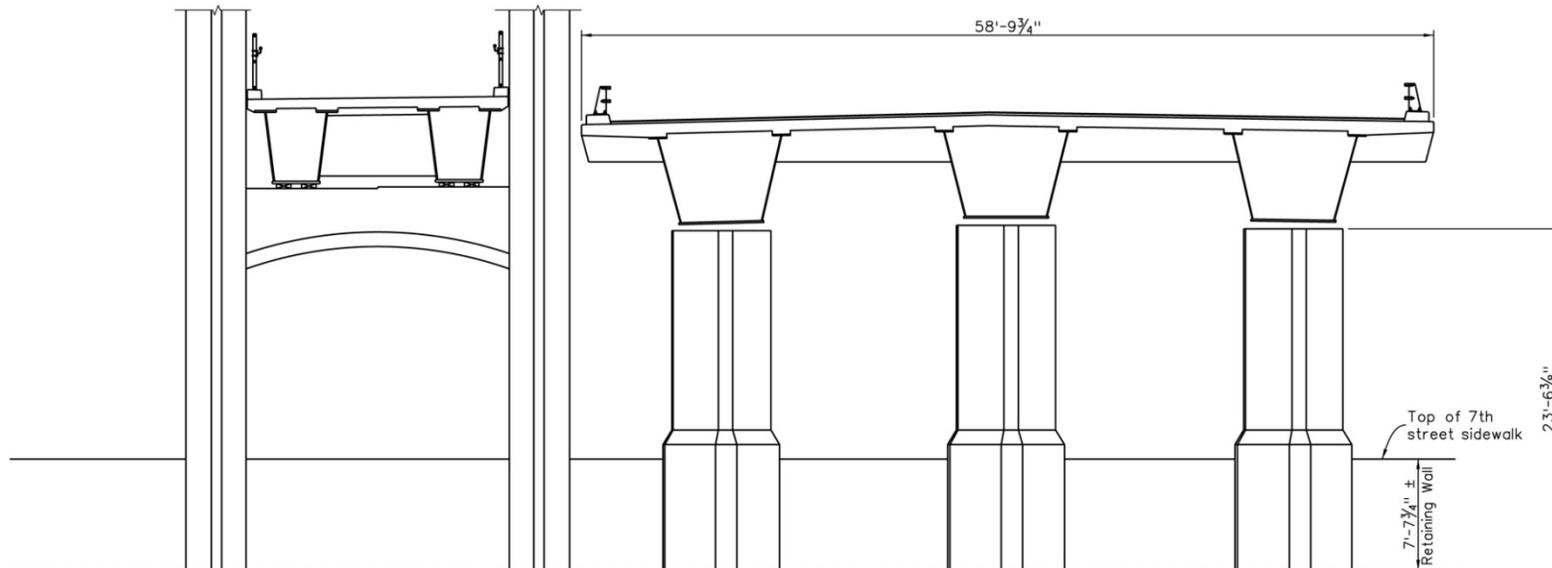
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Grand Avenue Bridge



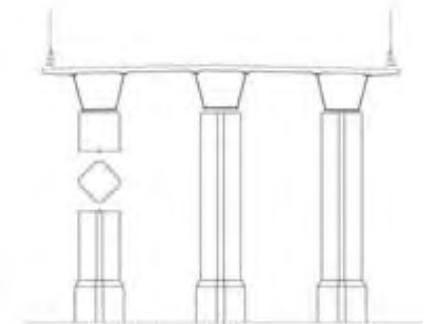
PIER 6 PLAN



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Grand Avenue Bridge



TYPICAL SECTION A

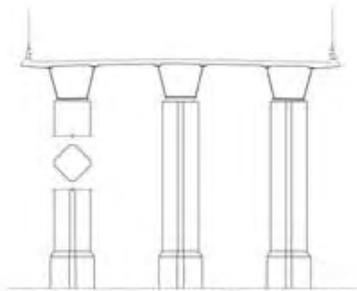
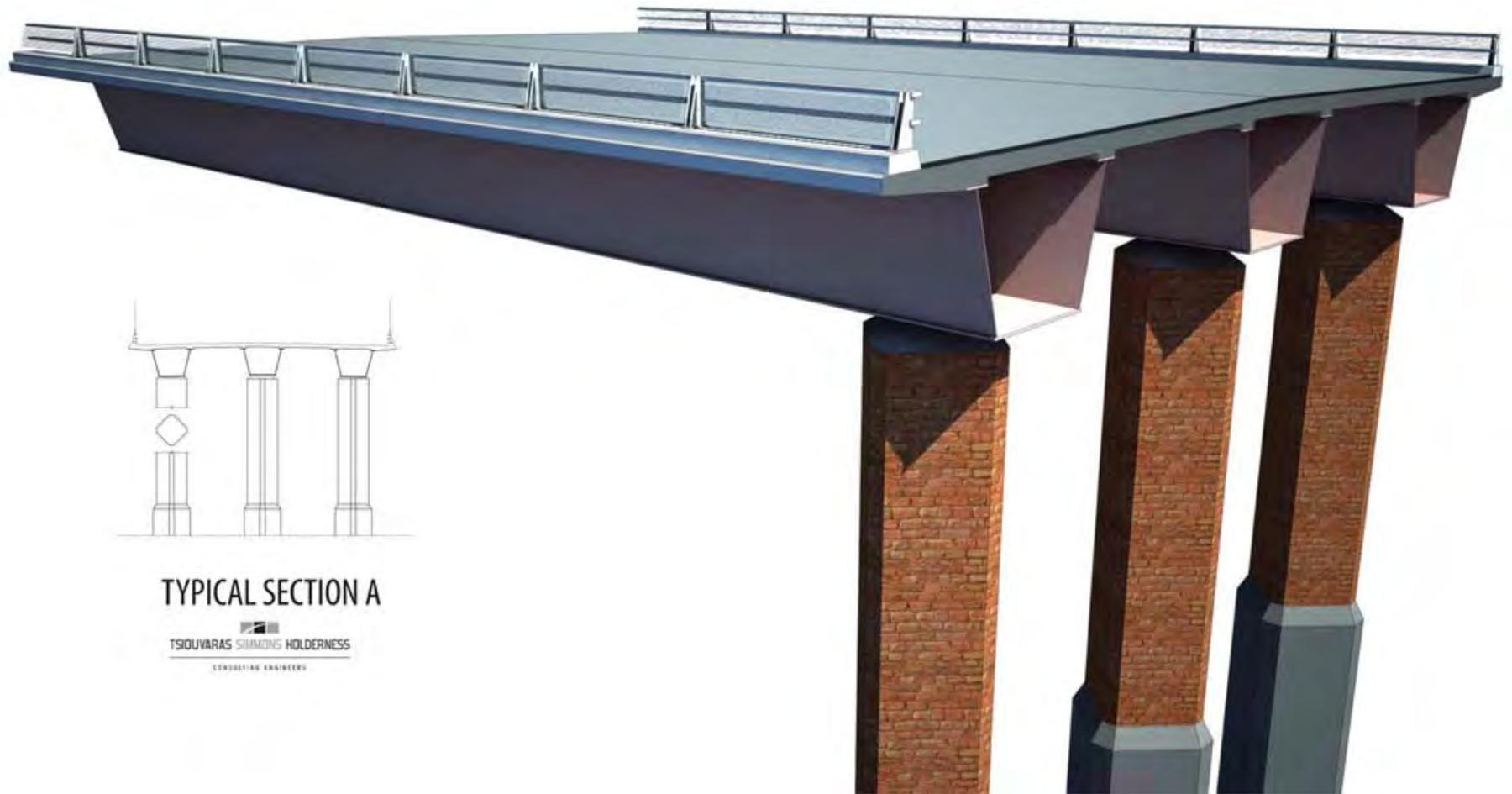

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CONSULTING ENGINEERS

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Grand Avenue Bridge



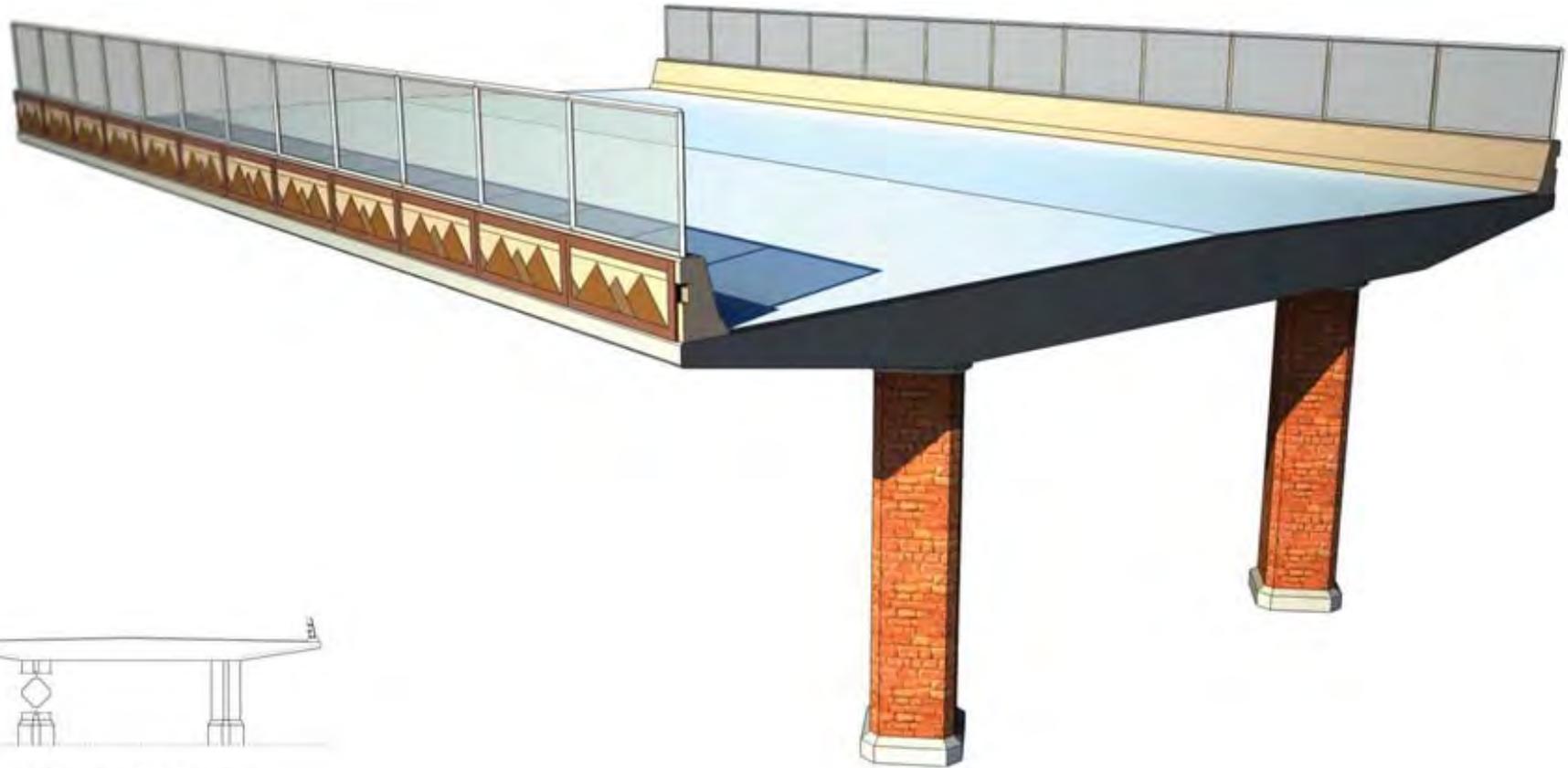
TYPICAL SECTION A


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Grand Avenue Bridge



TYPICAL SECTION B

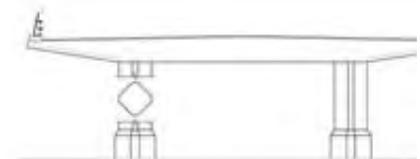

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Grand Avenue Bridge



TYPICAL SECTION B


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Grand Avenue Bridge



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Grand Avenue Bridge



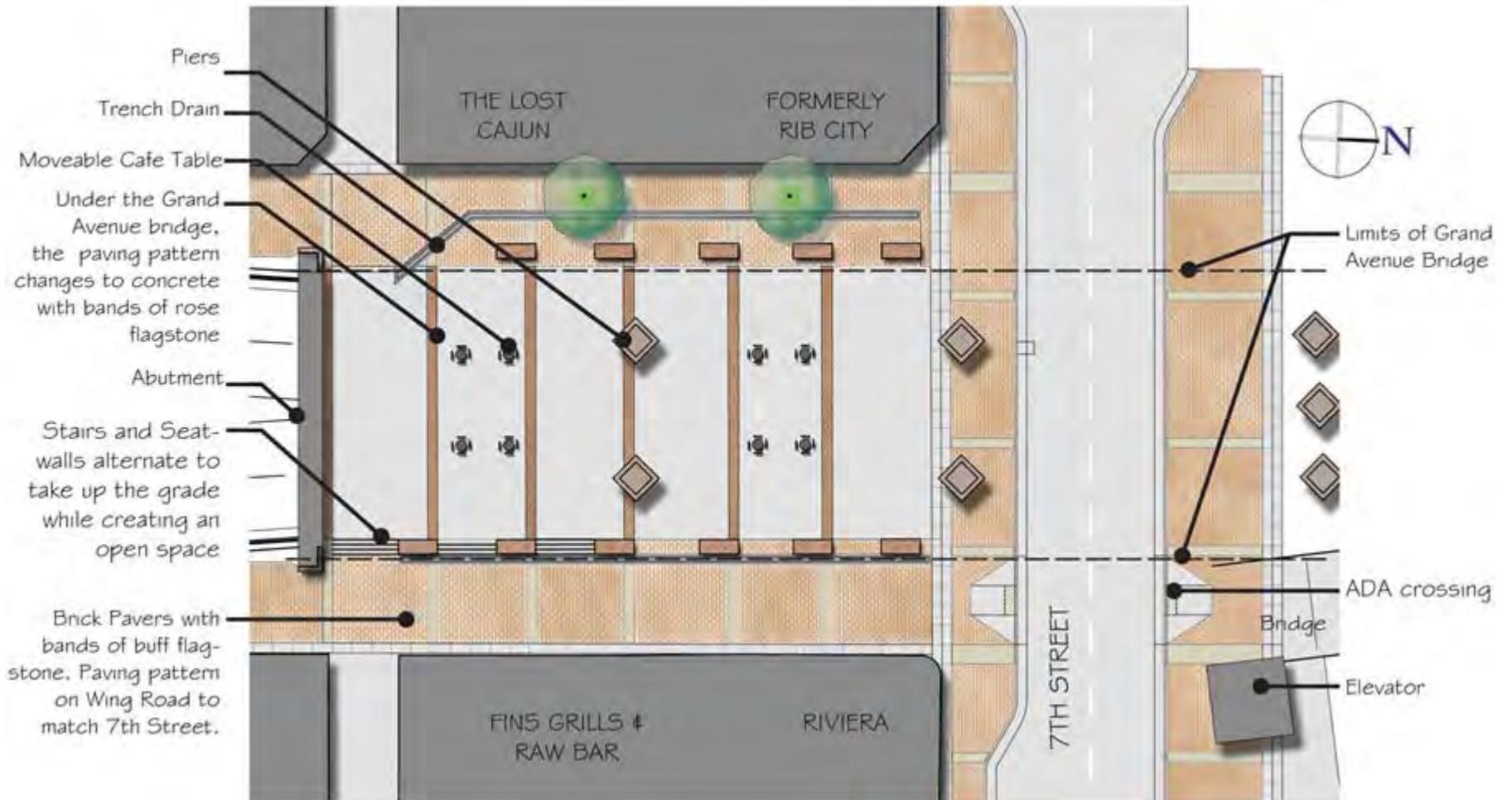
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Grand Avenue Bridge



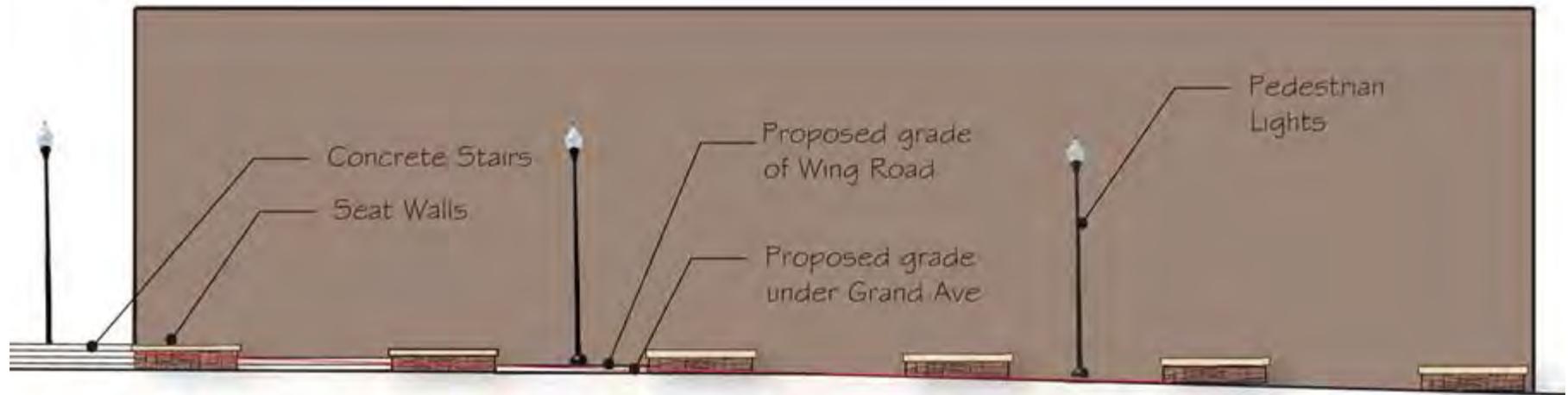
South Side Aesthetics



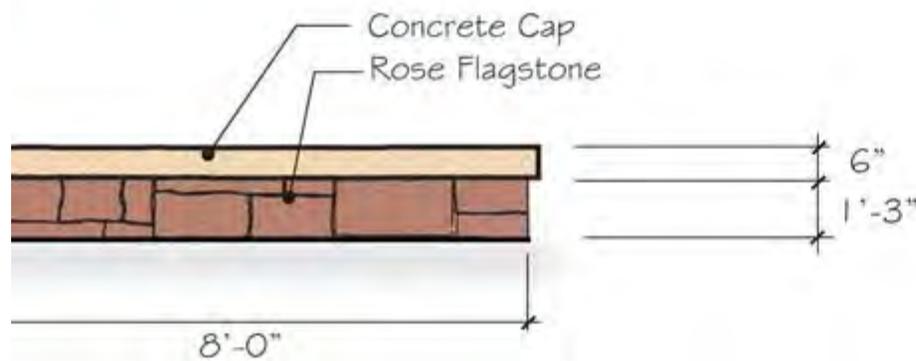
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Grand Avenue Bridge

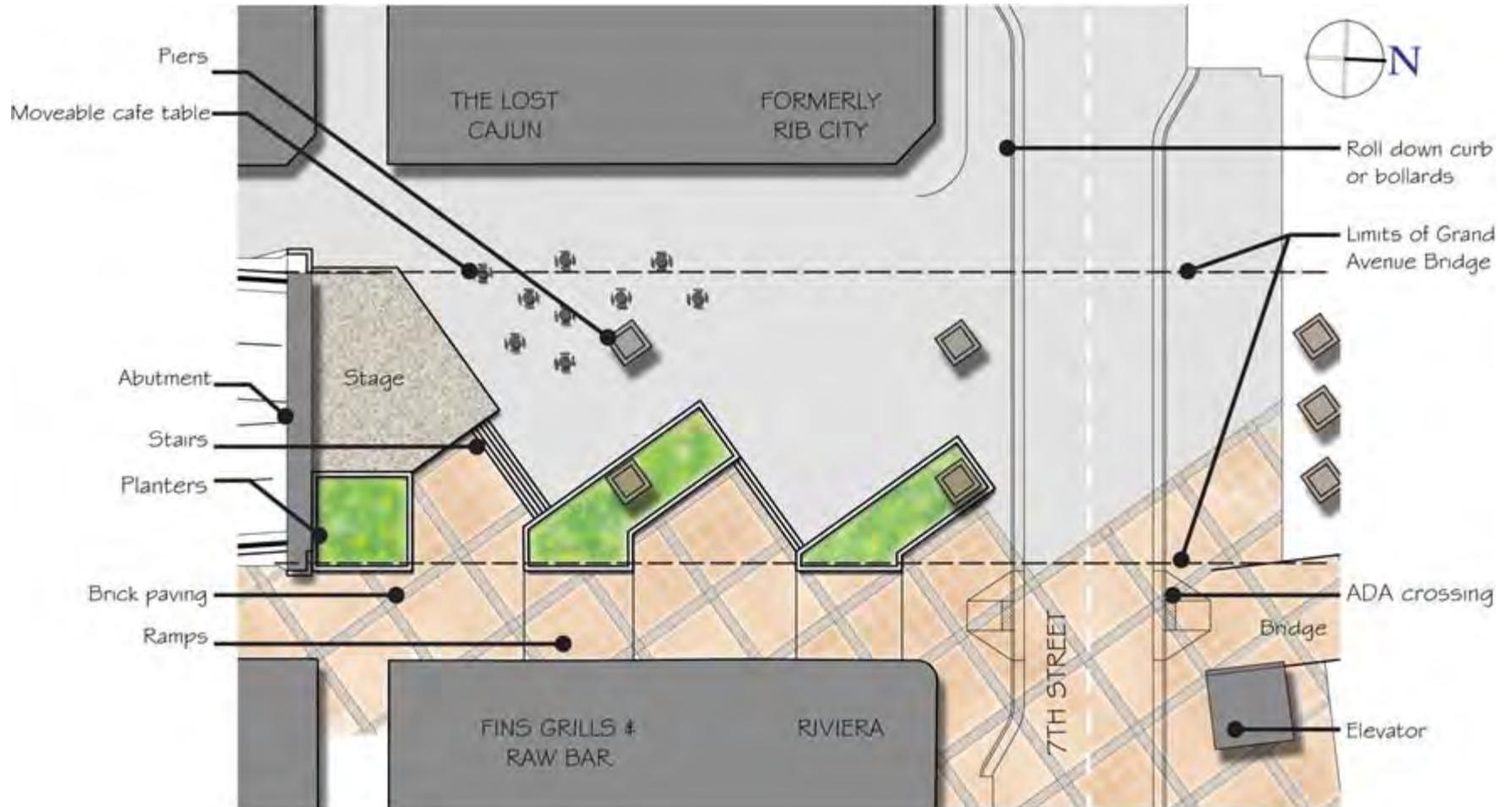


SECTION A-A

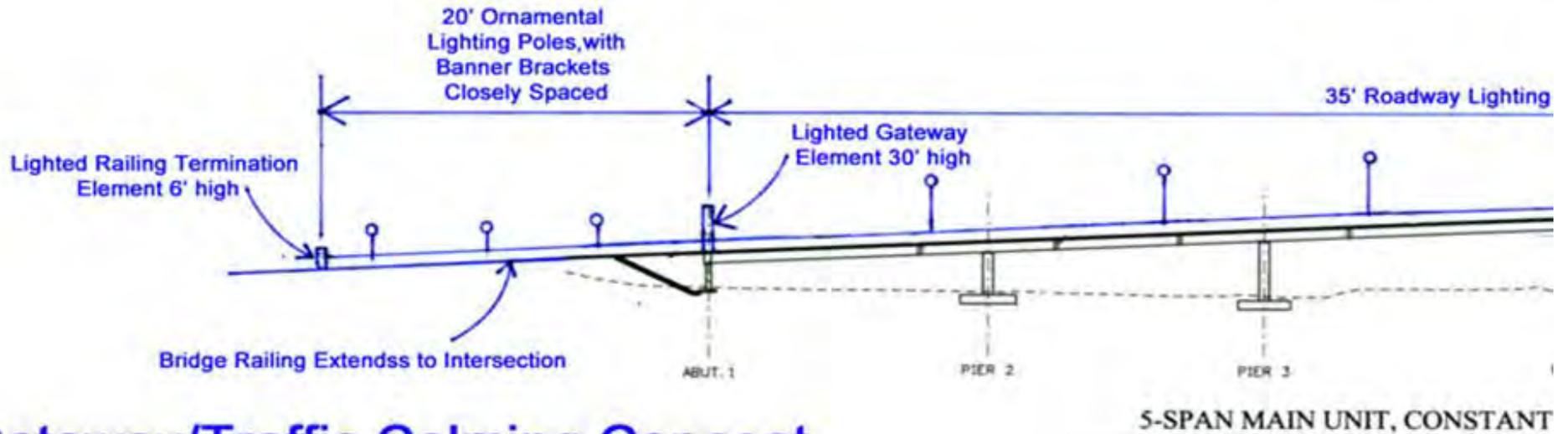


SEATWALL

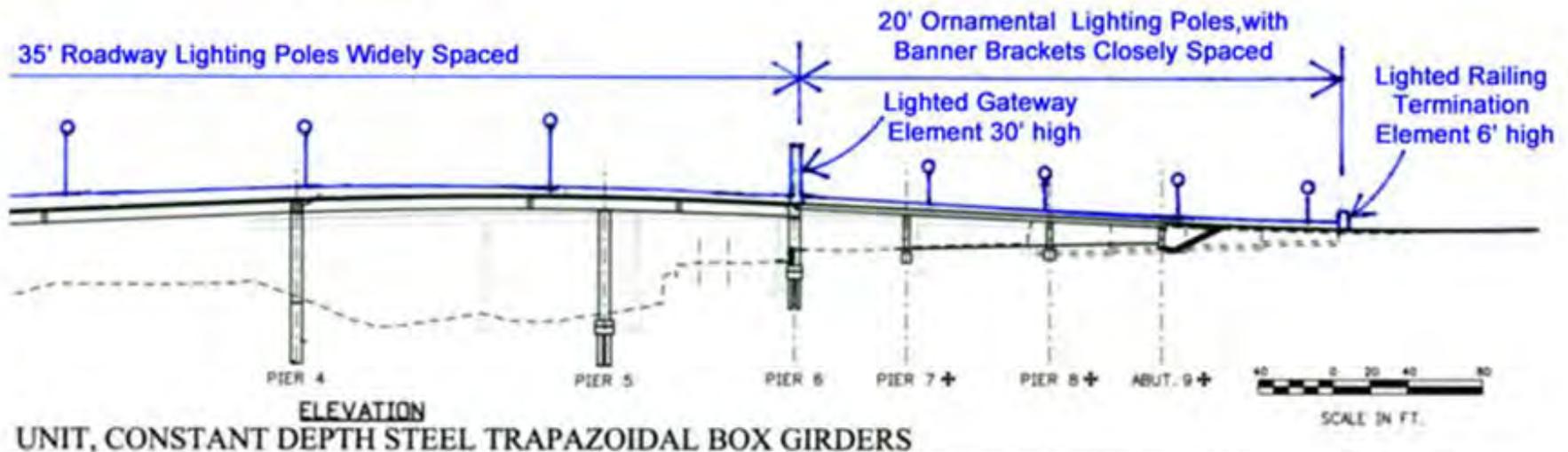
South Side Aesthetics



Grand Avenue Bridge



Gateway/Traffic Calming Concept



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Grand Avenue Bridge



Priority of Aesthetic Enhancements

- What are the aesthetic priority areas for the residents of Glenwood Springs?
 - Pedestrian Bridge
 - Grand Avenue Bridge
 - Underpass - Safety
 - Plaza under Grand Avenue Bridge
 - Wing Street Connection to 8th Street
 - Landscaping
 - Retaining Walls
 - Sidewalks/Streetscape Furniture

■ Character of Glenwood Springs



■ Character of Glenwood Springs



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Landscaping

Landscaping



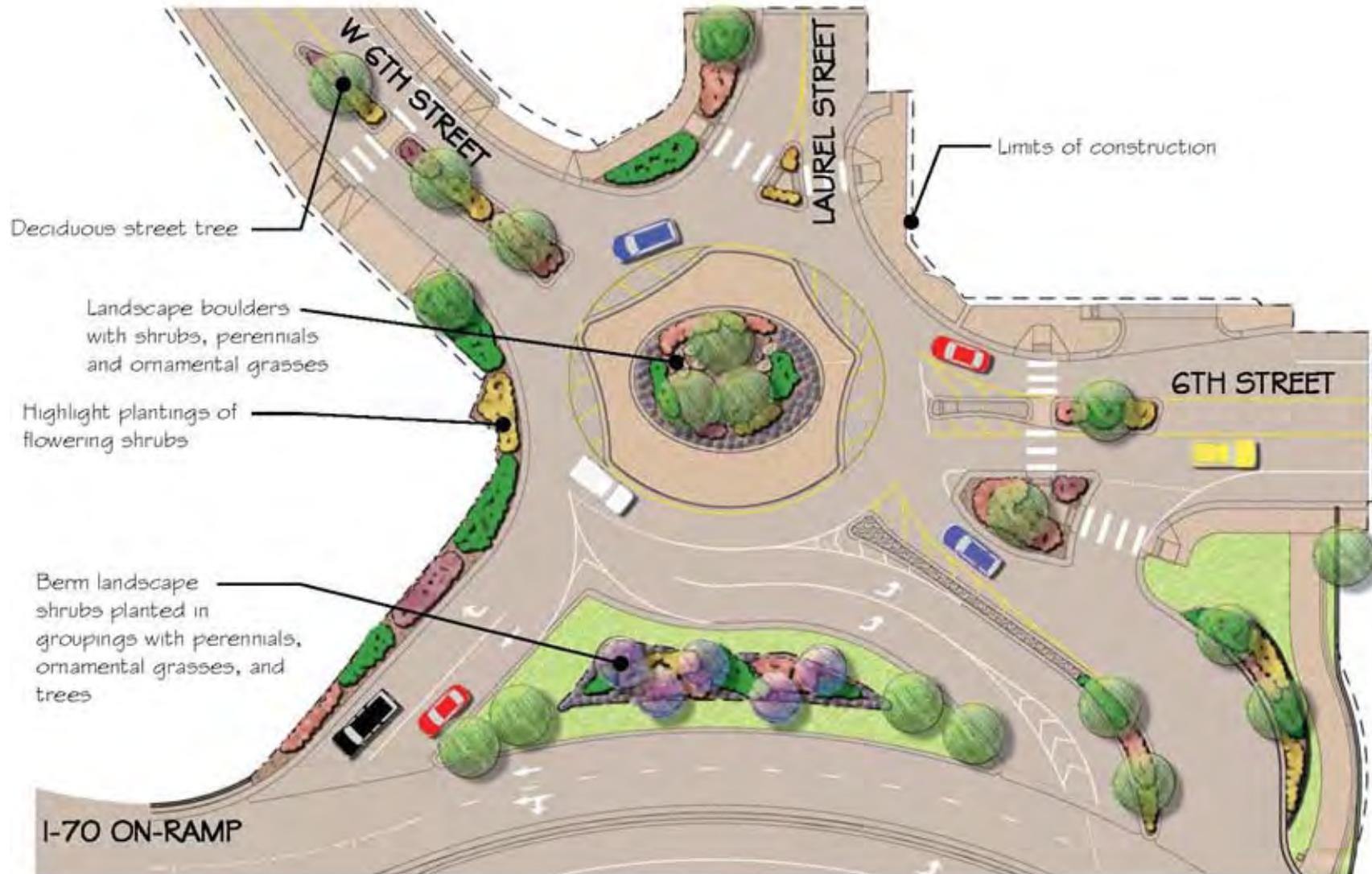
- Three landscape options
 - Traditional
 - Xeric
 - Organic

- Take into consideration
 - Appearance
 - Level of maintenance

- Landscape Character Option 1- Traditional
 - Formal landscaping
 - Mass plantings with landscape boulders
 - Shrubs, perennials and ornamental grasses
 - High maintenance



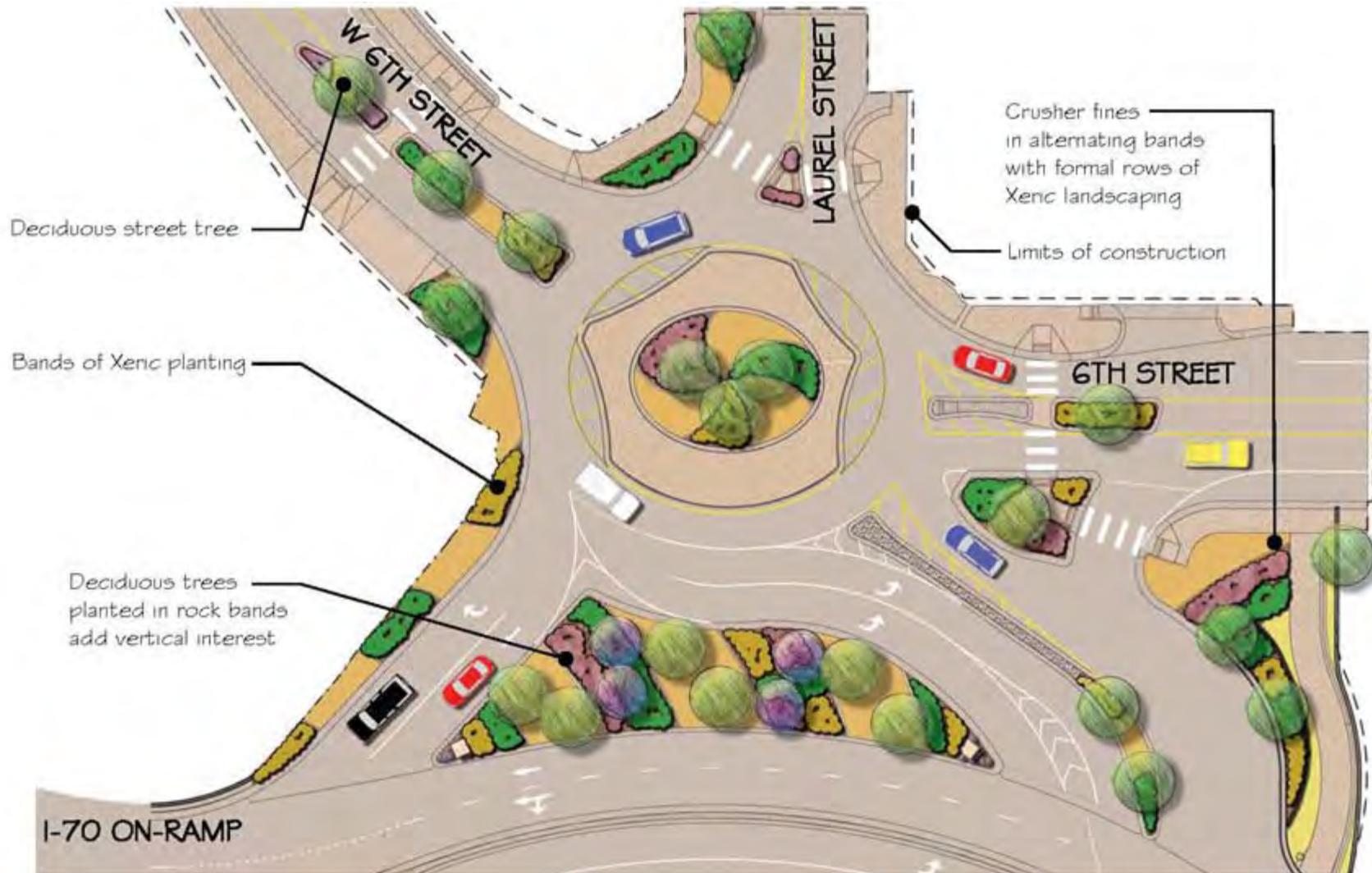
■ Landscape Option 1- Traditional Plan



- Landscape Character Option 2- Xeric
 - Xeric plants
 - Alternating plantings with bands of rock mulch
 - Plantings in geometric configurations
 - Lower maintenance



■ Landscape Option 2- Xeric Plan



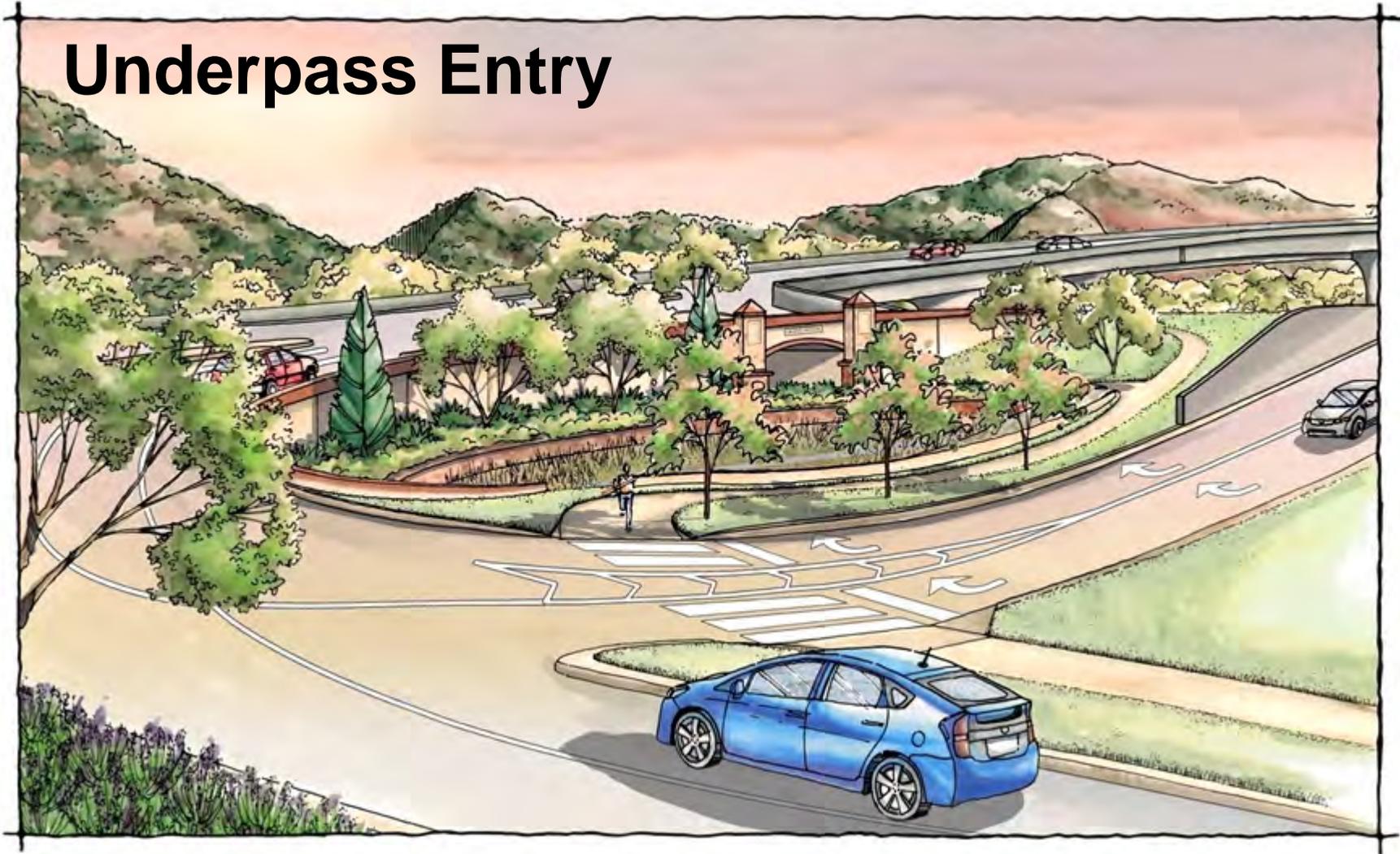
- Landscape Character
- Option 3- Organic
 - Free flowing landscaping
 - River cobble stream bed
 - Shrubs and ornamental grasses
 - Landscape boulders
 - Medium maintenance



■ Landscape Option 3- Organic with River Cobble Stream



Underpass Entry

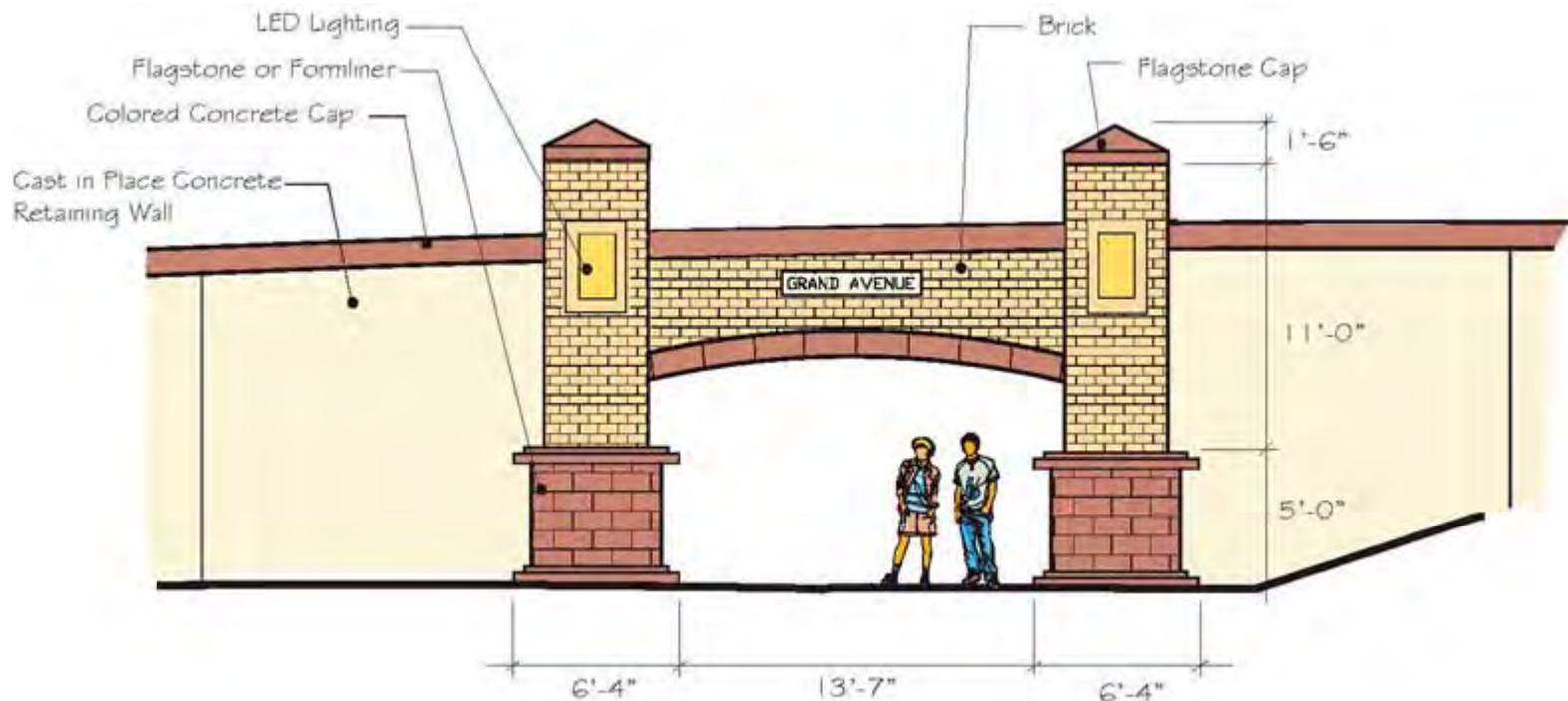


- Underpass
 - 121 feet long
 - 16 feet wide
 - 8- to 9-foot clearance inside the underpass



■ Option 1 - Historic Influence

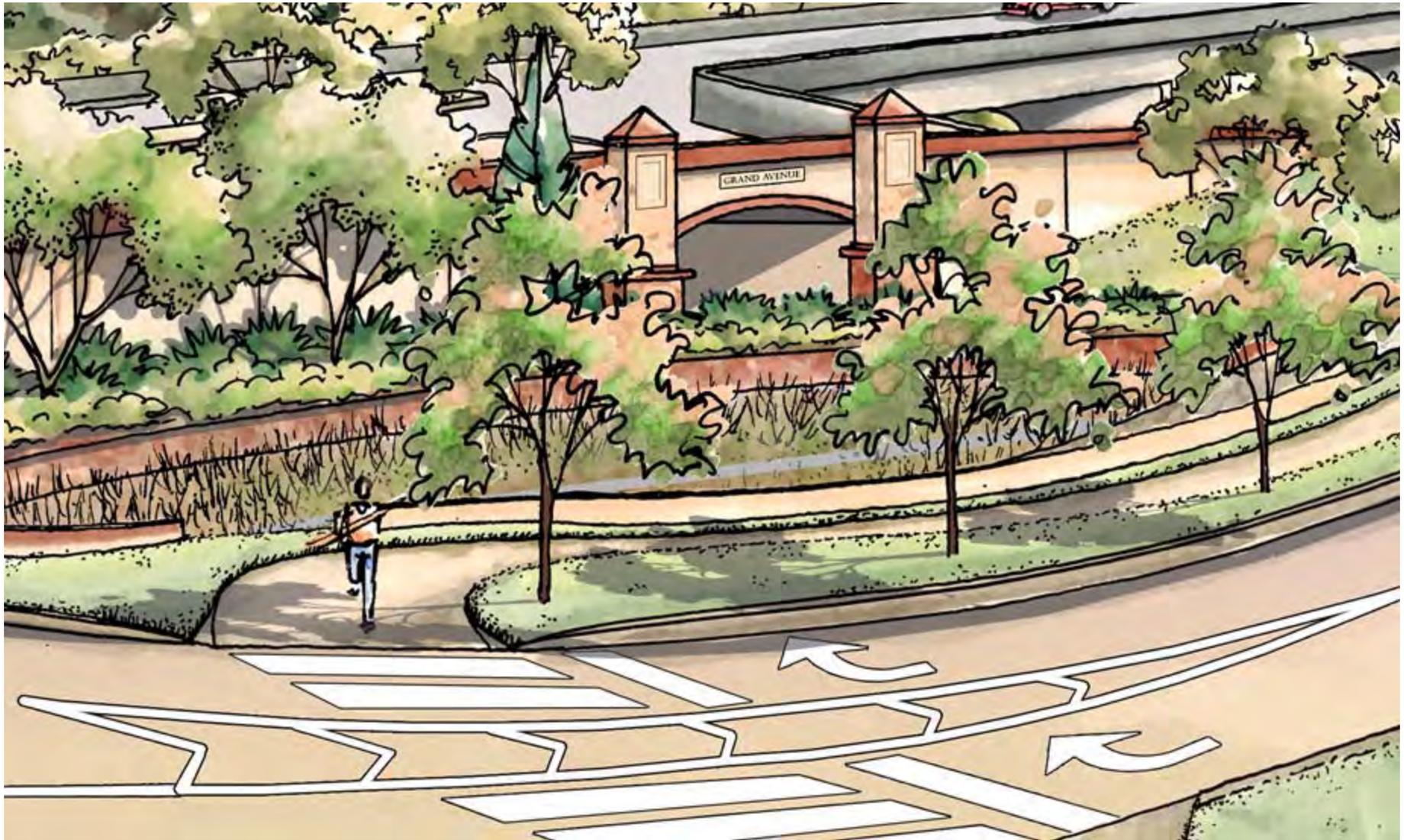
- Monuments are designed to reflect the architecture of Glenwood Springs through color and materials
- Monuments have high end finishes
- Higher cost



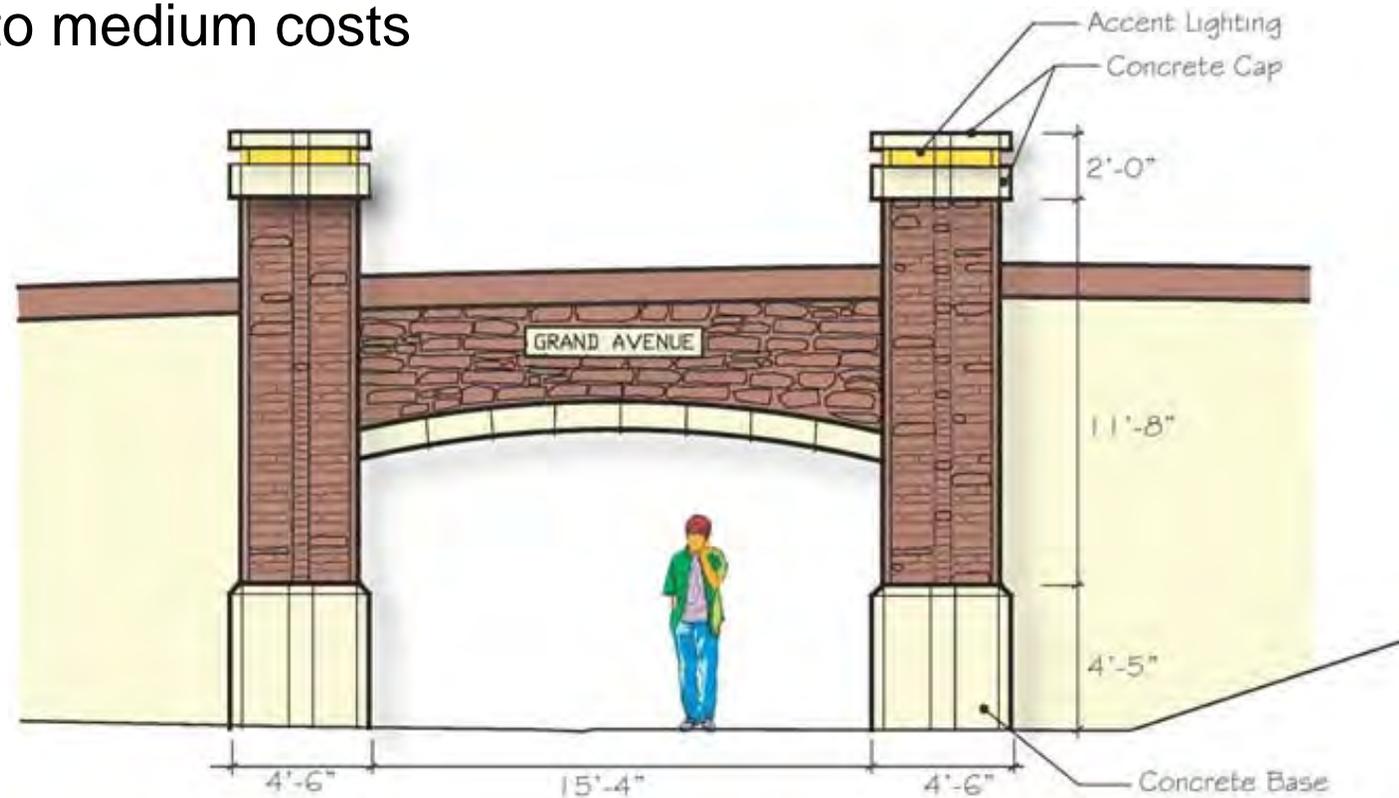
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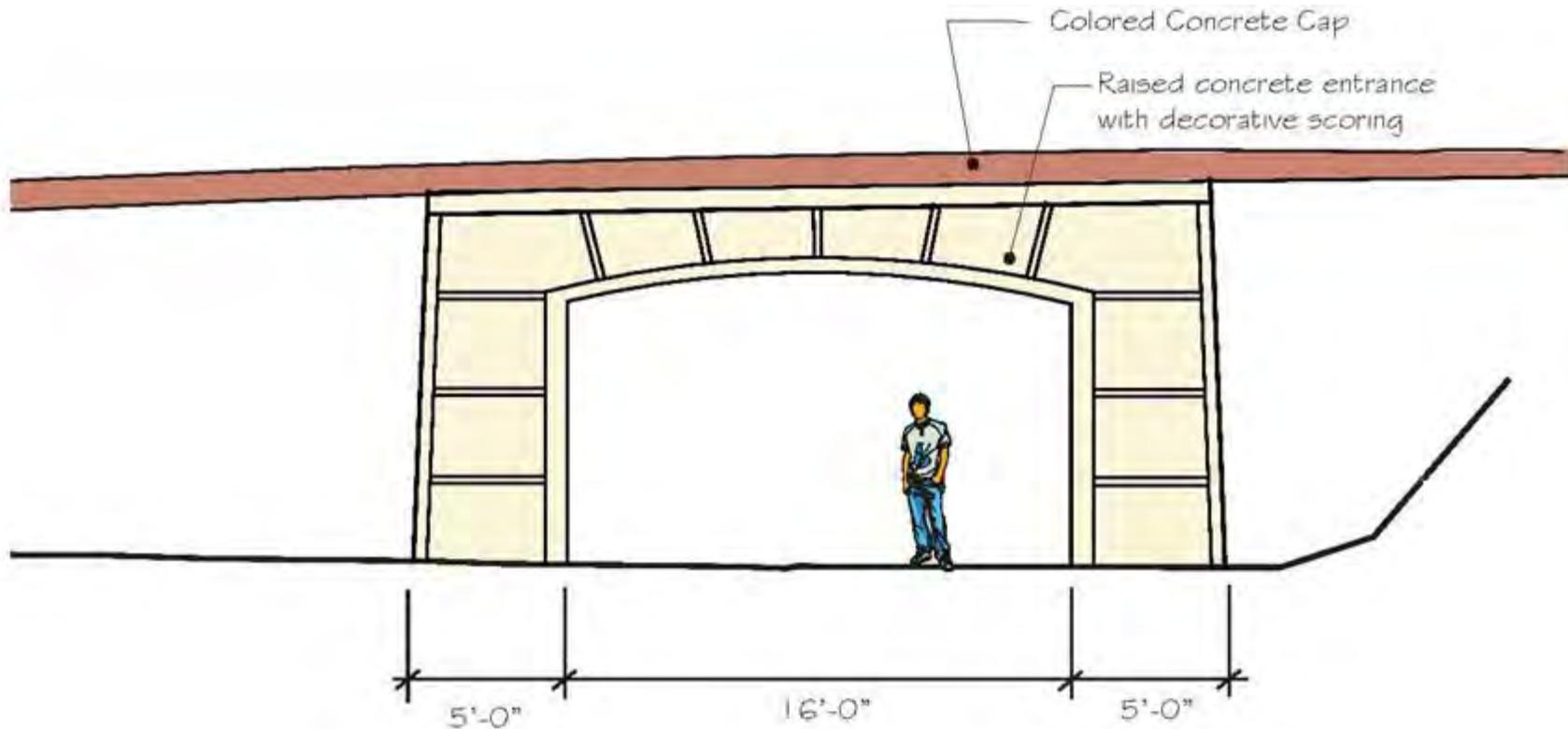
Underpass



- Option 2 - Continuity with Grand Avenue Bridge Design
 - Repeats the pier aesthetic for underpass monumentation creating continuity with the bridge structures
 - Monuments can be designed with flagstone or a form liner
 - High to medium costs

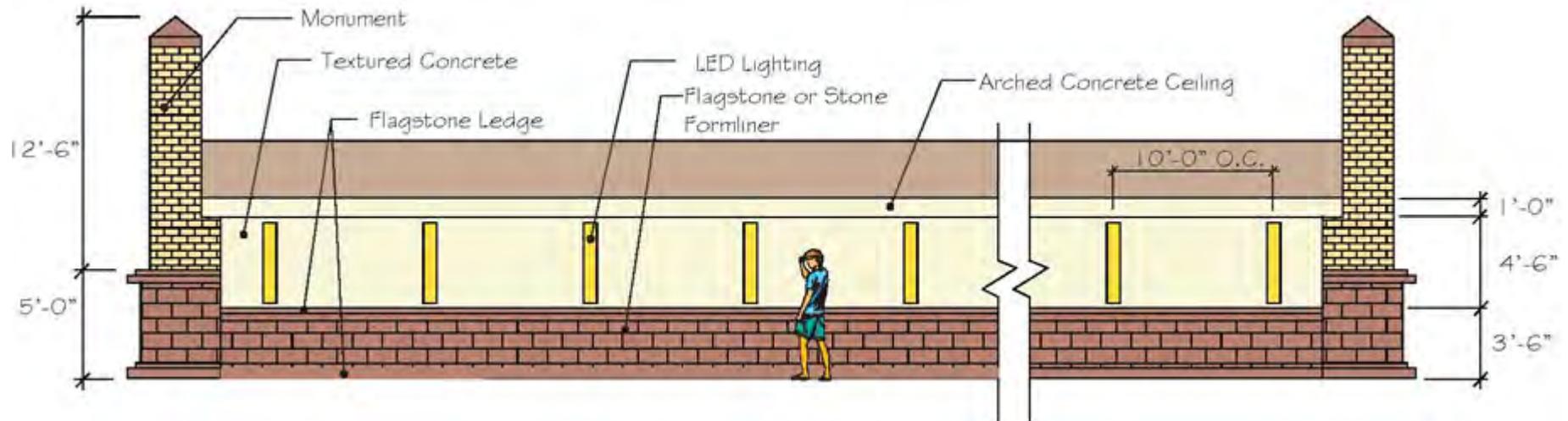


- Option 3 – Enhanced Concrete Entryway
 - Raised concrete with scoring
 - Lower costs



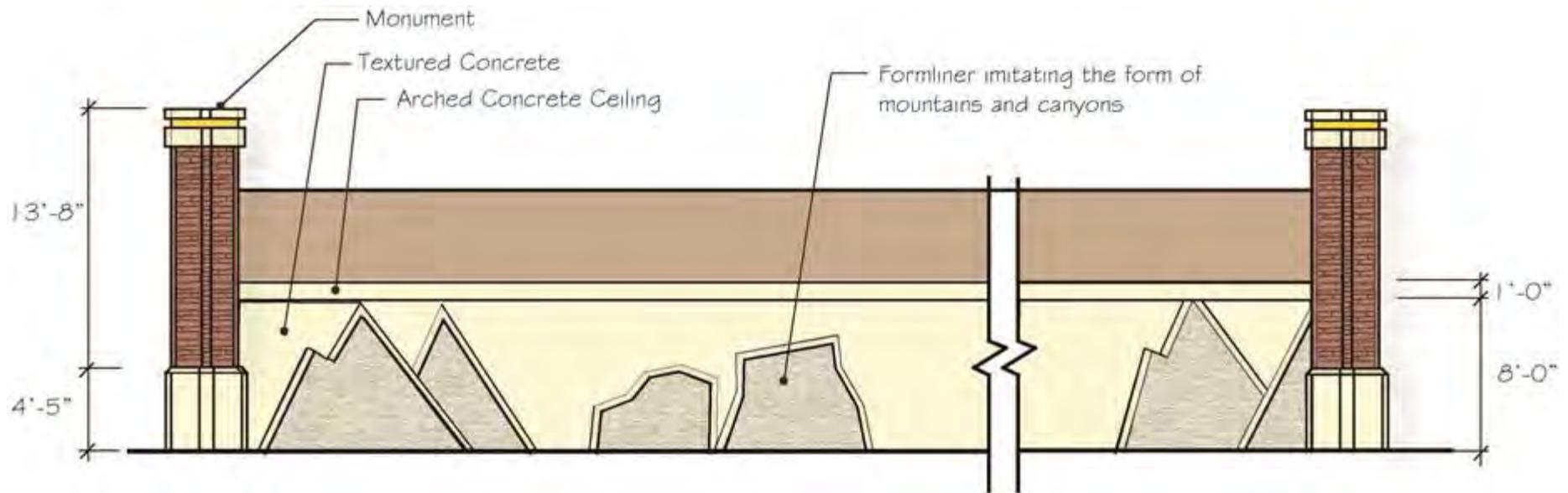
■ Underpass Option 1

- Continues flagstone from monuments through underpass
- Lighting is architecturally significant
- High cost



■ Underpass Option 2

- Form liners mimicking the form of mountains and canyons
- Medium/lower cost



■ Underpass Option 3

- Opportunity to incorporate Todd Wadsworth Artwork from R.L.Wadsworth/Granite



21 walls included in the Grand Avenue Project



<p>Wall A</p> <ul style="list-style-type: none"> - Retains Village Inn property - 2'-4" tall, 140' length 	<p>Wall I</p> <ul style="list-style-type: none"> - Retains North River Street - 1'-18" tall
<p>Wall C</p> <ul style="list-style-type: none"> - Retains Grand Avenue - Terraced wall - 3' tall 	<p>Wall J-a</p> <ul style="list-style-type: none"> - Retains private properties - 11' tall
<p>Wall D</p> <ul style="list-style-type: none"> - Retains Grand Avenue - 1'-6"-6" tall 	<p>Wall J-b</p> <ul style="list-style-type: none"> - Terraced wall around pedestrian bridge pier - Height unknown
<p>Wall E</p> <ul style="list-style-type: none"> - Retains Grand Avenue - 2'-9" tall, 154' length - Guardrail Type 7 on type wall 	<p>Wall J-c</p> <ul style="list-style-type: none"> - Terraced wall around pedestrian bridge pier - Height unknown
<p>Wall F</p> <ul style="list-style-type: none"> - Retains Grand Avenue - 10'-6" tall, 228' length - Guardrail Type 7 on type wall 	<p>Wall M</p> <ul style="list-style-type: none"> - Retains I-70 - 6' tall, 561' length
<p>Wall G-a</p> <ul style="list-style-type: none"> - Terraced Wall - 2' tall, 193' length 	<p>Wall N</p> <ul style="list-style-type: none"> - Seat walls
<p>Wall G-b</p> <ul style="list-style-type: none"> - Retains pedestrian walkway in WO pond - 2' tall 	<p>Walls O and P</p> <ul style="list-style-type: none"> - Curb around inlets
<p>Wall G-c</p> <ul style="list-style-type: none"> - Retains pedestrian walkway in WO pond - 3' tall, 62' length 	<p>Wall Q</p> <ul style="list-style-type: none"> - Retains Grand Ave - 10'-6" tall, 206' length
<p>Wall H-a</p> <ul style="list-style-type: none"> - Retains North River Street - 6'-10" tall, 371' length - Guardrail Type 7 on type wall 	<p>Wall R</p> <ul style="list-style-type: none"> - Retains Grand Ave - 12'-6" tall
<p>Wall H-b</p> <ul style="list-style-type: none"> - Retains I-70 - 3'-7" tall, 123' length 	<p>Wall S</p> <ul style="list-style-type: none"> - Retains plaza area north of 7th at clock tower - Height unknown

Walls on the North Side



<p>Wall A</p> <ul style="list-style-type: none"> - Retains Village Inn property - 2'-4' tall, 140' length 	<p>Wall I</p> <ul style="list-style-type: none"> - Retains North River Street - 1'-18" tall
<p>Wall C</p> <ul style="list-style-type: none"> - Retains Grand Avenue - Terraced wall - 3' tall 	<p>Wall J-a</p> <ul style="list-style-type: none"> - Retains private properties - 11' tall
<p>Wall D</p> <ul style="list-style-type: none"> - Retains Grand Avenue - 1'-6"-6" tall 	<p>Wall Jb</p> <ul style="list-style-type: none"> - Terraced wall around pedestrian bridge pier - Height unknown
<p>Wall E</p> <ul style="list-style-type: none"> - Retains Grand Avenue - 2'-9" tall, 154' length - Guardrail Type 7 on type wall 	<p>Wall Jc</p> <ul style="list-style-type: none"> - Terraced wall around pedestrian bridge pier - Height unknown
<p>Wall F</p> <ul style="list-style-type: none"> - Retains Grand Avenue - 10'-6" tall, 228' length - Guardrail Type 7 on type wall 	<p>Wall M</p> <ul style="list-style-type: none"> - Retains I-70 - 6' tall, 561' length
<p>Wall Ga</p> <ul style="list-style-type: none"> - Terraced Wall - 2' tall, 193' length 	<p>Wall N</p> <ul style="list-style-type: none"> - Seat walls
<p>Wall Gb</p> <ul style="list-style-type: none"> - Retains pedestrian walkway in WD pond - 2' tall 	<p>Walls O and P</p> <ul style="list-style-type: none"> - Curb around inlets
<p>Wall Gc</p> <ul style="list-style-type: none"> - Retains pedestrian walkway in WD pond - 3' tall, 62' length 	<p>Wall Q</p> <ul style="list-style-type: none"> - Retains Grand Ave - 10'-6" tall, 206' length
<p>Wall Ha</p> <ul style="list-style-type: none"> - Retains North River Street - 8'-10" tall, 371' length - Guardrail Type 7 on type wall 	<p>Wall R</p> <ul style="list-style-type: none"> - Retains Grand Ave - 12'-6" tall
<p>Wall Hb</p> <ul style="list-style-type: none"> - Retains I 70 - 3'-7" tall, 123' length 	<p>Wall S</p> <ul style="list-style-type: none"> - Retains plaza area north of 7th at clock tower - Height unknown

Walls on the South Side



<p>Wall A</p> <ul style="list-style-type: none"> - Retains Village Inn property - 2'-4" tall, 140' length 	<p>Wall I</p> <ul style="list-style-type: none"> - Retains North River Street - 1'- 18" tall
<p>Wall C</p> <ul style="list-style-type: none"> - Retains Grand Avenue - Terraced wall - 3' tall 	<p>Wall J-a</p> <ul style="list-style-type: none"> - Retains private properties - 11' tall
<p>Wall D</p> <ul style="list-style-type: none"> - Retains Grand Avenue - 1'- 6'-6" tall 	<p>Wall J-b</p> <ul style="list-style-type: none"> - Terraced wall around pedestrian bridge pier - Height unknown
<p>Wall E</p> <ul style="list-style-type: none"> - Retains Grand Avenue - 2'- 9' tall, 154' length - Guardrail Type 7 on type wall 	<p>Wall J-c</p> <ul style="list-style-type: none"> - Terraced wall around pedestrian bridge pier - Height unknown
<p>Wall F</p> <ul style="list-style-type: none"> - Retains Grand Avenue - 10'- 6" tall, 228' length - Guardrail Type 7 on type wall 	<p>Wall M</p> <ul style="list-style-type: none"> - Retains I-70 - 8' tall, 561' length
<p>Wall G-a</p> <ul style="list-style-type: none"> - Terraced Wall - 2' tall, 193' length 	<p>Wall N</p> <ul style="list-style-type: none"> - Seat walls
<p>Wall G-b</p> <ul style="list-style-type: none"> - Retains pedestrian walkway in WO pond - 2' tall 	<p>Walls O and P</p> <ul style="list-style-type: none"> - Curb around inlets
<p>Wall G-c</p> <ul style="list-style-type: none"> - Retains pedestrian walkway in WO pond - 3' tall, 62' length 	<p>Wall Q</p> <ul style="list-style-type: none"> - Retains Grand Ave - 10'- 6" tall, 206' length
<p>Wall H-a</p> <ul style="list-style-type: none"> - Retains North River Street - 8'-10" tall, 371' length - Guardrail Type 7 on type wall 	<p>Wall R</p> <ul style="list-style-type: none"> - Retains Grand Ave - 12'- 6" tall
<p>Wall H-b</p> <ul style="list-style-type: none"> - Retains I-70 - 3'-7" tall, 123' length 	<p>Wall S</p> <ul style="list-style-type: none"> - Retains plaza area north of 7th at clock tower - Height unknown

■ Aesthetic Wall Enhancements

- Quality materials
 - Sandstone
 - Brick
- Stone form liners
- Brick or flagstone accents
- Art

■ Base Wall Treatments

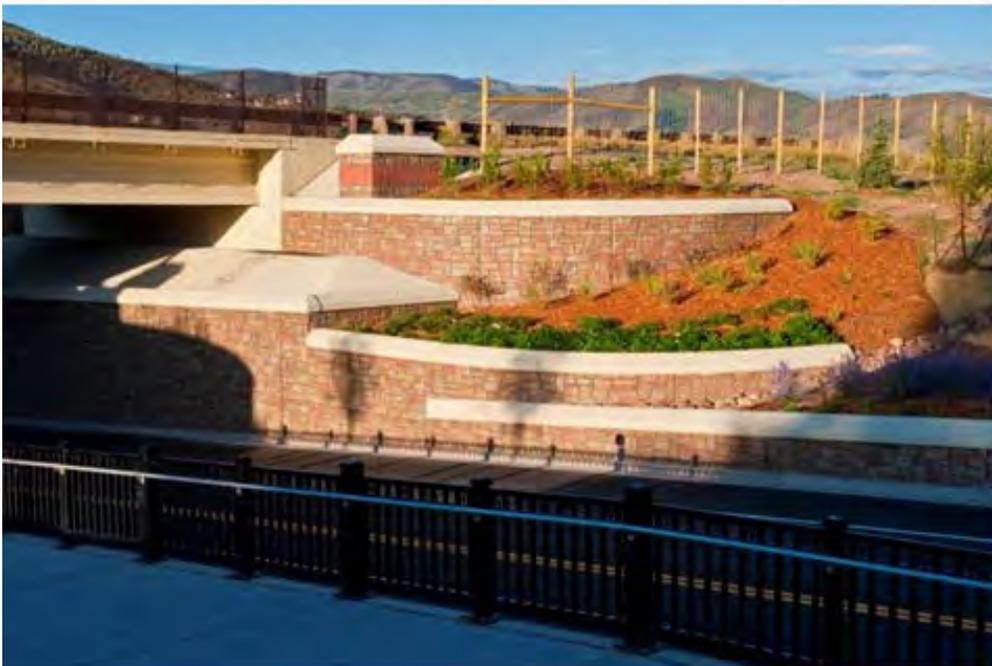
- Form liner

■ Quality Materials

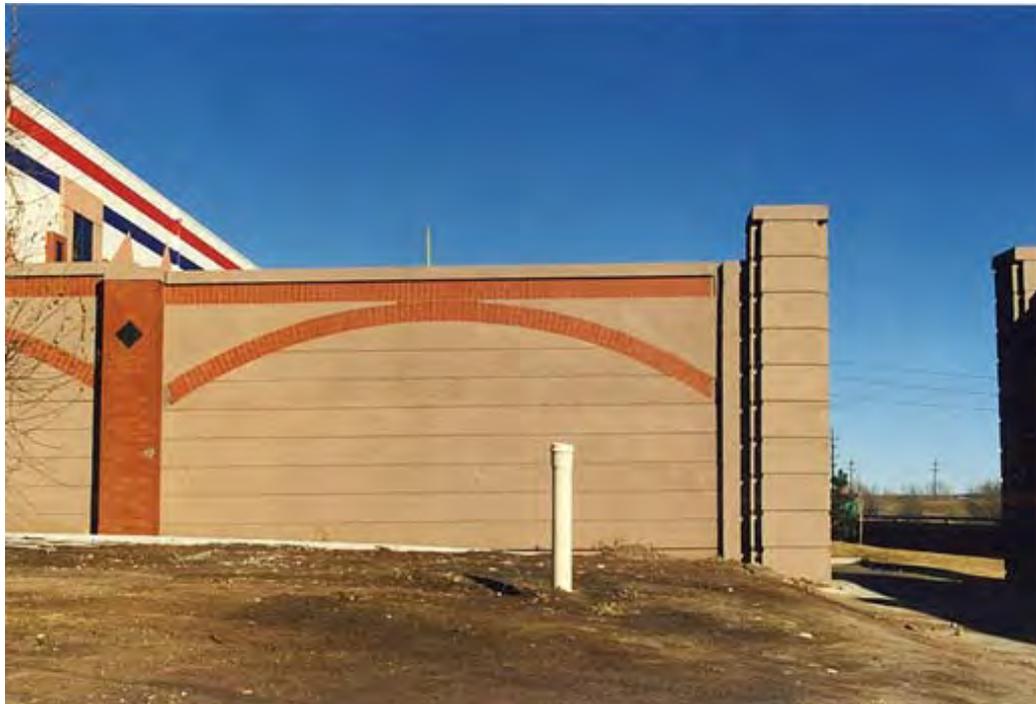
- Stone
- Brick
- High cost



- Stone Form Liners
 - Form liners mimic stone or brick
 - Medium cost



- Concrete Wall with Stone or Brick Accents
 - Accent concrete wall with brick or stone
 - Medium to low cost



- Base Form Liners
 - Variety of patterns
 - Medium/lower cost



- Opportunity to incorporate Todd Wadsworth artwork with R.L. Wadsworth/Granite



■ Walls on the north side



Wall A	- Retains Village Inn property - 2'-4" tall, 140' length	Wall I	- Retains North River Street - 1'-18" tall
Wall C	- Retains Grand Avenue - Terraced wall - 3' tall	Wall J-a	- Retains private properties - 11' tall
Wall D	- Retains Grand Avenue - 1'-6"-6" tall	Wall J-b	- Terraced wall around pedestrian bridge pier - Height unknown
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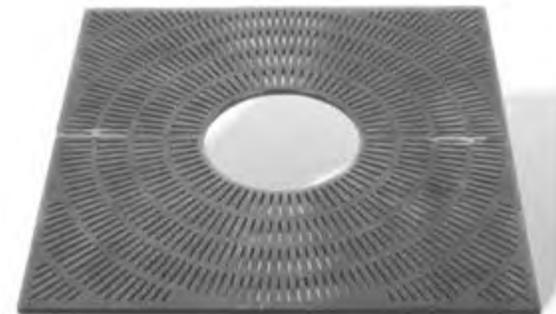
Walls on the south side



<p>Wall A</p> <ul style="list-style-type: none"> - Retains Village Inn property - 2'-4" tall, 140' length 	<p>Wall I</p> <ul style="list-style-type: none"> - Retains North River Street - 1'-18" tall
<p>Wall C</p> <ul style="list-style-type: none"> - Retains Grand Avenue - Terraced wall - 3' tall 	<p>Wall J-a</p> <ul style="list-style-type: none"> - Retains private properties - 11' tall
<p>Wall D</p> <ul style="list-style-type: none"> - Retains Grand Avenue - 1'-6'-6" tall 	<p>Wall Jb</p> <ul style="list-style-type: none"> - Terraced wall around pedestrian bridge pier - Height unknown
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■ Streetscape

- Furniture
- Lighting



- Wayfinding
 - Vehicular
 - Pedestrian/
bicyclist

