



SH 82

GRAND AVENUE BRIDGE

Design Elements Issue Task Force

April 9, 2014

■ Purpose for this Meeting

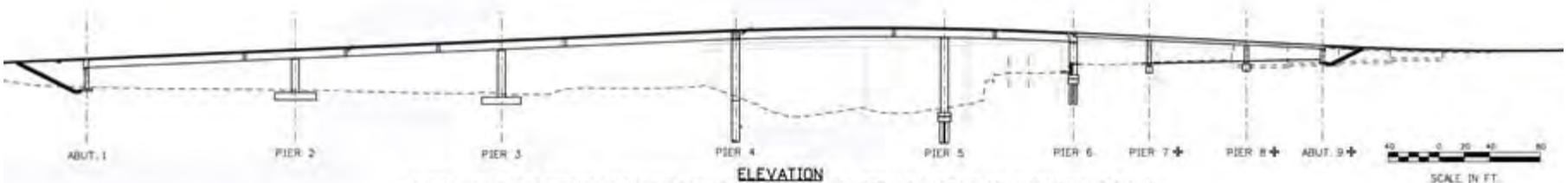
- Inform about decisions that were made based on input
- Present updated concepts for input
- Refine priorities

- PWG review of input - March 24th
- Transportation Commission – April 1
 - What they liked
- City Council Workshop – April 3
 - What they liked

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Grand Avenue Bridge



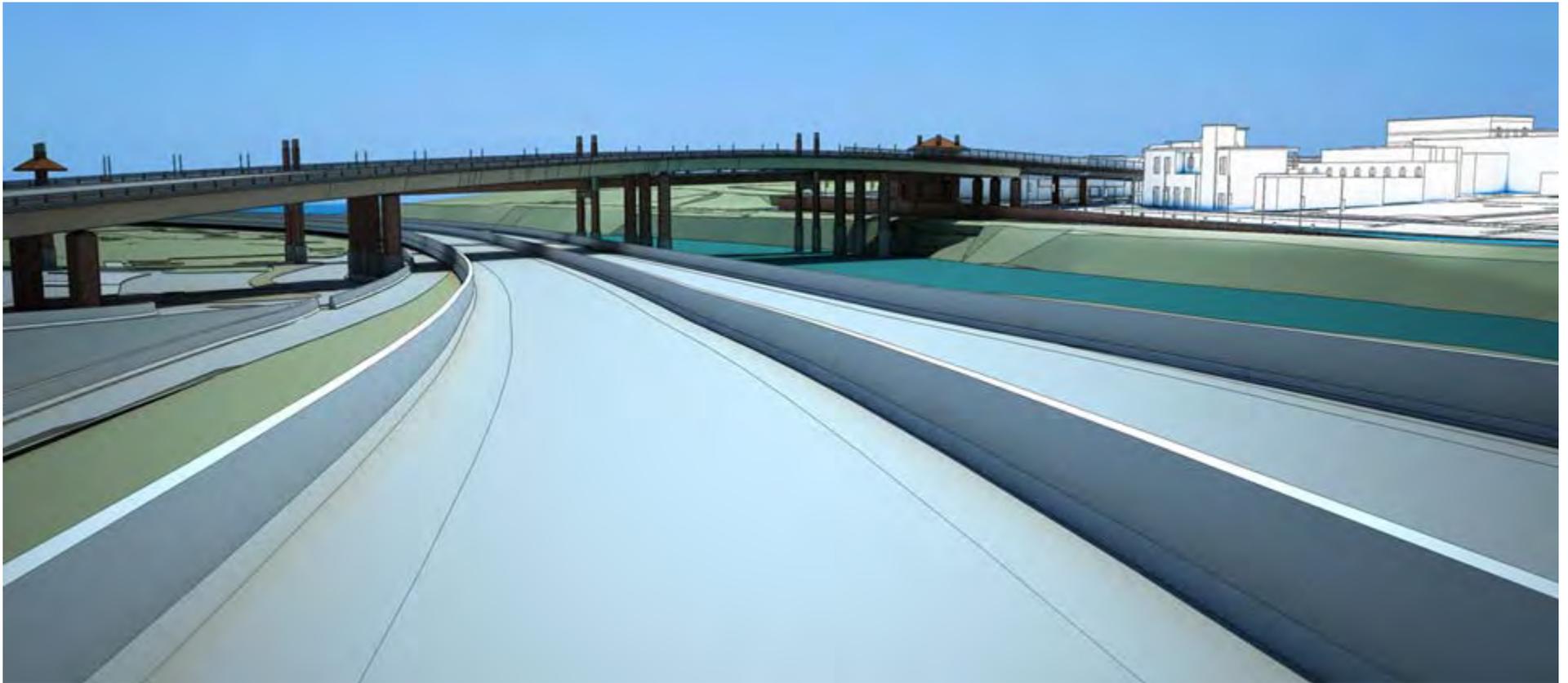
ELEVATION
5-SPAN MAIN UNIT. CONSTANT DEPTH STEEL TRAPAZOIDAL BOX GIRDERS

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Grand Avenue Bridge

- From I-70 eastbound



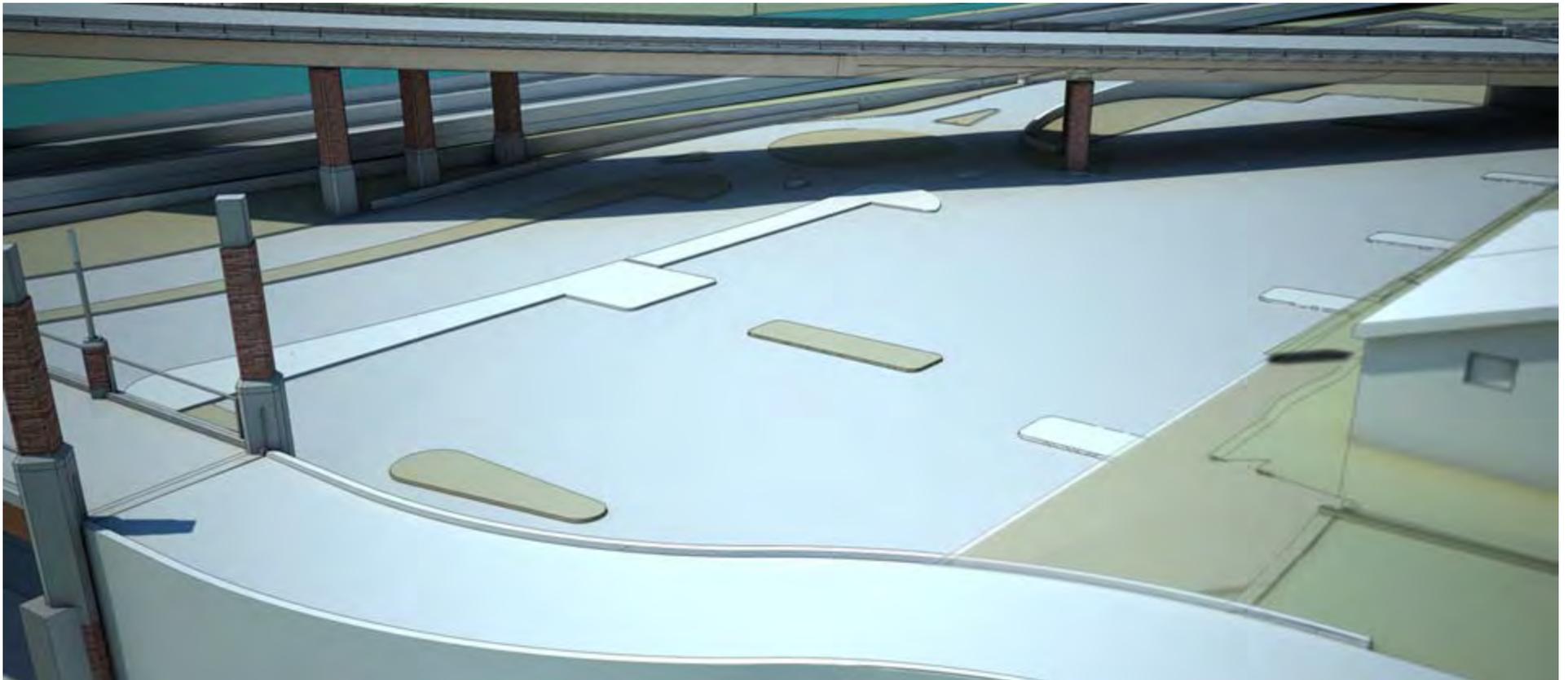
View D

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GRAND AVENUE BRIDGE

Grand Avenue Bridge

- To Glenwood Hot Springs parking

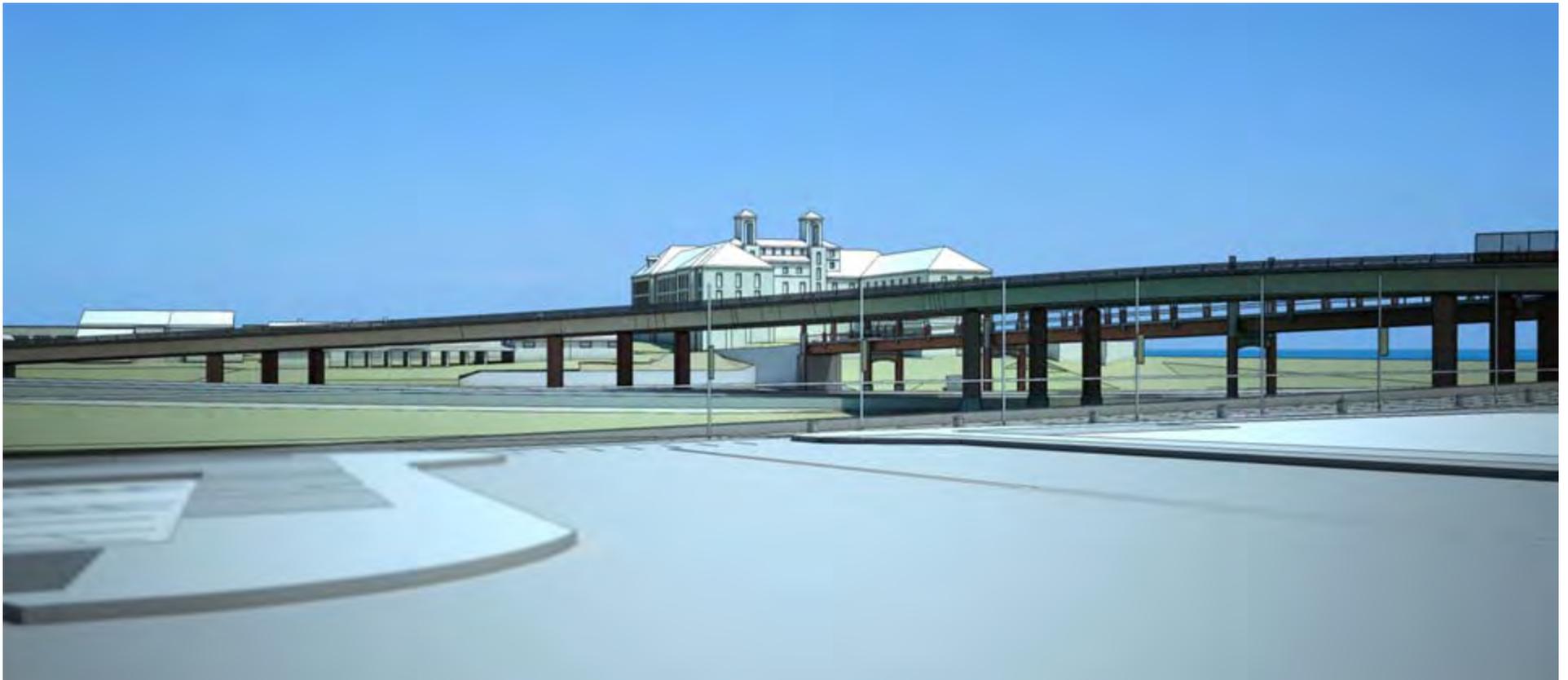


View E

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GRAND AVENUE BRIDGE

- From Colorado Avenue looking north

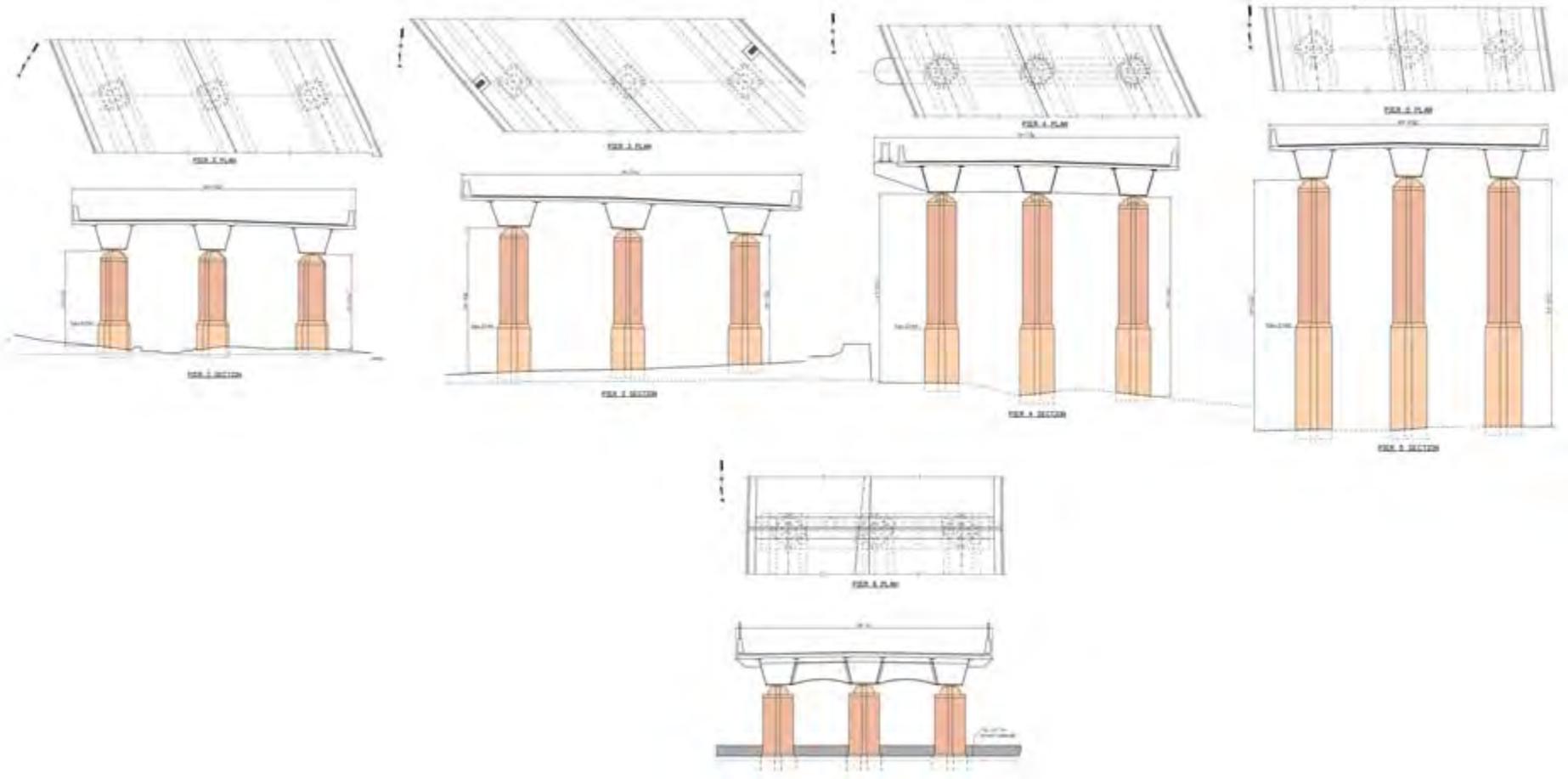


View O

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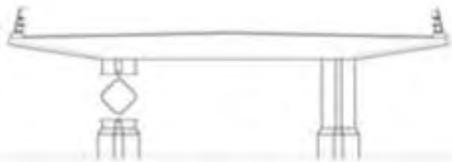
Grand Avenue Bridge



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Grand Avenue Bridge



TYPICAL SECTION B

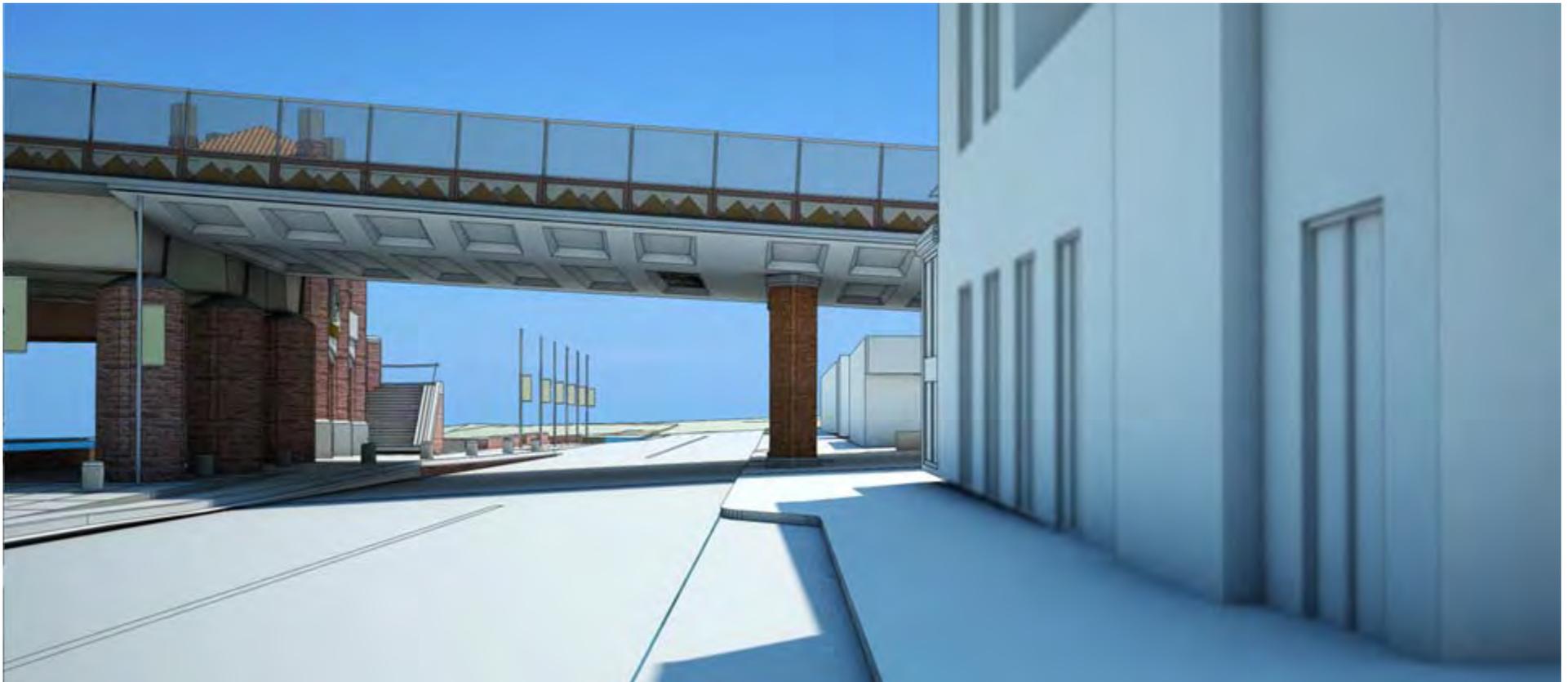

TSOUVARAS SAMMIS HOLDERNESSE
ARCHITECTS ENGINEERS

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GRAND AVENUE BRIDGE

Grand Avenue Bridge

- On 7th Street looking east



View N

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GRAND AVENUE BRIDGE

Grand Avenue Bridge

- From 7th Street looking south (east side of Grand Avenue)



View M1

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Grand Avenue Bridge

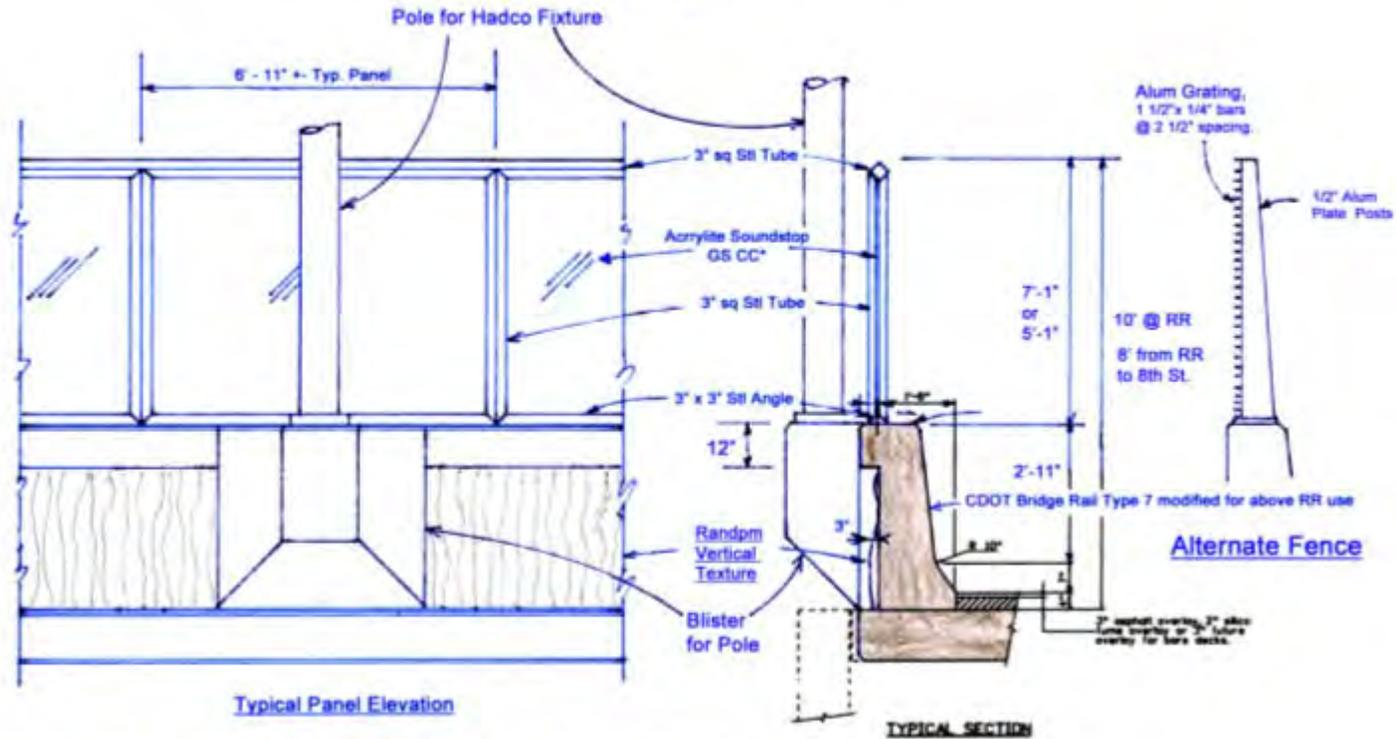
Vehicular Barrier / RR Fence / Noise & Snow Barrier

8th Street to North ROW Line of RR

Grand Avenue Bridge

Glenwood Springs, CO

Bridgescape LLC 9 Mar. 2014 Rev. 4 Apr 2014



*Soundstop panel is reinforced with polyamide fibers to prevent shattering in case of impact.

All steel framing is unpainted weathering steel

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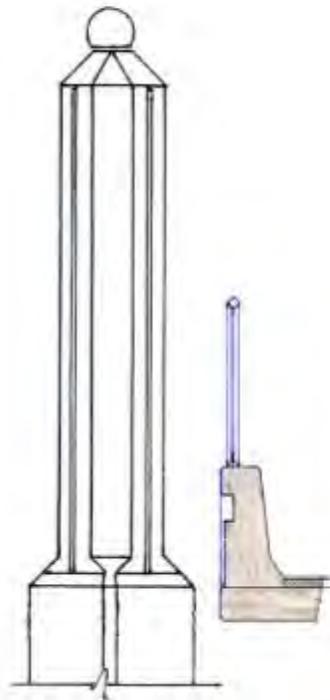
Grand Avenue Bridge



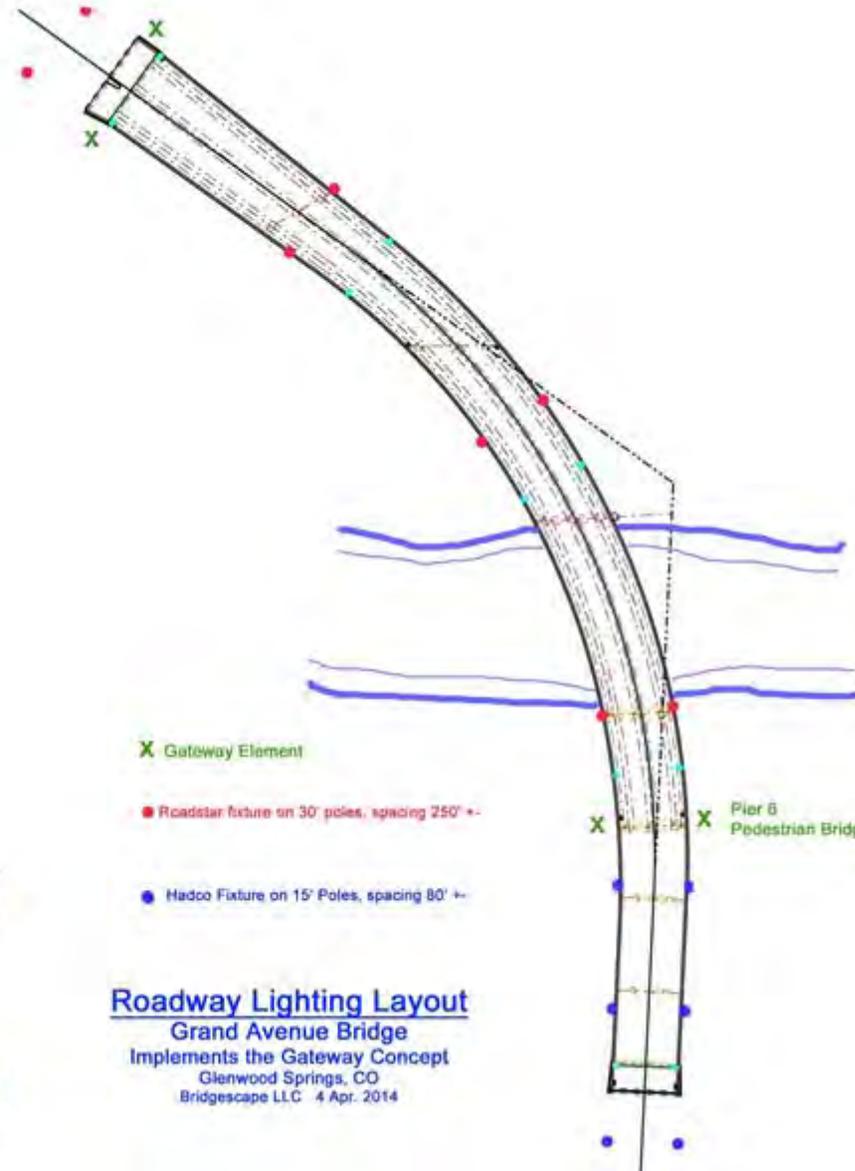
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Grand Avenue Bridge



Gateway Element



Roadway Lighting Layout

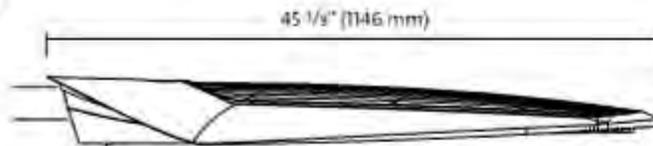
Grand Avenue Bridge
Implements the Gateway Concept
Glenwood Springs, CO
Bridgescape LLC 4 Apr. 2014

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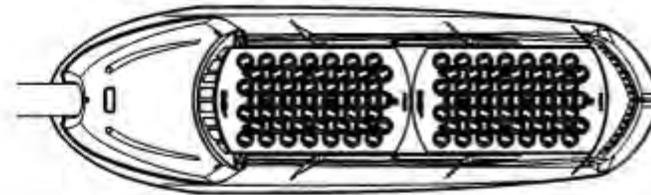
Grand Avenue Bridge

GPLM



45 1/8" (1146 mm)

4 7/8" (124 mm)



13 3/4" (349 mm)

LUMINAIRE PERFORMANCE DATA (Nominal 4000K CCT)			
Lamp	Average lumens*	System watts	Max AC current (amps)**
<input type="checkbox"/> 105W79LED4K	8174	119	1.17
<input type="checkbox"/> 130W98LED4K	10469	147	1.4
<input type="checkbox"/> 150W79LED4K	9979	170	1.7
<input type="checkbox"/> 180W98LED4K	12543	204	2

* Lumens for Type II distributors. Does not account for beam spread or optical distribution.
 ** For 120 volt AC input.

Voltage

- 120
- 208
- 240
- 277
- 347
- 480

Includes surge protector 10kV

347 and 480 volt for 180W98LED4K only

Luminaire options

- BL** Bubble level
- CDMG** Dynadimmer control
- DMG** 0-10 volt dimming ready power supply
- PHB** Photoelectric cell, twist type includes receptacle
- RC** Receptacle for twist-lock photoelectric cell or shorting cap
- WPG** Without protective grid

Optical systems / LED

- LE2** TYPE II / Asymmetrical distribution
- LE3** TYPE III / Asymmetrical distribution
- LE4** TYPE IV / Asymmetrical distribution
- LEH2** Type II / Hyperextensive
- LEH3** Type III / Hyperextensive
- LEH4** Type IV / Hyperextensive

Luminaire accessory

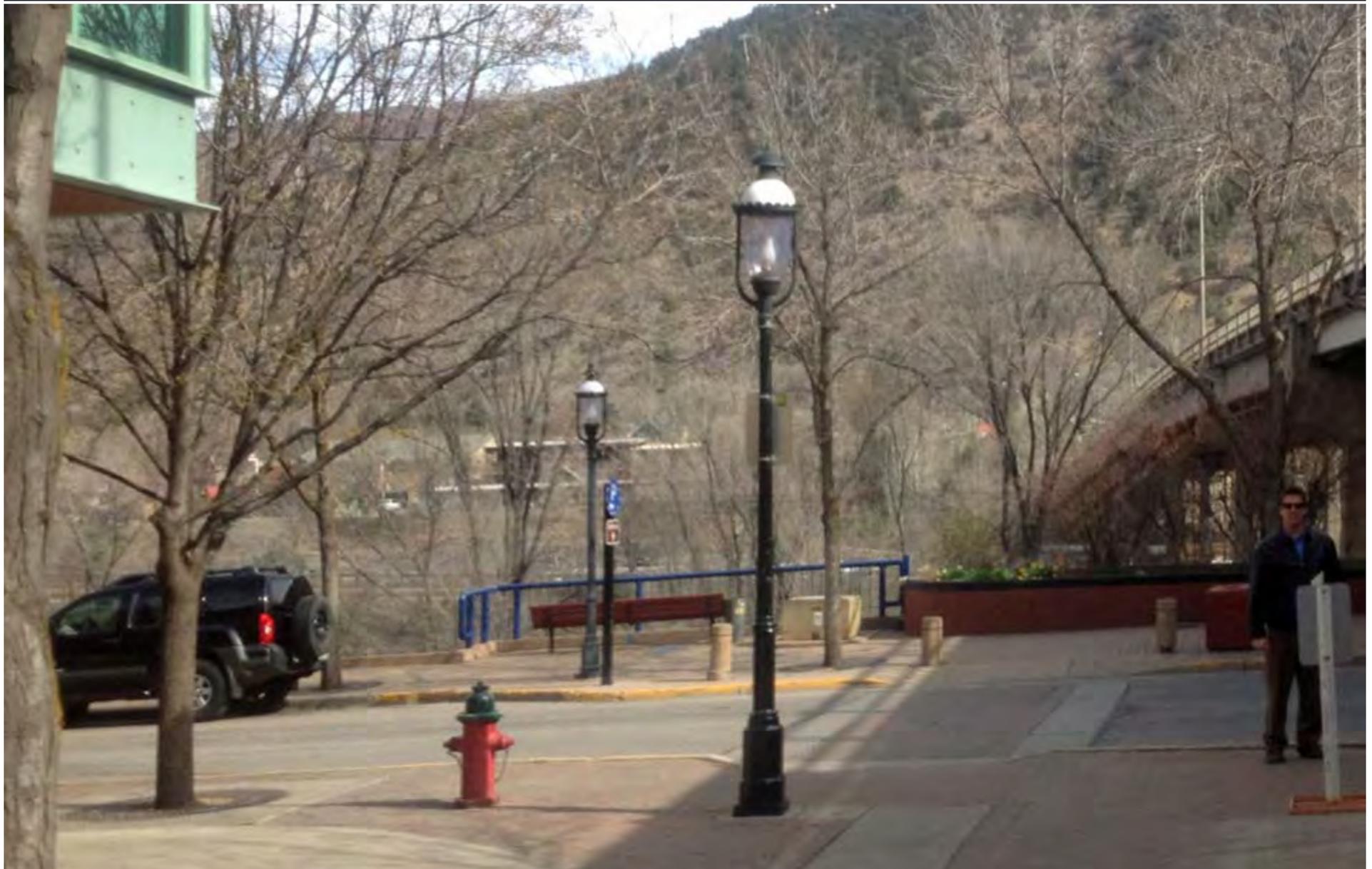
- SPC*** StarSense Photo-cell Control

* Luminaire option RC is required with the accessory

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Grand Avenue Bridge



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Grand Avenue Bridge

- From 8th Street looking north (west side of Grand Avenue)



View P

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GRAND AVENUE BRIDGE



South Side Aesthetics

Plaza Under Grand Avenue Bridge

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South Side Aesthetics

- Example of under bridge environments



Milwaukee Holton Street Bridge

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GRAND AVENUE BRIDGE

South Side Aesthetics

- Example of under bridge environments



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Revised Concept: Option 1a

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South Side Aesthetics



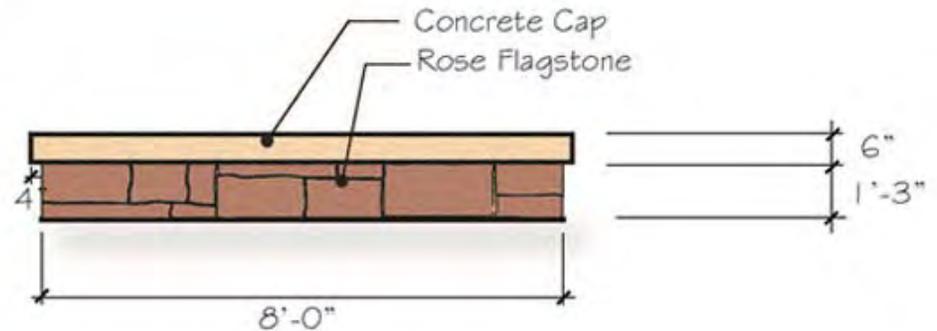
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South Side Aesthetics



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



Stone seat walls to alternate with concrete stairs



Abutment faced with sandstone



Moveable café furniture to maintain flexibility

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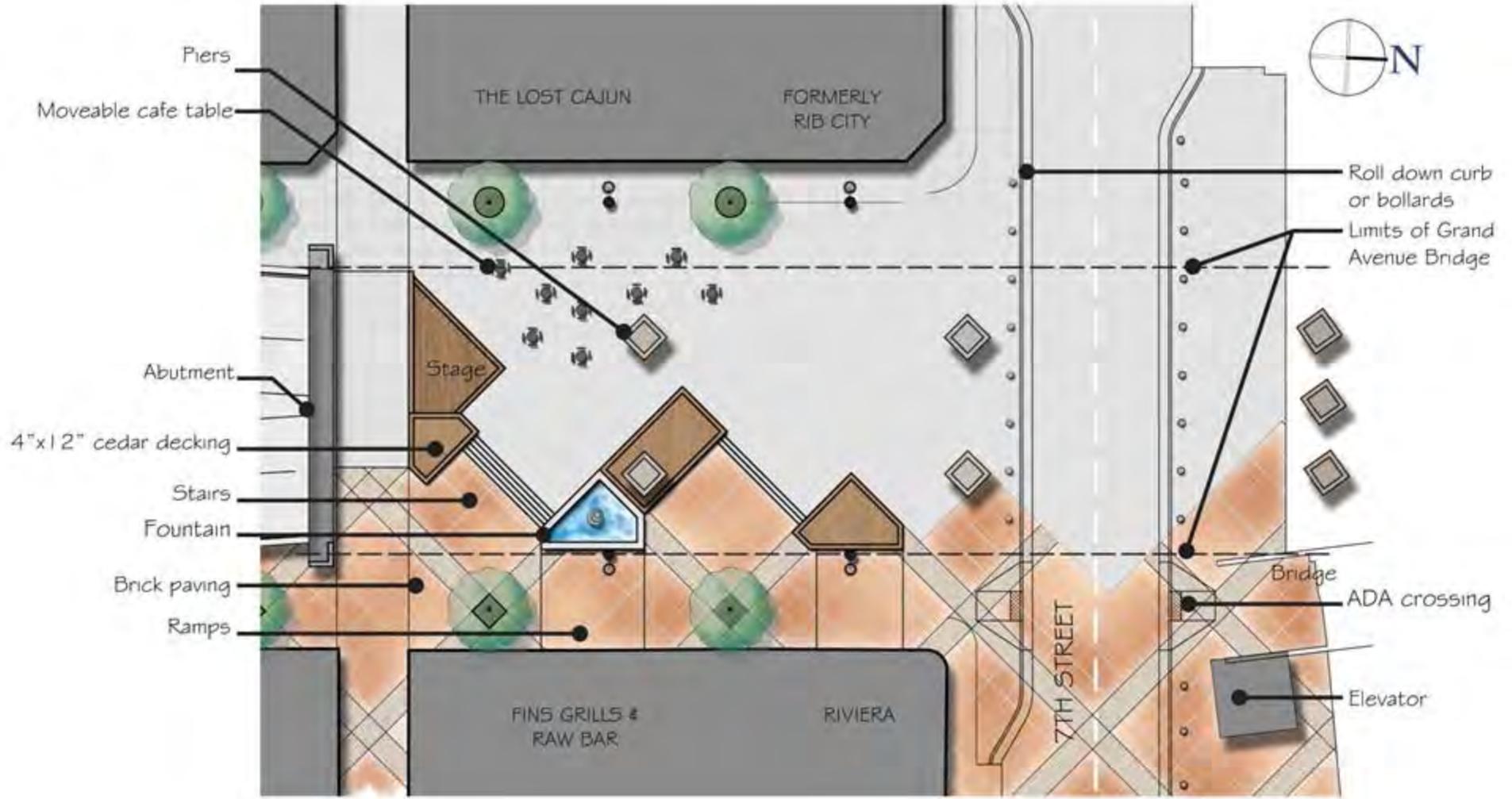
GRAND AVENUE BRIDGE

Revised Concept: Option 2a

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South Side Aesthetics



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South Side Aesthetics



Cedar Bench



Abutment faced with sandstone



Moveable Café furniture
to maintain flexibility

- Incorporate donor bricks in plaza
 - 384 Donor Bricks will most likely need to be replaced
- How to honor donor names
 - Engrave names on new bricks or flagstone
 - Provide plaque with donor names and the history of the Wing Street transformation to a pedestrian mall
 - Location
 - Plaza paving
 - Abutment wall
 - Piers
 - Monumentation



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South Side Aesthetics



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South Side Aesthetics





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Lighting the Plaza

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South Side Aesthetics

- Existing lighting conditions



- Two lighting options
 - Base lighting
 - Down lights
 - Enhanced Lighting
 - Down lights
 - Linear lights on coffers
 - Wash lighting on abutment wall



Down Lights



Linear Lights on Coffers

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South Side Aesthetics

- Base lighting
 - Down lights



- Enhanced lighting
 - Linear lights on coffers and down lights
 - Wash lighting on abutment wall





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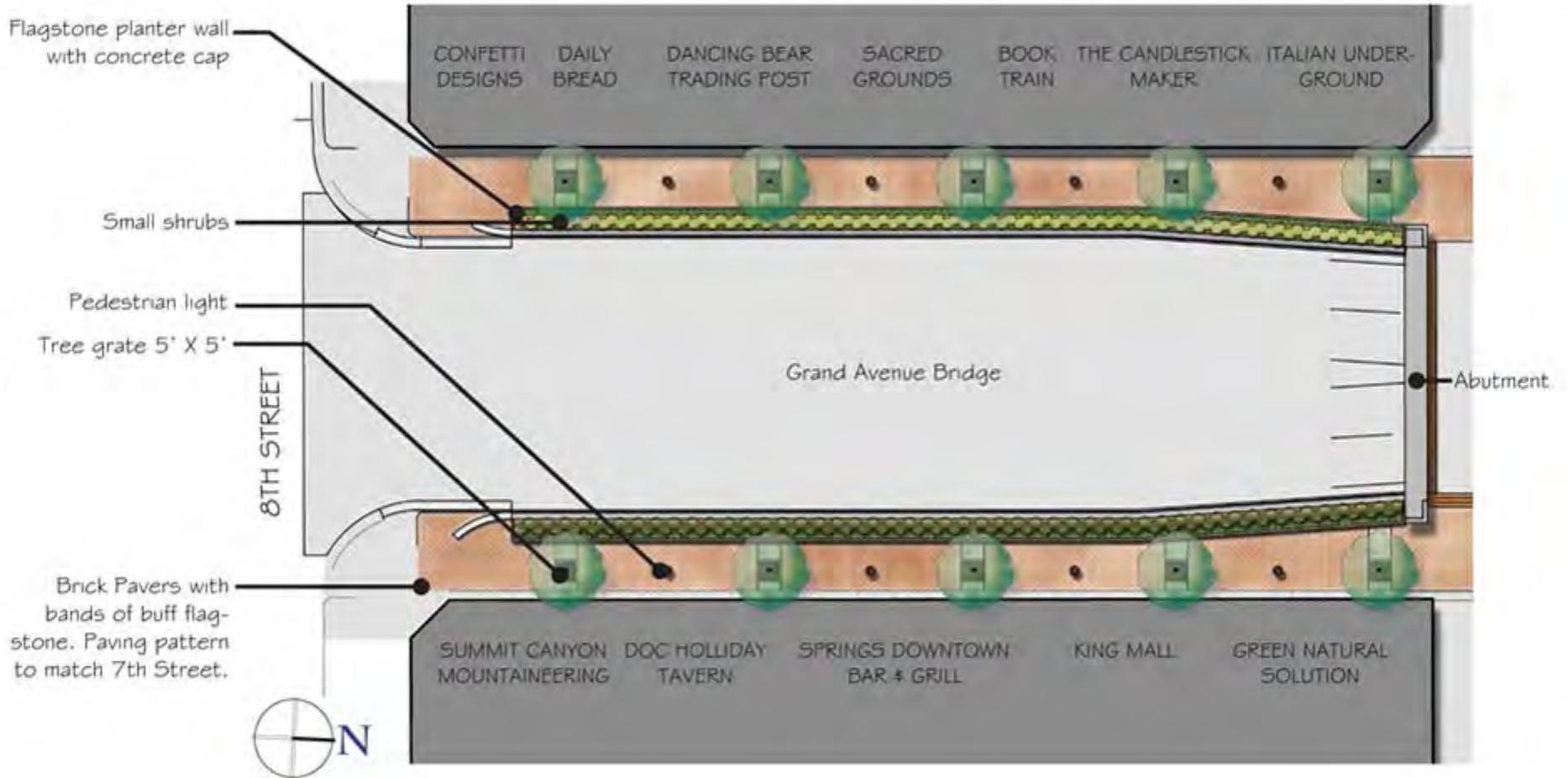
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**Sidewalk Connection
from
7th Street Alley - 8th Street**

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South Side Aesthetics



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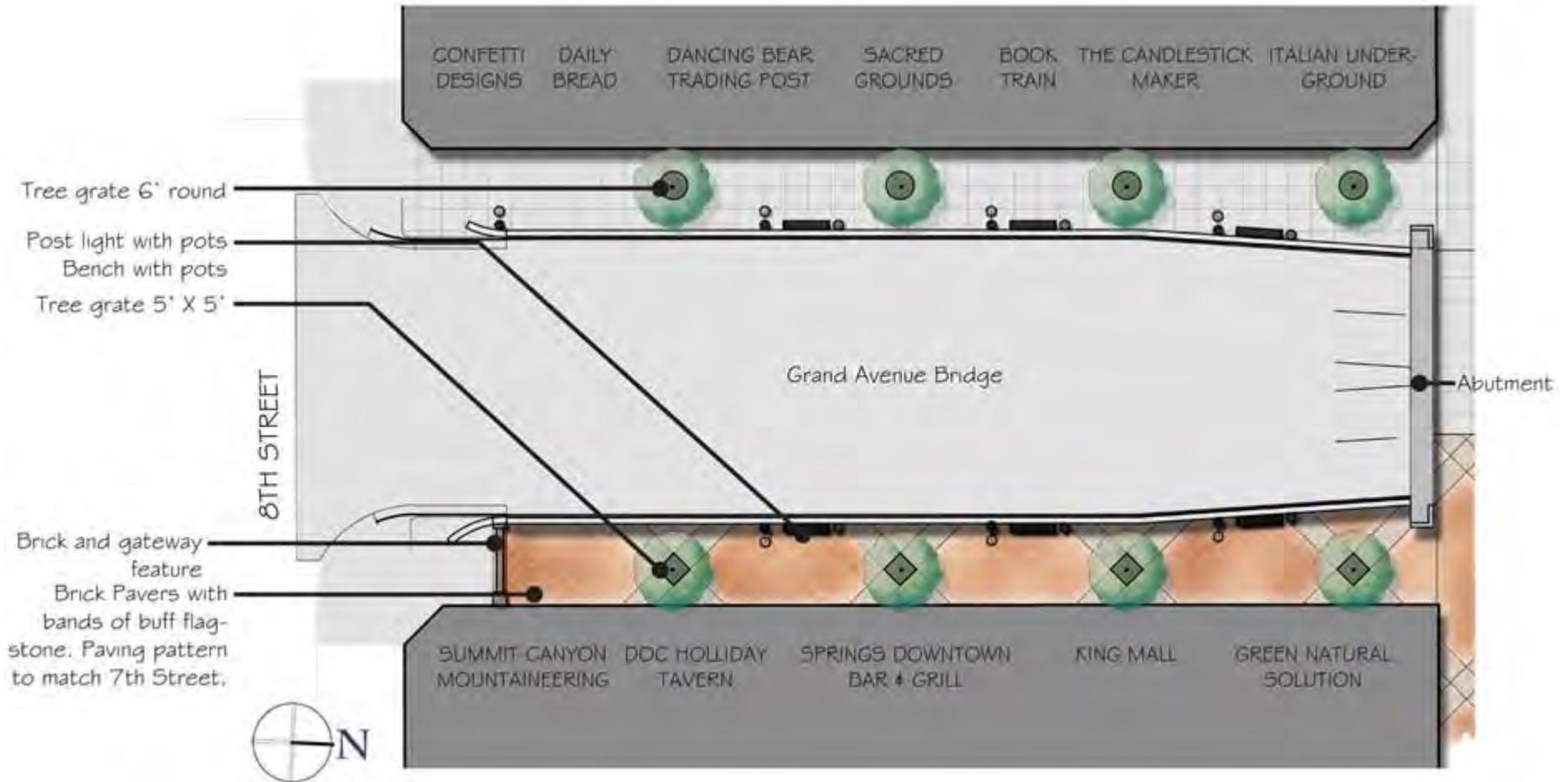
South Side Aesthetics



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South Side Aesthetics



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South Side Aesthetics



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South Side Aesthetics

- Streetscape
 - Furniture
 - Lighting

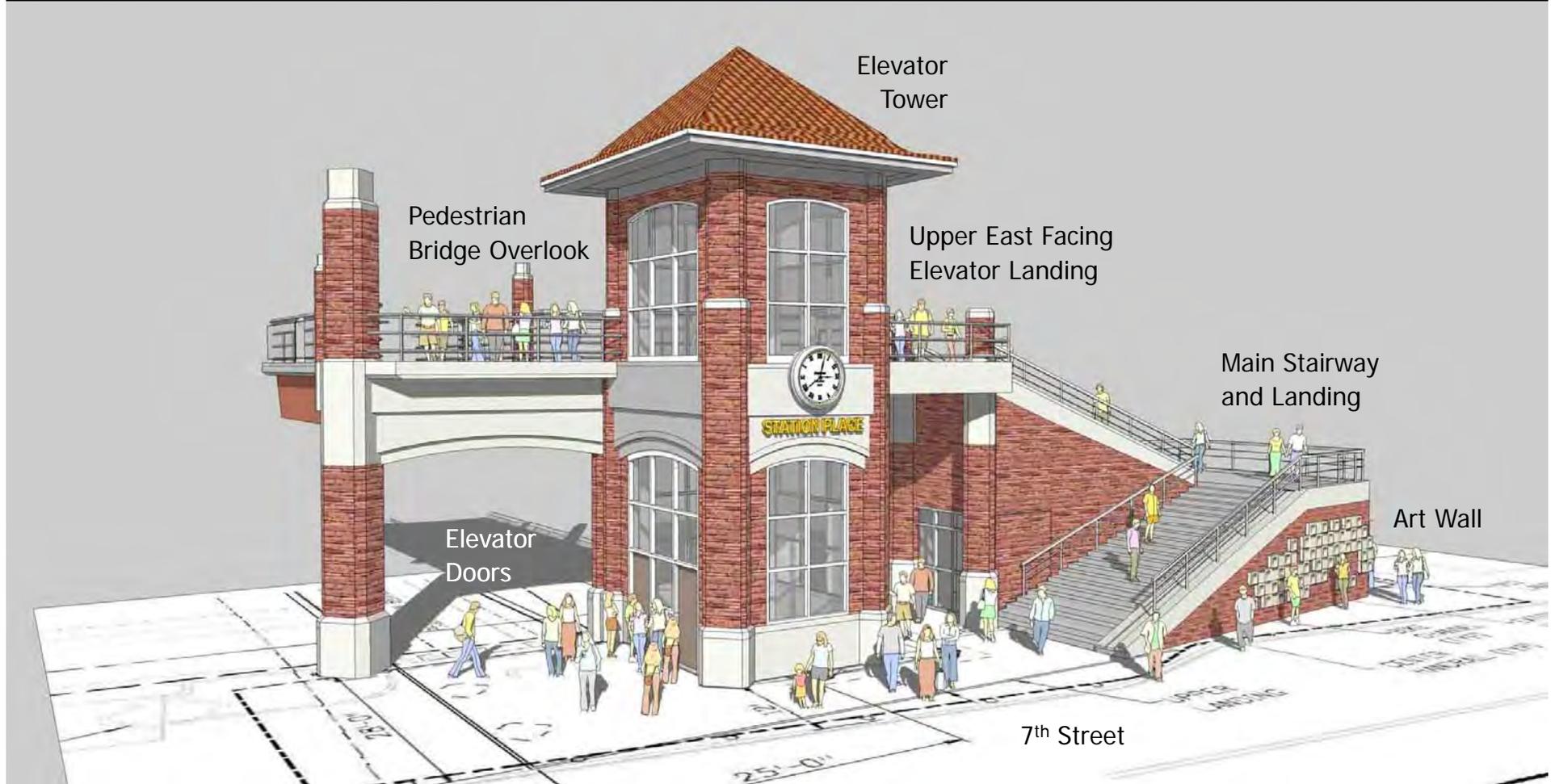


- 4 layouts reviewed
- Option B-a: PWG Selection
 - Two options required the realignment of 7th Street - delays design schedule and adds additional costs.
 - One option required grade break on pedestrian bridge - adds cost and complexity to the design.
 - North-south facing options included a barrier at street access - blocked area for 7th Street crosswalk to former wing street.
 - North-south facing options have upper elevator waiting area and access to stairs in same path – congested circulation.



Elevator Option "B-a"

View Looking Northeast



Elevator Option “Modified B-a”

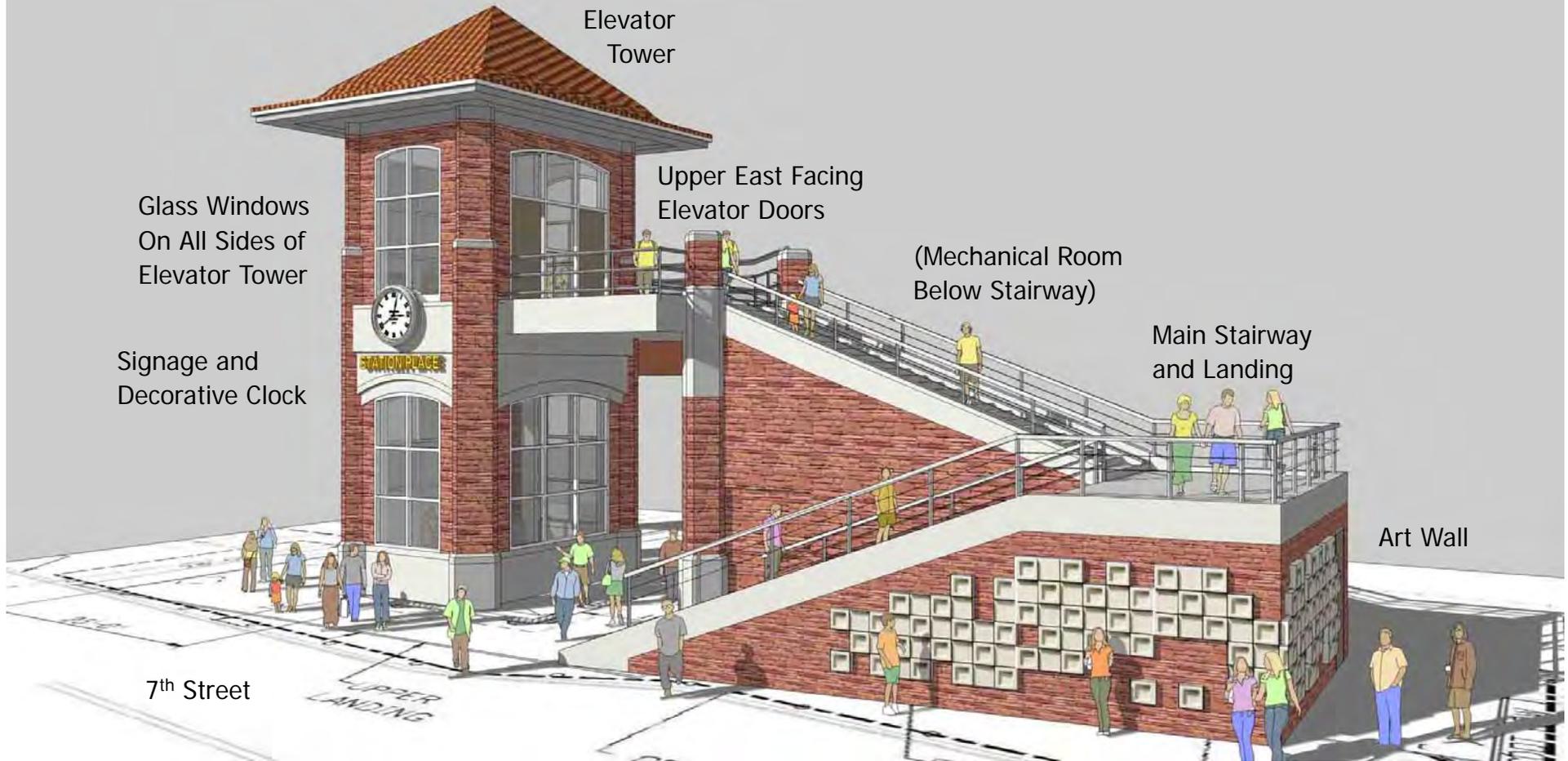
View Looking Northeast



Elevator Option "B-a"

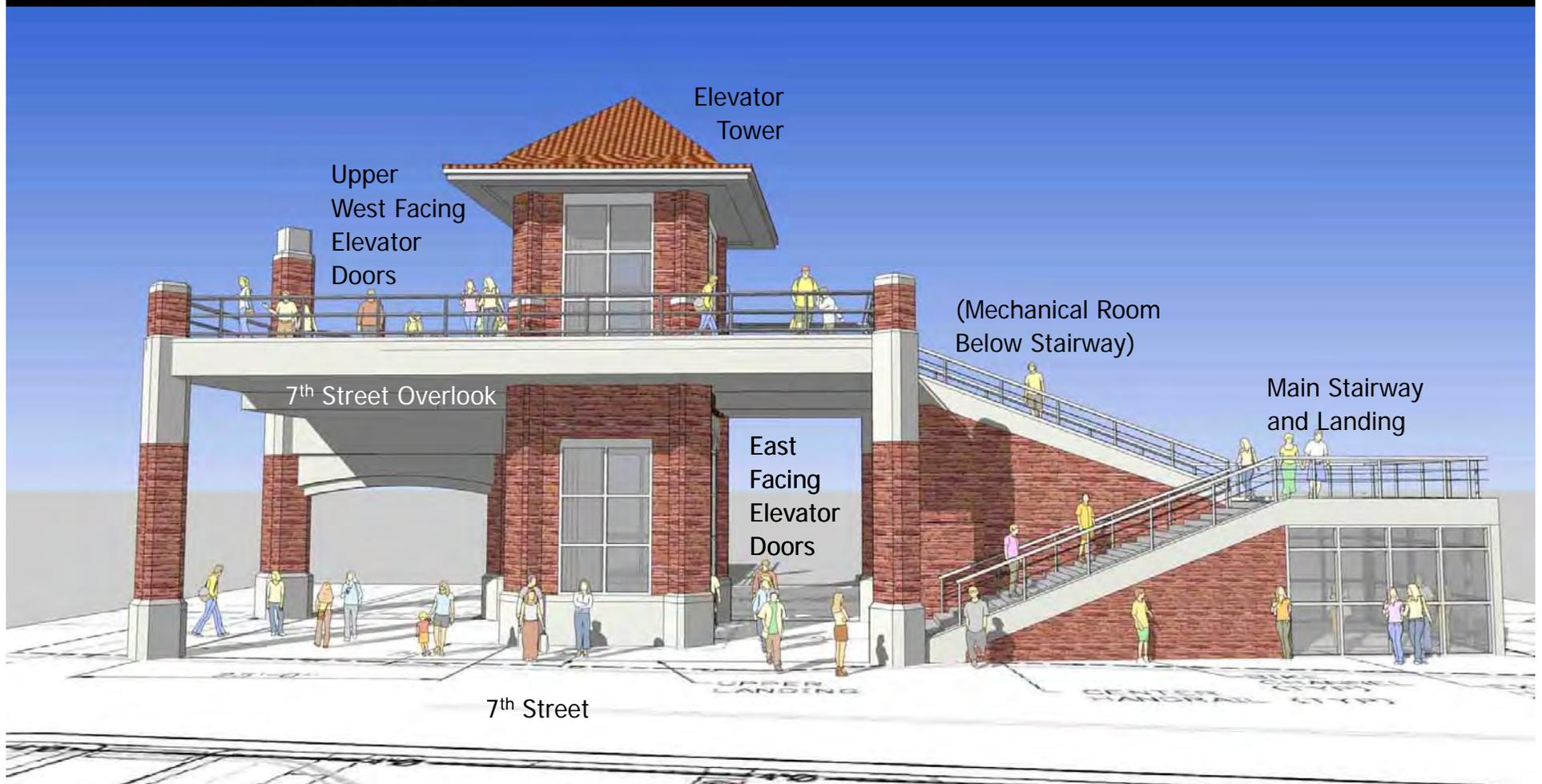
View Looking Northwest

Elevator Layout



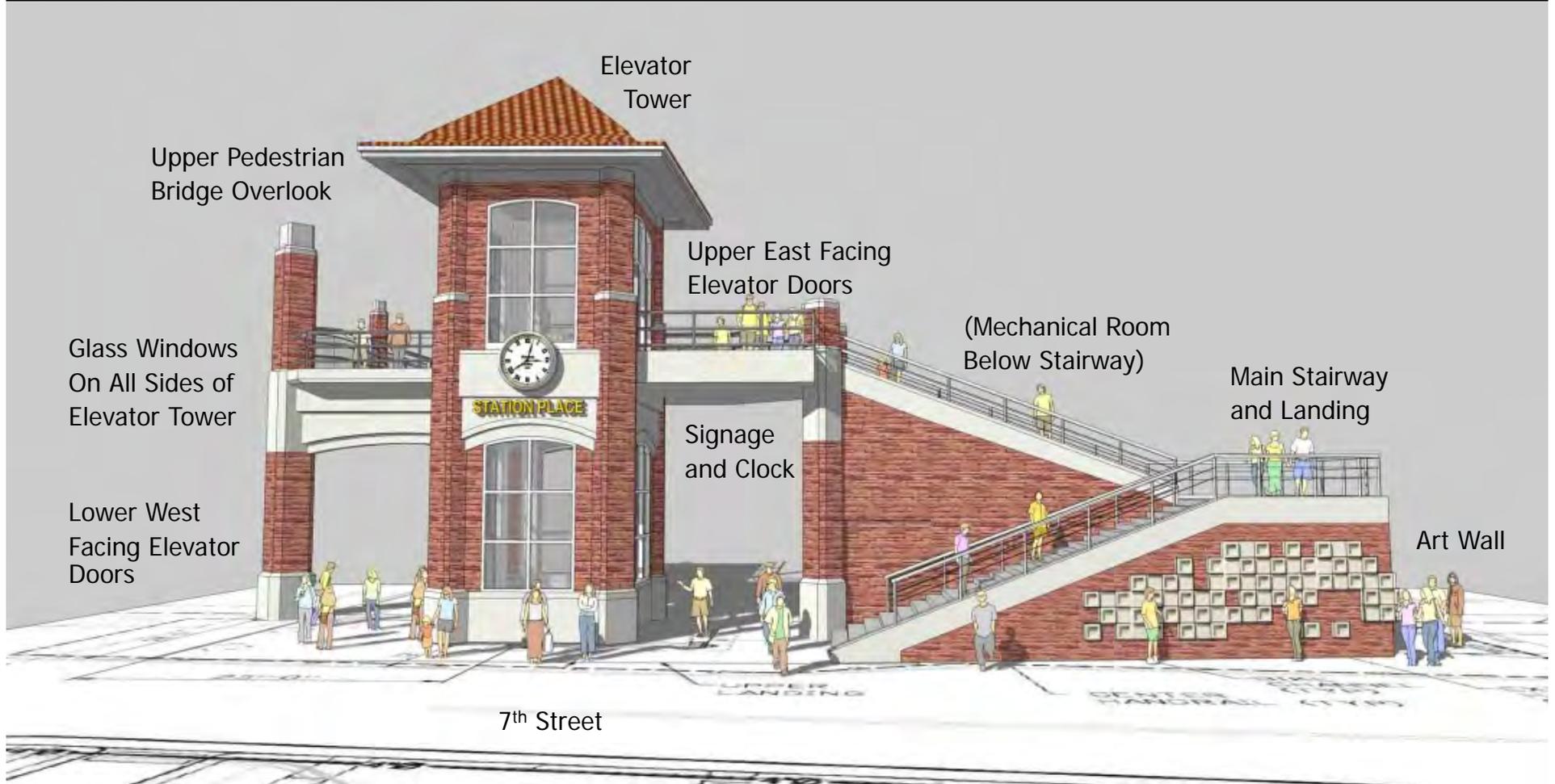
Elevator Option "Modified B-a"

View Looking Northwest



Elevator Option "B-a"

View Looking North



Elevator Option "Modified B-a"

View Looking North



Elevator Option "B-a"

Aerial View Looking Southwest

Elevator Layout



Elevator Option “Modified B-a”

Aerial View Looking Southwest

Elevator Layout



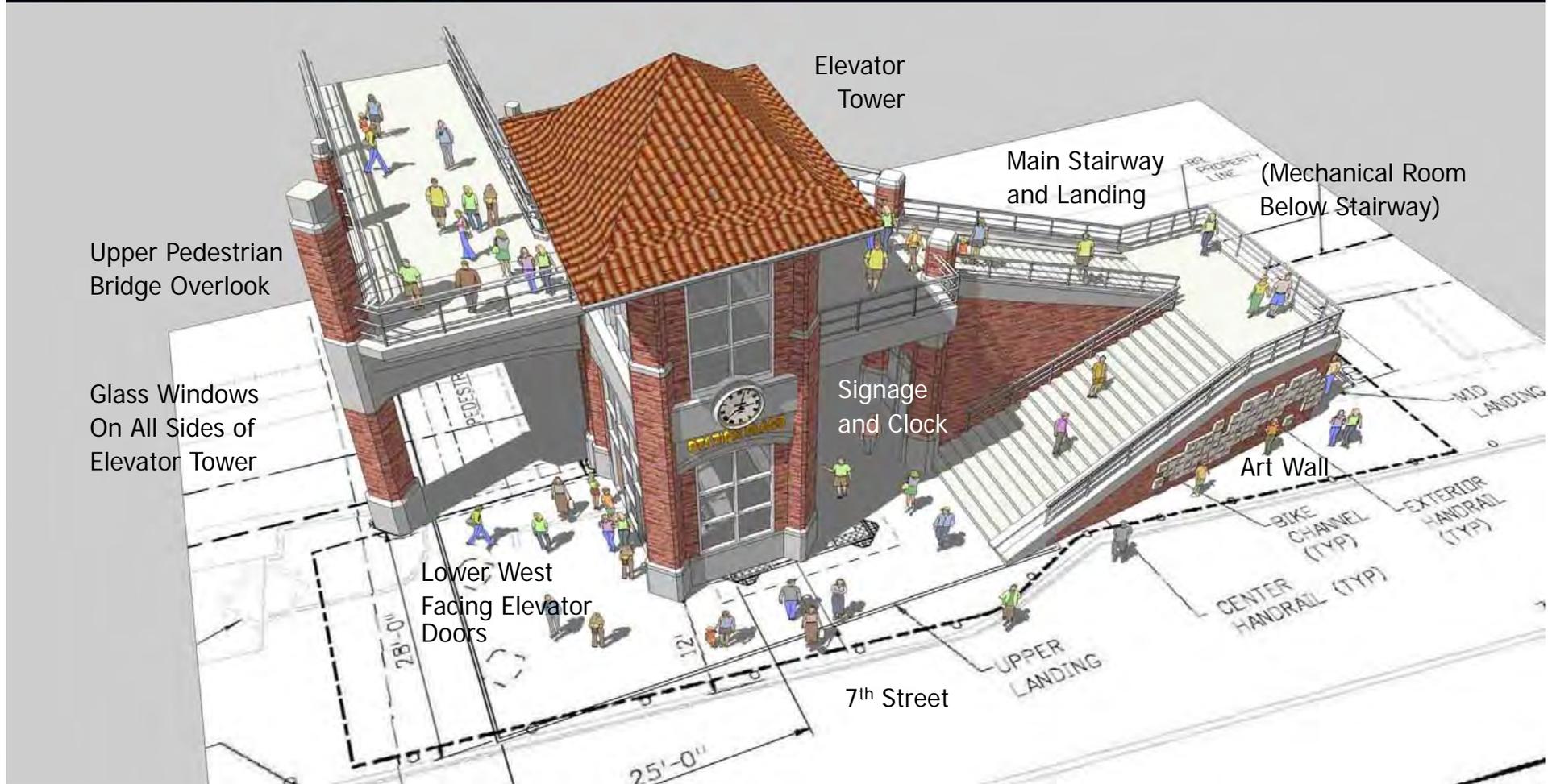
Elevator Option "B-a"

Aerial View Looking Northeast

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GRAND AVENUE BRIDGE

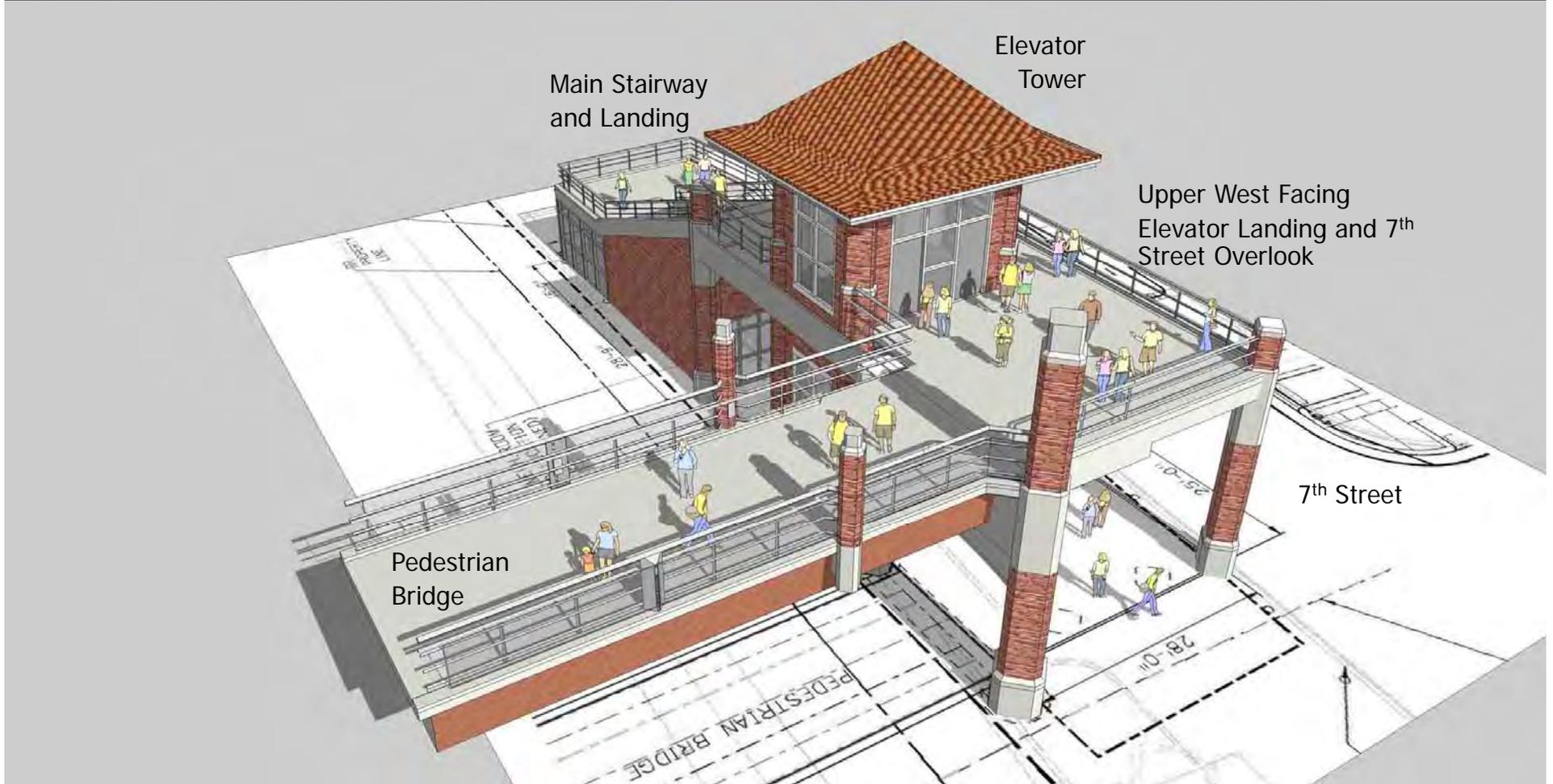
Elevator Layout



Elevator Option "Modified B-a"

Aerial View Looking Northeast

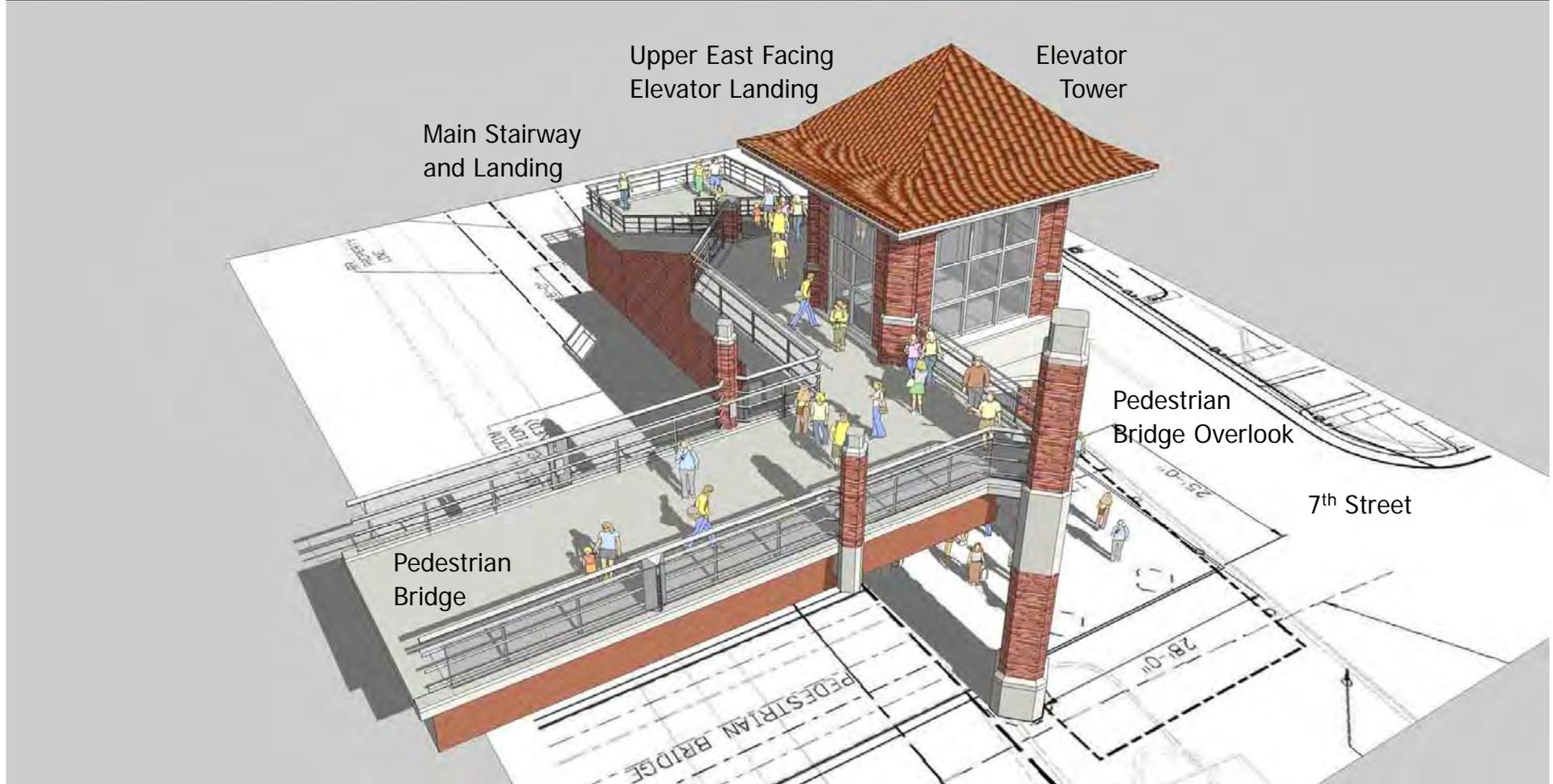
Elevator Layout



Elevator Option "B-a"

Aerial View Looking Southeast

Elevator Layout



Elevator Option "Modified B-a"

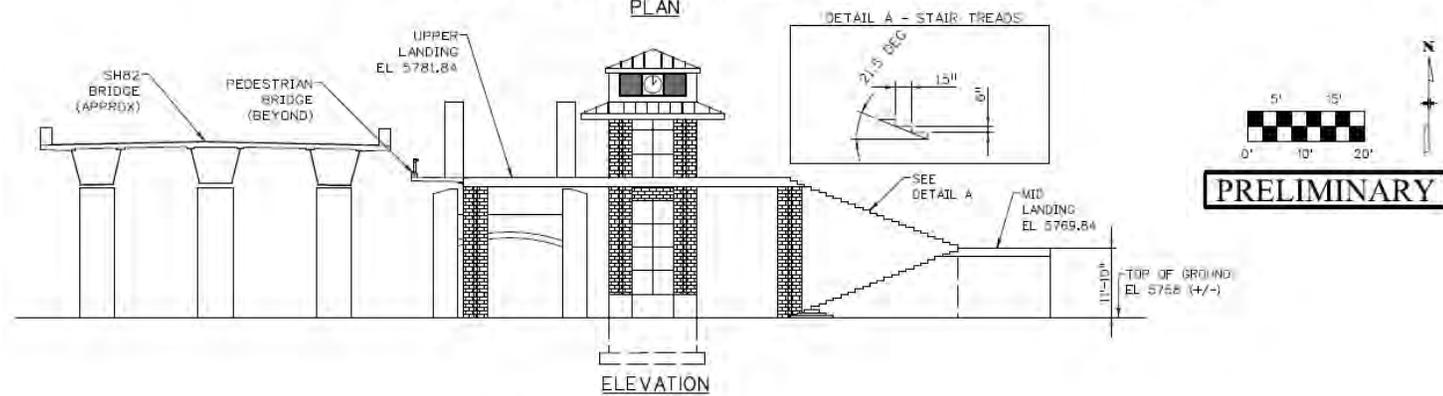
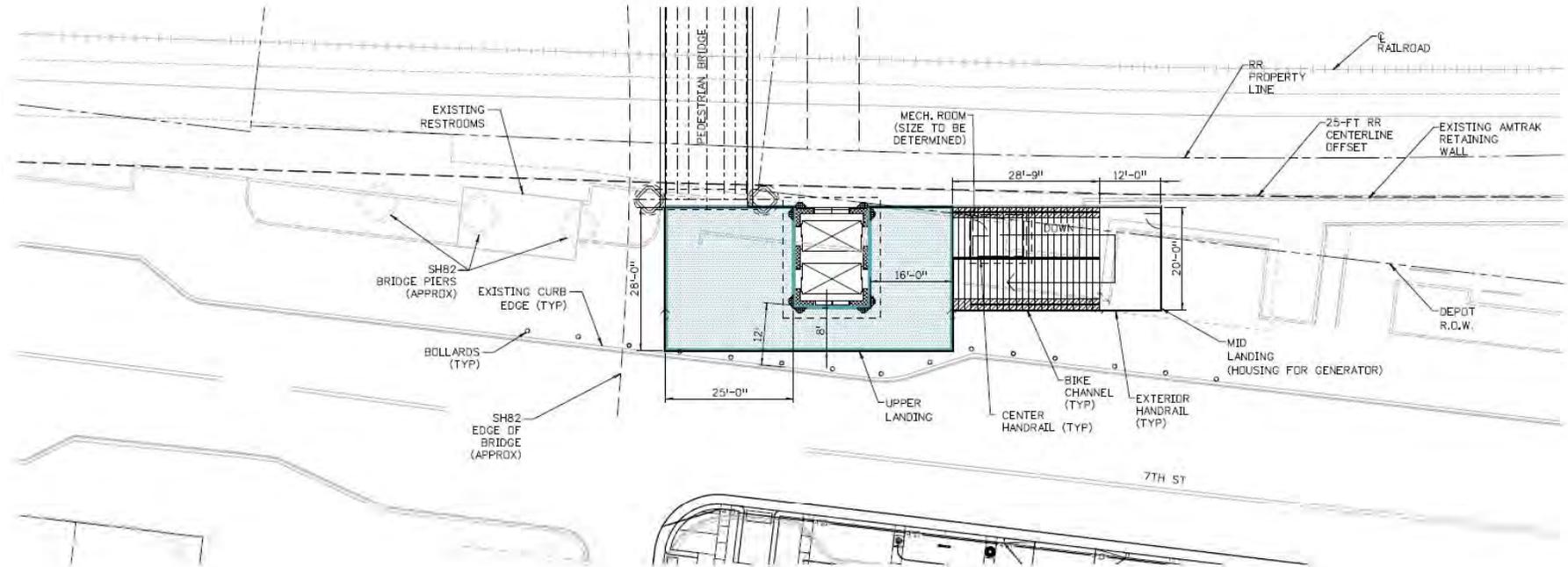
Aerial View Looking Southeast

Elevator Layout



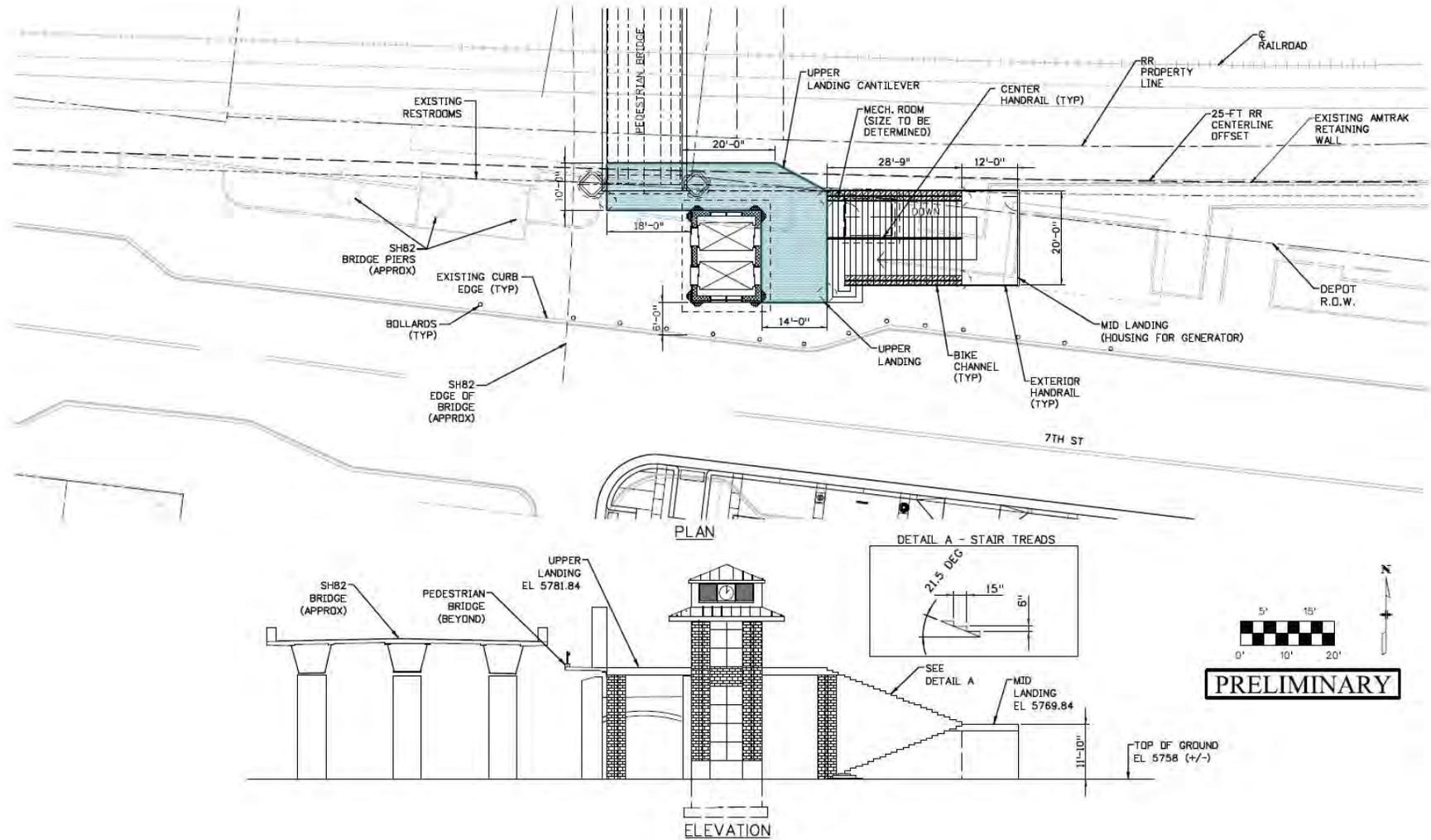
Elevator Option “Modified B-a”

Elevation Studies



PRELIMINARY

SELECTED LAYOUT
OPTION B-a



MODIFIED SELECTED LAYOUT
OPTION B-a MOD

Modified Tower Aesthetics

- Reduced stair tread widths
- Reduced mid landing length
- Revised elevator tower roof
- Revised elevator tower glass
- Reviewed opening area under stairs
- Continue to review options of materials and the treatment of concrete on landings

Stairs/Bike Channels

- Stair tread geometry unchanged (6 inches by 15 inches)
- Stair tread width reduced by 1 foot
- Skateboard deterrents:



■ Concerns with blocked views



- Restrooms (existing structure is about 12 feet by 24 feet)
- Elevator tower design requires:
 - Mechanical room (Minimum 8 feet by 10 feet)
 - Room for backup generator (Minimum 11 feet by 12 feet)

- Possible restroom locations:
 - Under stairs - less likely
 - Under vehicle bridge – similar to current location
 - In new County parking facility – farther away/timing
 - East of elevator tower/stairs – affects 7th Street plaza development

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Pedestrian Bridge



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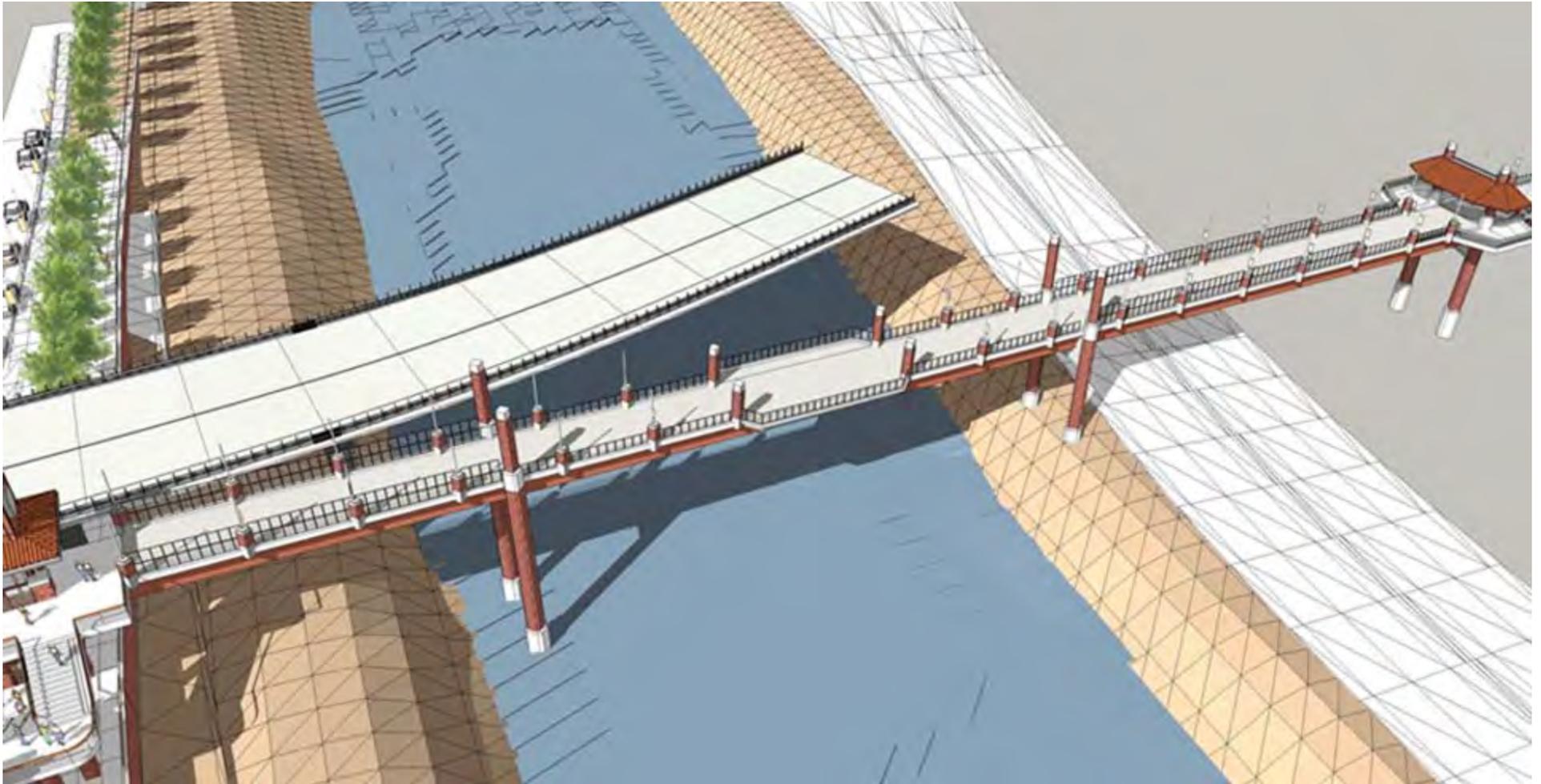
Pedestrian Bridge



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GRAND AVENUE BRIDGE

Pedestrian Bridge



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Pedestrian Bridge



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Pedestrian Bridge



SH 82

GRAND AVENUE BRIDGE

Pedestrian Bridge

- Overlooks at all piers, roofs at all overlooks



View H Option 1

SH 82

GRAND AVENUE BRIDGE

Pedestrian Bridge

- Overlooks at all piers, roofs at all overlooks



View J Option 1

SH 82

GRAND AVENUE BRIDGE

Pedestrian Bridge



SH 82

GRAND AVENUE BRIDGE

Pedestrian Bridge

- Overlooks at all piers, arches at all overlooks



View H Option 2

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GRAND AVENUE BRIDGE

Pedestrian Bridge

- Overlooks at all piers, arches at all overlooks

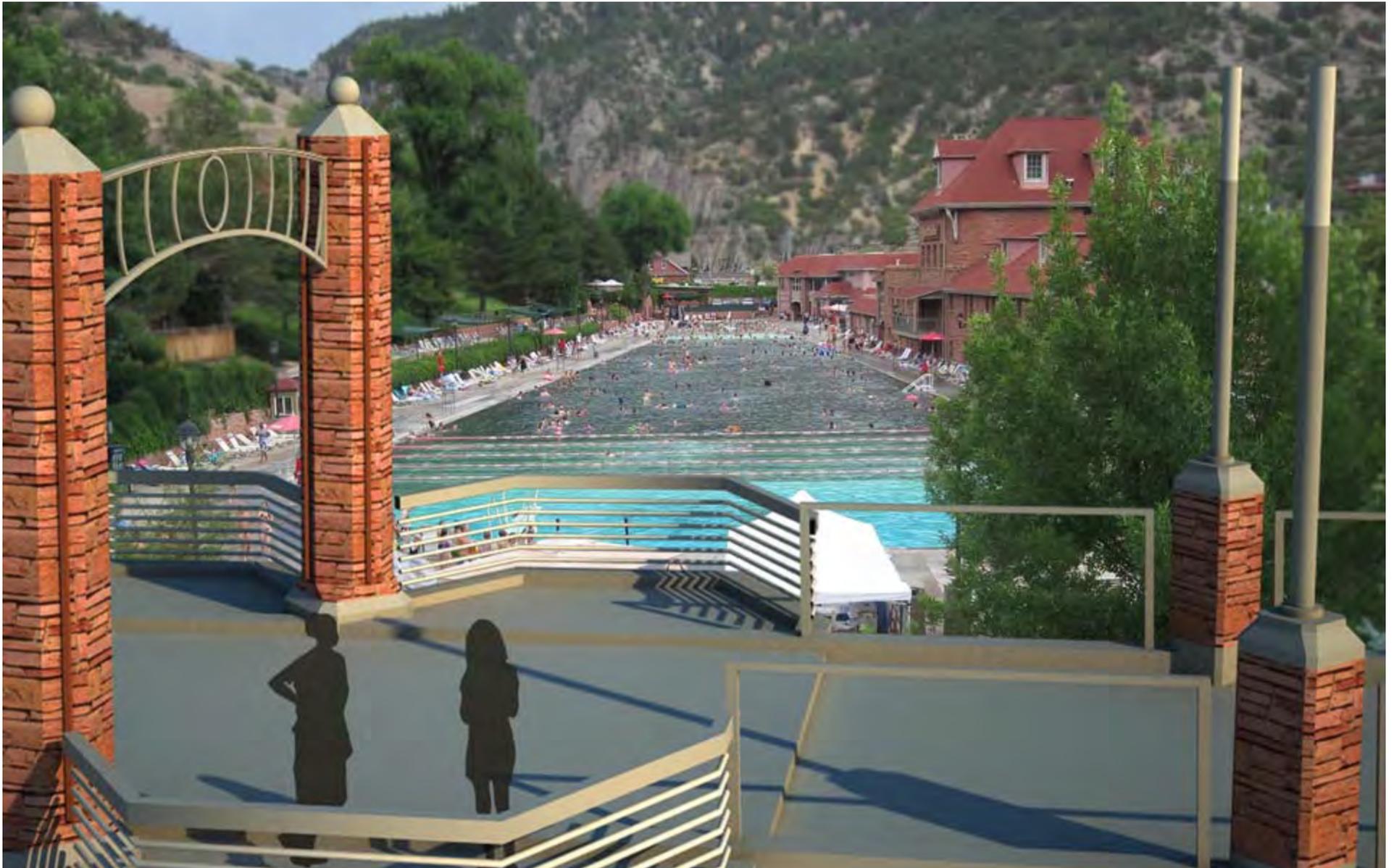


View J Option 2

SH 82

GRAND AVENUE BRIDGE

Pedestrian Bridge



SH 82

GRAND AVENUE BRIDGE

Pedestrian Bridge

- Overlooks at all piers, roofs at Piers 2 & 5, arches at Piers 3 & 4



View H Option 3

SH 82

GRAND AVENUE BRIDGE

Pedestrian Bridge

- Overlooks at all Piers, roofs at Piers 2 & 5, arches at Piers 3 & 4



View J Option 3

SH 82

GRAND AVENUE BRIDGE

Pedestrian Bridge



SH 82

GRAND AVENUE BRIDGE

Pedestrian Bridge

■ Revised railing



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GRAND AVENUE BRIDGE

Pedestrian Bridge

■ Revised railing



SH 82

GRAND AVENUE BRIDGE

Pedestrian Bridge

■ Revised railing



SH 82

GRAND AVENUE BRIDGE

Pedestrian Bridge



SH 82

GRAND AVENUE BRIDGE



Pedestrian Bridge



SH 82

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Pedestrian Bridge

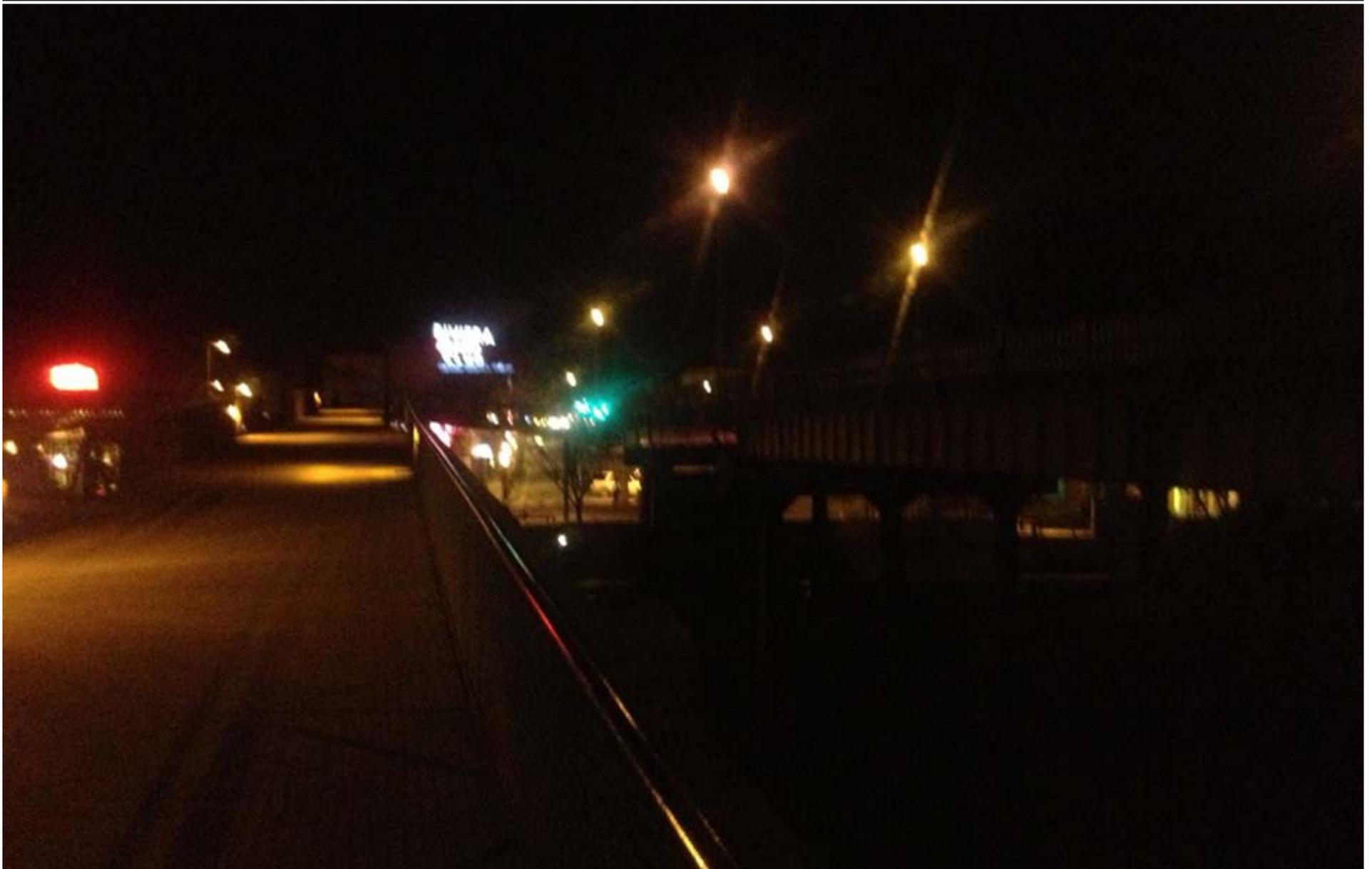


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Pedestrian Bridge



SH 82

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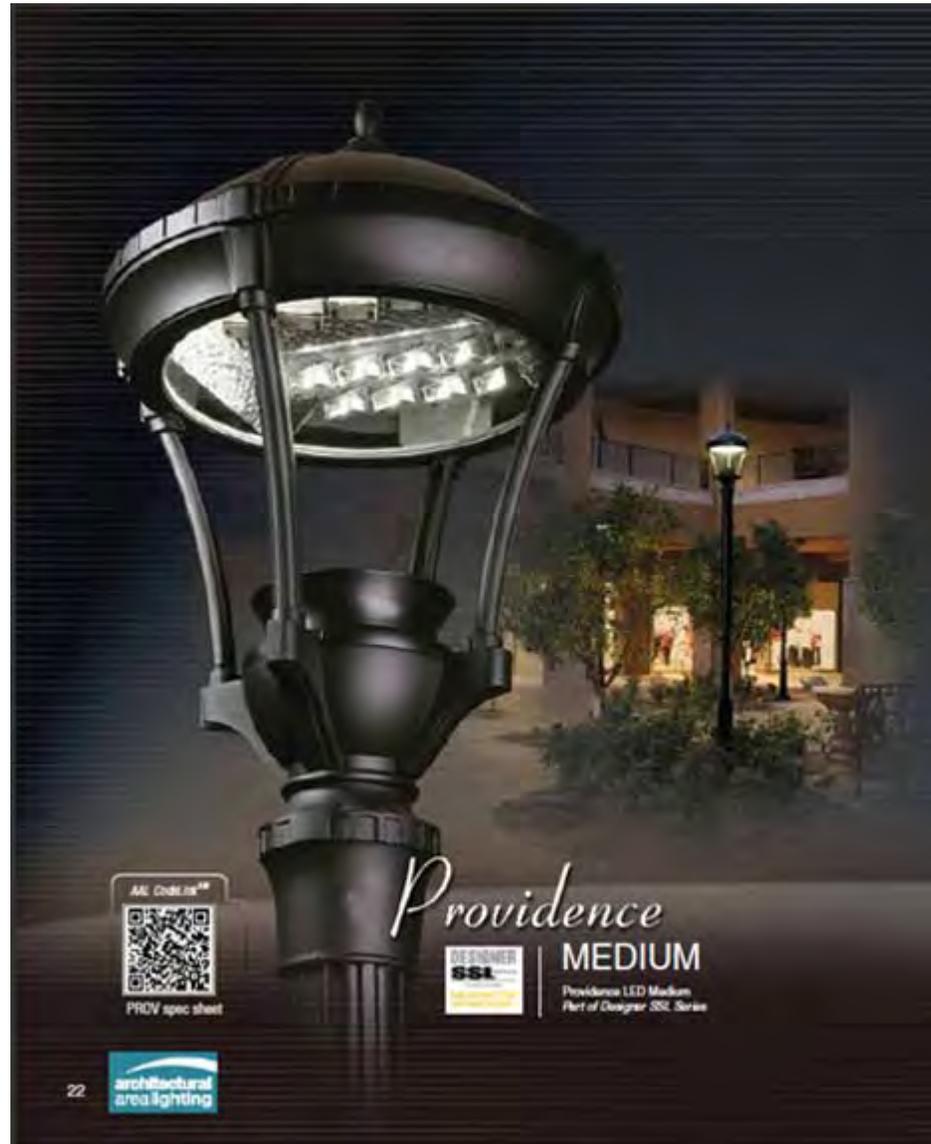
Pedestrian Bridge



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GRAND AVENUE BRIDGE

Pedestrian Bridge



■ Snow removal system

PEDESTRIAN BRIDGE SNOW REMOVAL SYSTEM COMPARISON MATRIX

Parameter	Electric	Hydronic	Hydronic with Geothermal	Plowing
Capitol Cost	Fair	Fair	Fair	Good
Operating Cost (Annually)	Fair	Poor	Good	Good
Energy Efficiency	Good	Poor	Fair	NA
Man-hours Required	Good	Fair	Fair	Poor
Requires Additional Mechanical Room	Good	Poor	Poor	Good
Performance	Good	Good	Good	Good
Risk of Failure	Fair	Fair	Fair	Good
Potential for Structural Damage	Good	Poor	Poor	Good
Ease of Repair	Fair	Poor	Poor	NA
Environmental Concerns	Good	Fair	Fair	Fair



North Side Landscape

- Three landscape options presented at March meeting
 - Traditional
 - Xeric
 - Native/Organic

- Moving forward with Native/Organic

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GRAND AVENUE BRIDGE

North Side Landscape

- Landscape character native
 - Shrubs, ornamental grasses and/or splashes of perennials
 - Mass plantings together for easier maintenance
 - Landscape boulders



■ Landscape plant material

– Native

• Shrubs

- Common juniper
- Dwarf Korean lilac
- Dwarf Oregon grape
- Potentilla
- Russian sage
- Golden Currant
- Roses
- Snowberry
- Serviceberry
- Chokecherry

• Grasses

- Idaho Fescue
- Indian Rice Grass
- Needle and Thread Grass
- Cane Bluestem
- Sliver Beard Grass
- Blue Grama
- Buffalo Grass
- Sideoats Grama
- New Mexican Feathergrass

• Perennials

- Delphinium
- Columbine
- Lupine
- Paintbrush
- Primrose
- Penstemon
- Daisy
- Geranium
- Coreopsis
- Day Lilies
- Black eyed Susan
- Prairie Verbena
- Mexican Hat
- Phlox

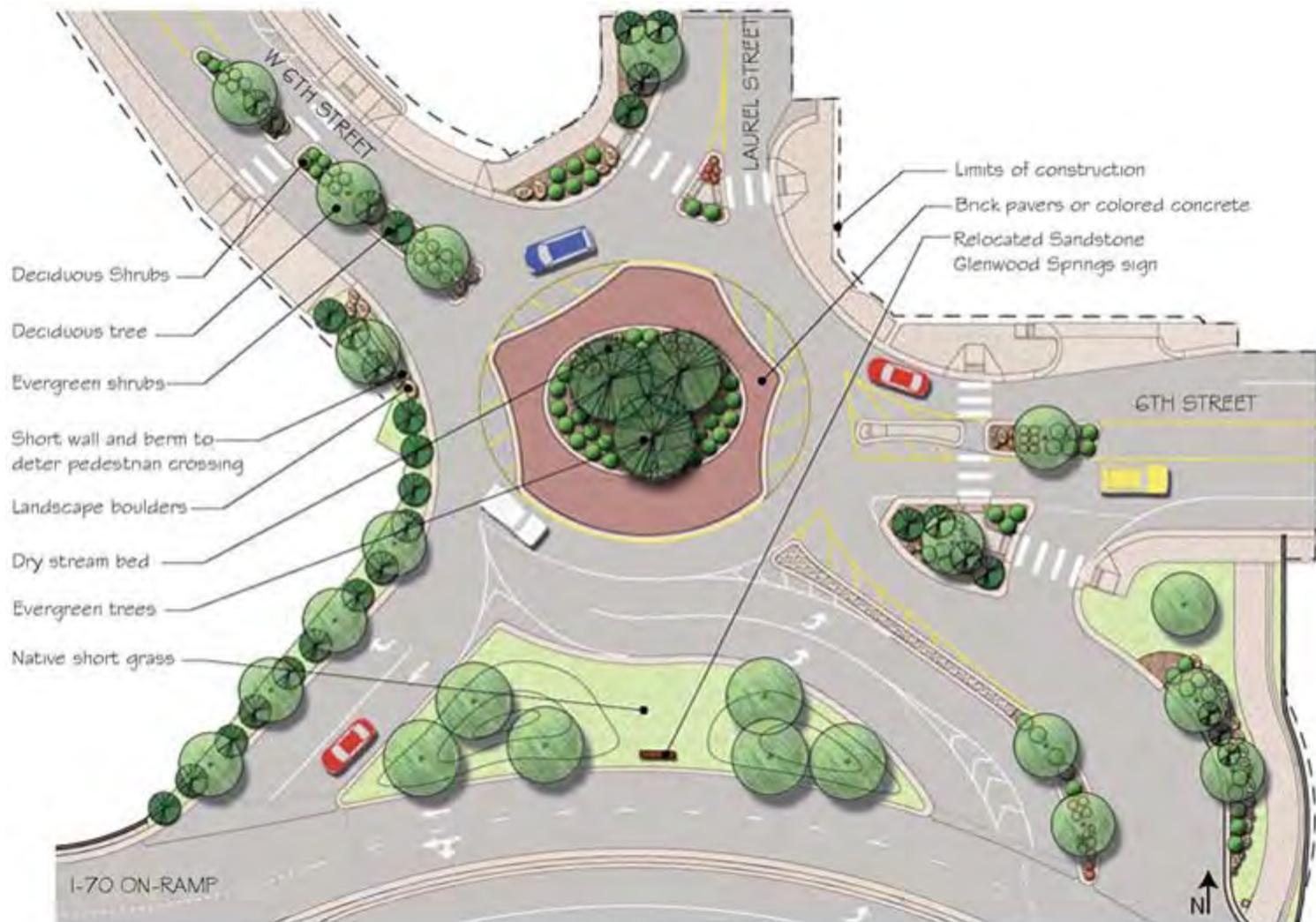


North Side Landscape

■ Native - higher maintenance option



■ Native - lower maintenance option

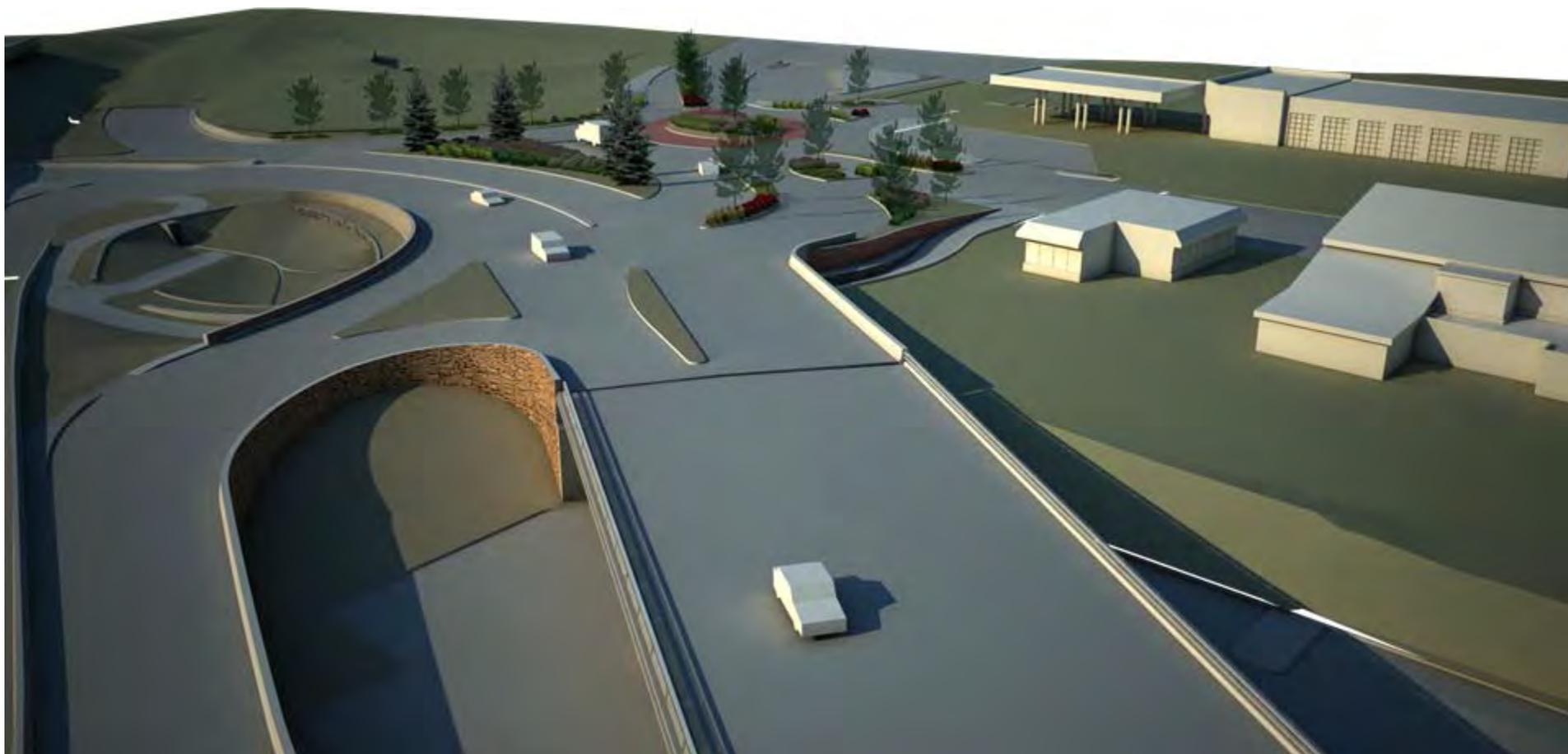


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North Side Landscape

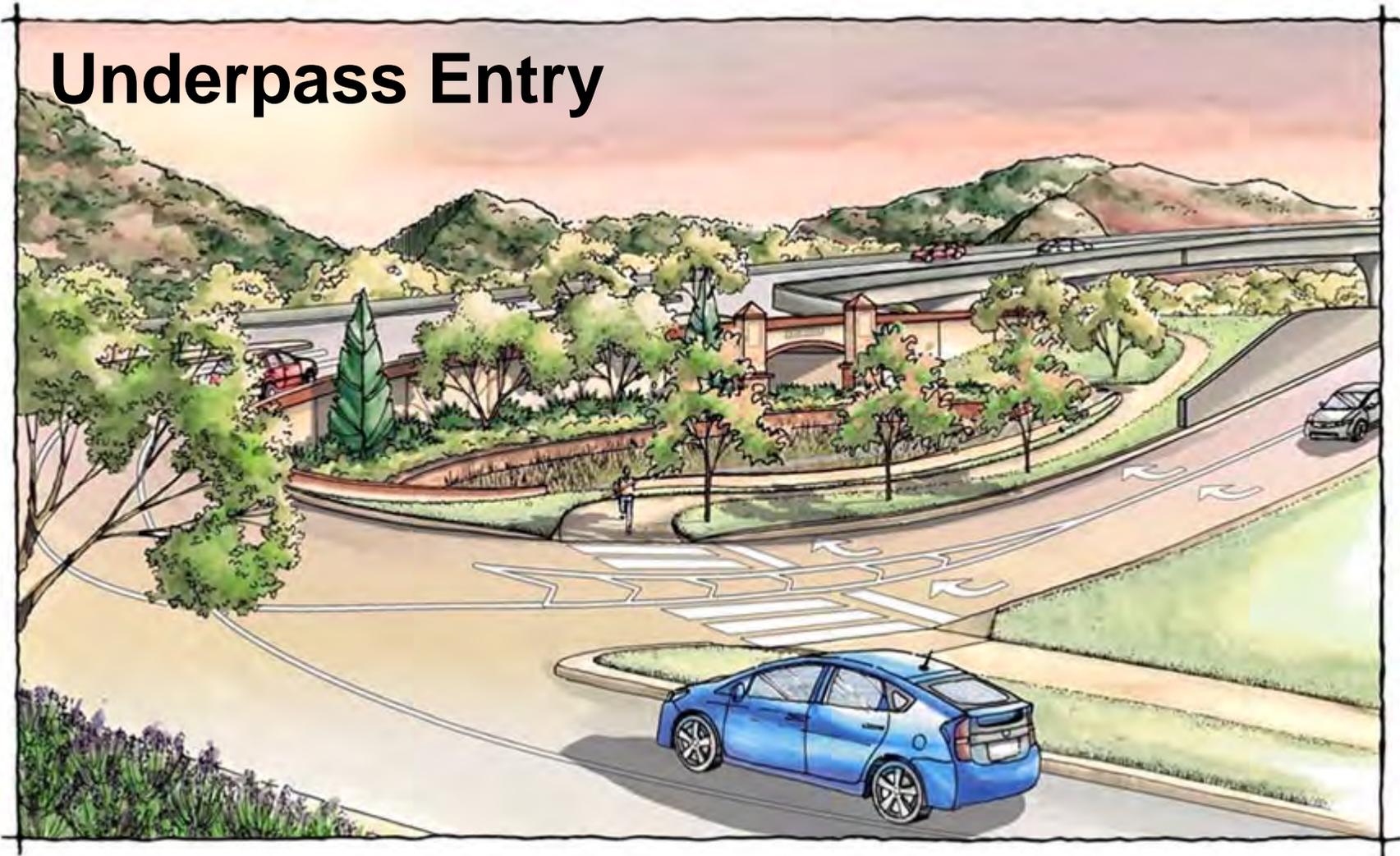


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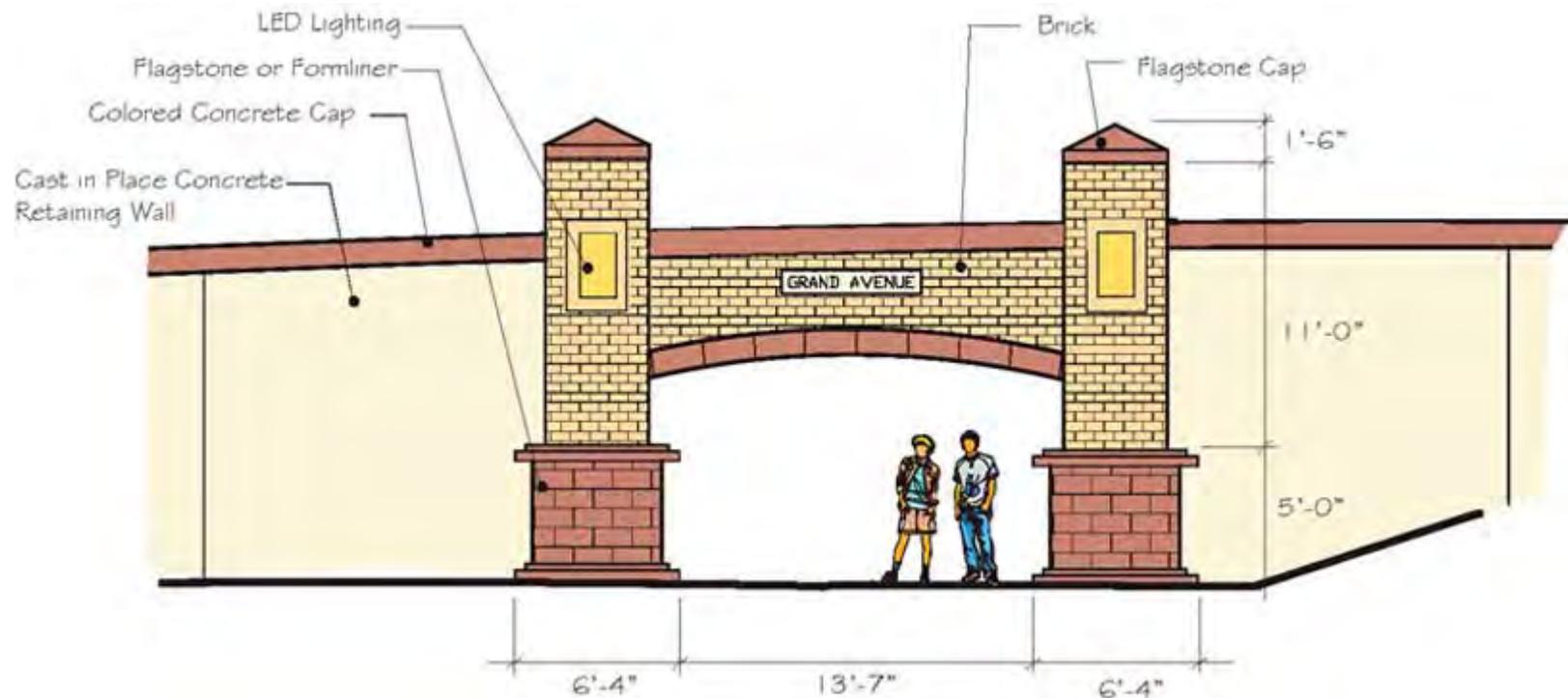
GRAND AVENUE BRIDGE

North Side Underpass

Underpass Entry



- Pedestrian/bicycle underpass - Historic Influence
 - Monuments designed to reflect the architecture of Glenwood Springs through color and materials
 - Monuments have high end finishes
 - Enhancement



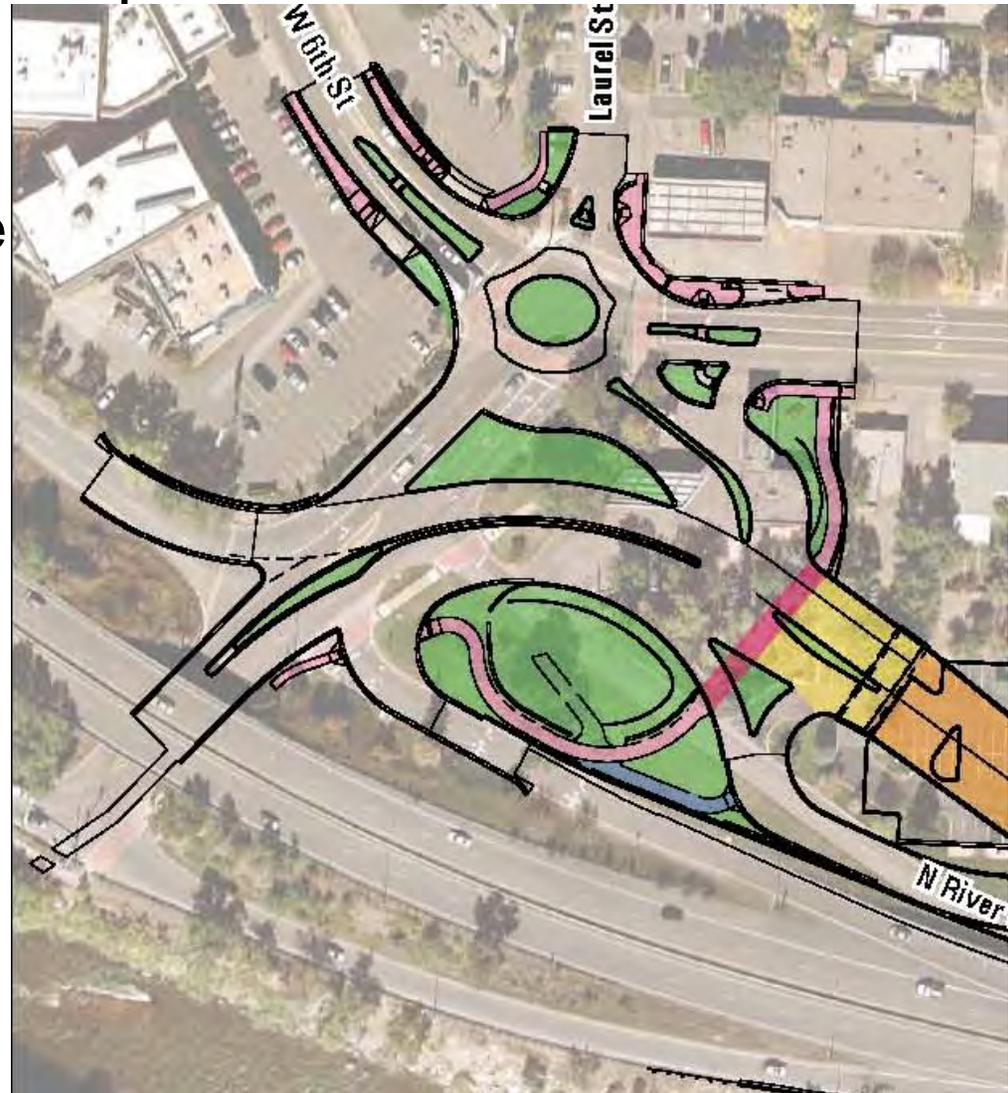
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North Side Underpass

■ Pedestrian/bicycle underpass

- 121' Long
- 16' Wide
- 8'-9' Clearance inside the underpass



- Inside the underpass
 - We heard low aesthetic priority with minimal aesthetic treatment
 - Form liner
 - Smooth finish for easy graffiti removal
 - Recommendation to pay homage to mining history
 - Lithichrome Chemstain

- Underpass
 - Form liner
 - Lithichrome Chemstain



Lithichrome
Chemstain



Sandblast form liner



Wood plank/ mining form liner

■ Underpass lighting

- Lifetime vandal-proof guarantee
- LED white light high color rendering
- Low energy, highly efficient, long life
- Bi-level or dimmable operation
- Base cost with low maintenance



- Located at base of ceiling



- Located at eye level
- Provides better vertical illumination (light on people's faces)

Retaining Walls

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 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 WQ 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 WQ 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 - 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 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



North Side Walls

- Walls on the north side
 - Stone wall- natural



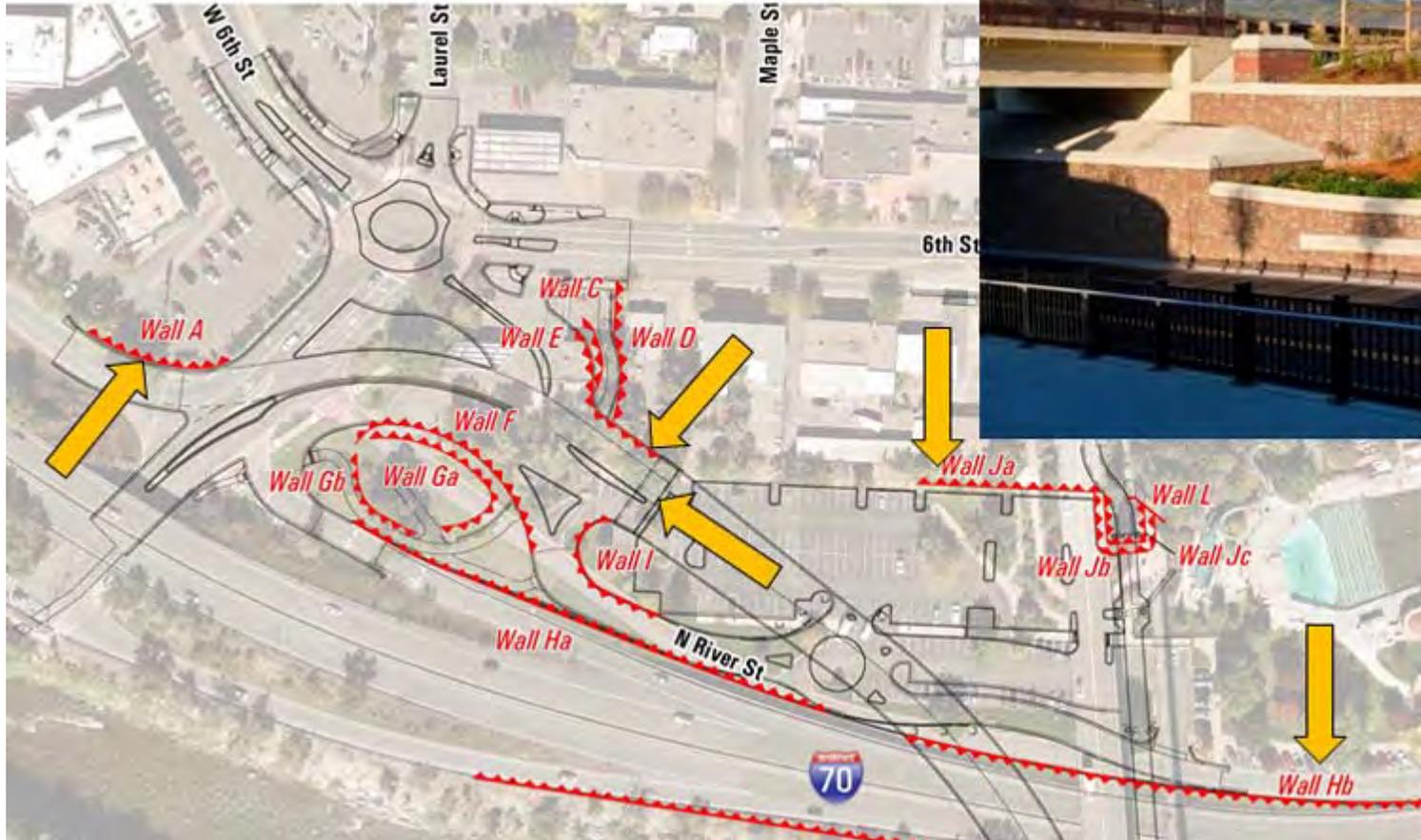
- Walls on the north side
 - Stone wall or stone form liner



- Walls on the south side
 - Stone wall or stone form liner



- Walls on the north side
 - Stone form liner



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North Side Walls

- Walls on the north side
 - Glenwood Canyon form liner or sandblast

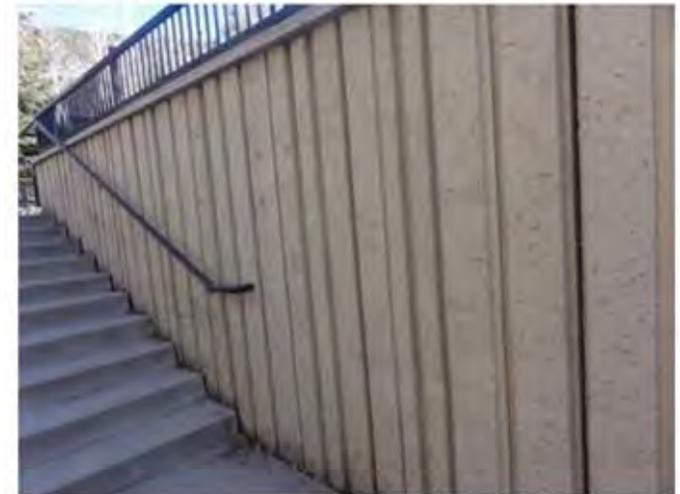
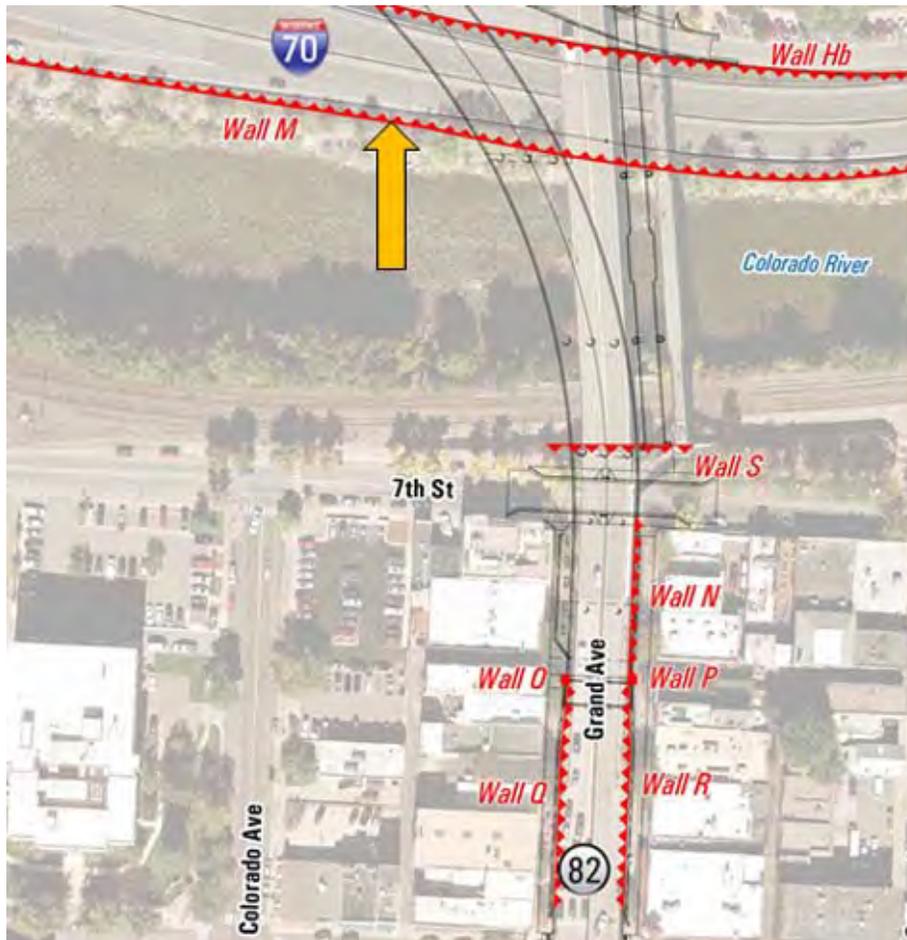


SH 82

GRAND AVENUE BRIDGE

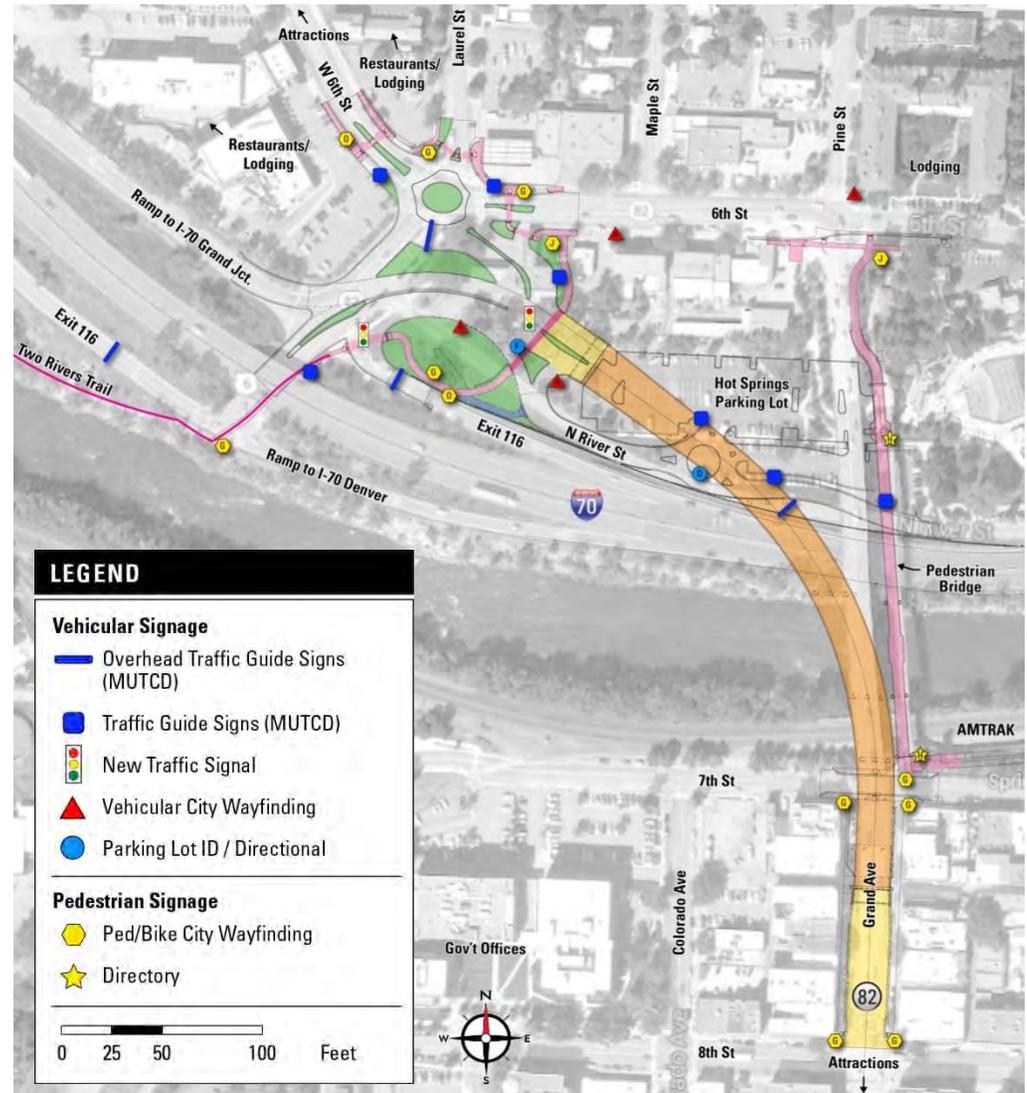
North Side Walls

- Walls on the south side
 - Glenwood Canyon form liner or sandblast



Wayfinding

- Traffic guide signs (MUTCD)
- City wayfinding / parking
- Pedestrian / bicycle
- Wayfinding



■ Traffic guide signs (MUTCD)

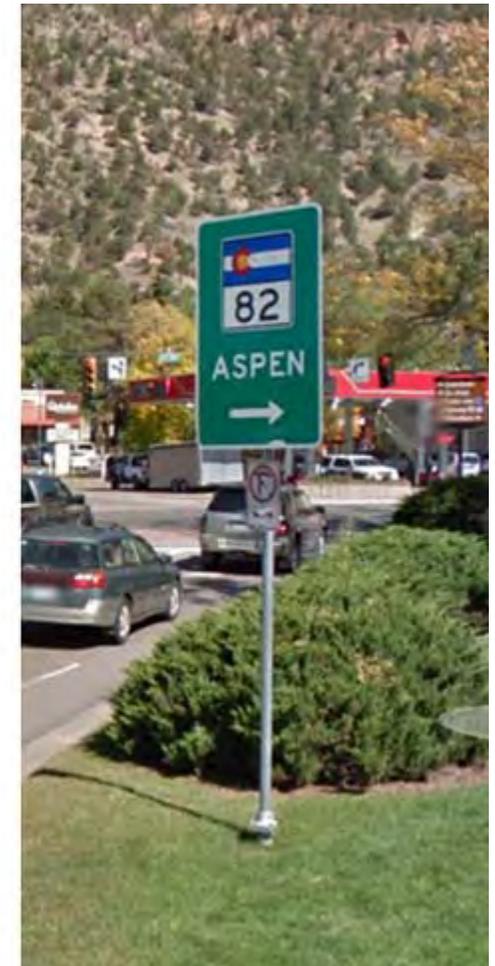
SIGN CONTENT

Routes

- I-70 Denver
- I-70 Grand Junction
- Hwy 82 / Grand Ave.
- 6th St

Destinations

- Glenwood Springs
- Aspen
- Denver
- Ski Areas
- Parking
- Lodging
- Attractions



■ City vehicular signage

SIGN CONTENT

Routes

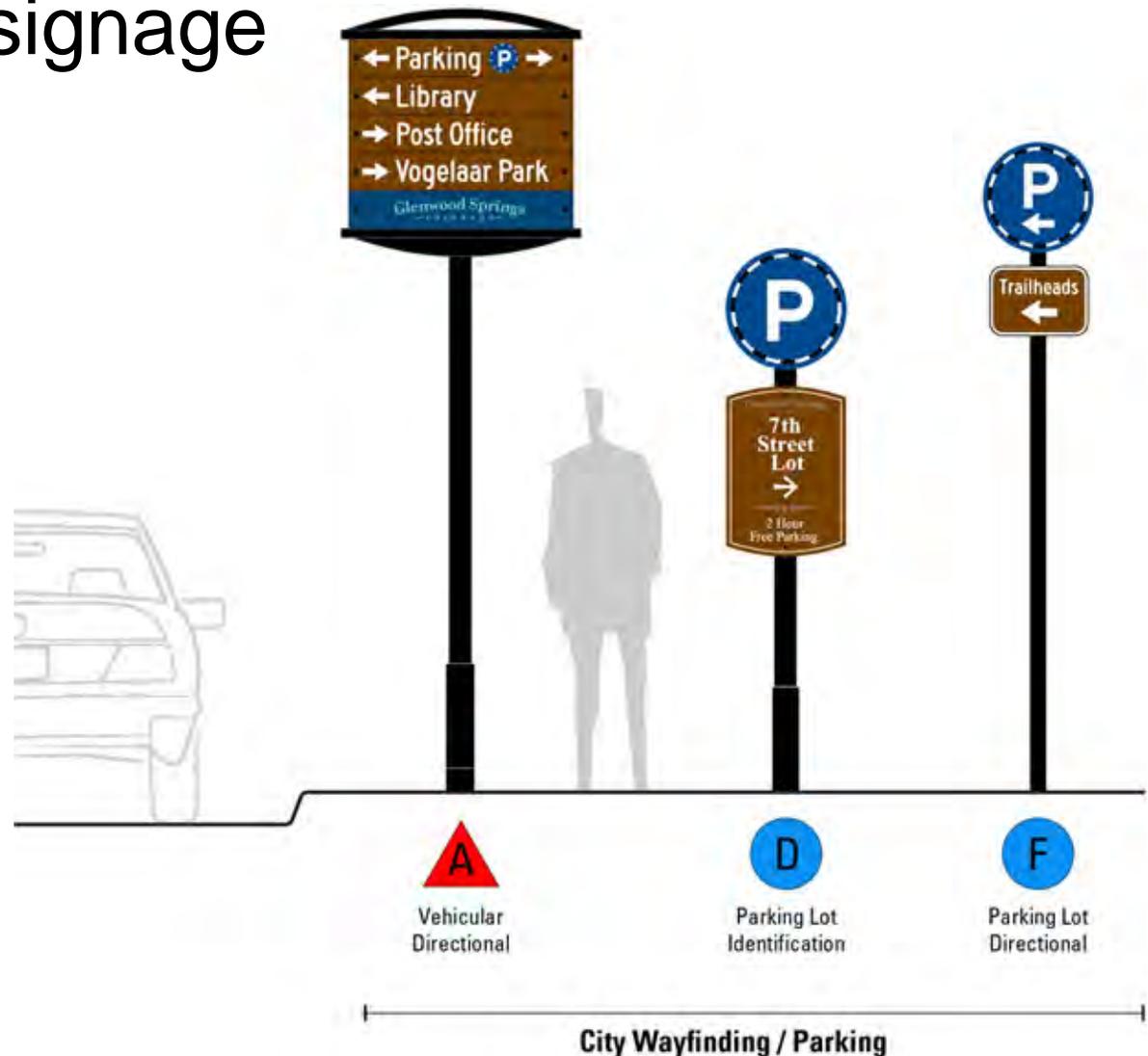
- I-70 Denver / Grand Junction
- Hwy 82 / Grand Ave.
- W. 6th St.

Destinations

- Visitor Info
- Parking
- Amtrak
- Hot Springs
- Trailheads
- Restaurants/Lodging
- Attractions

Parks & Trailheads

- Two Rivers Park
- Vogelaar Park
- Centennial Park
- Two Rivers Trail
- River Trail



■ Pedestrian/bicyclist signage

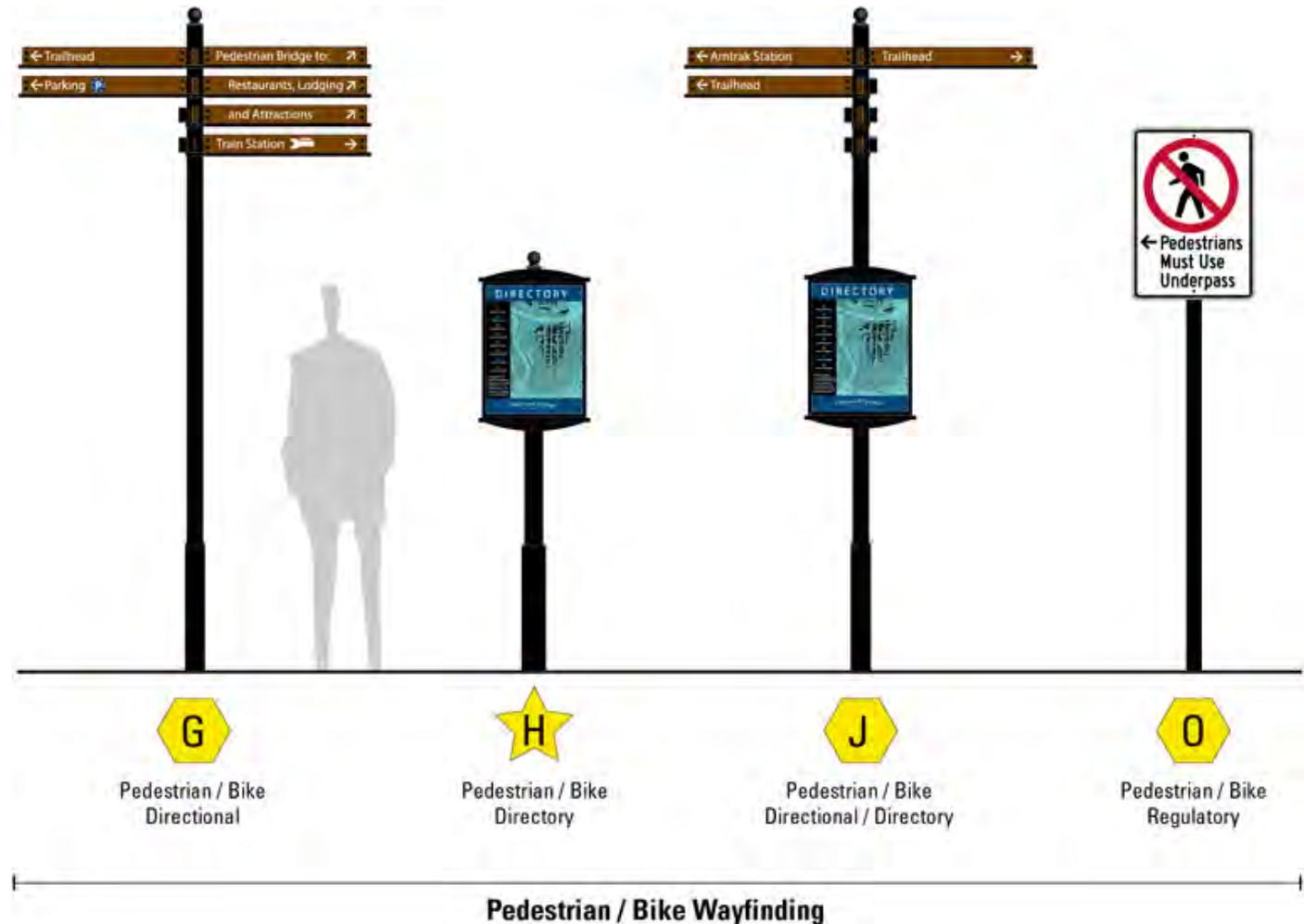
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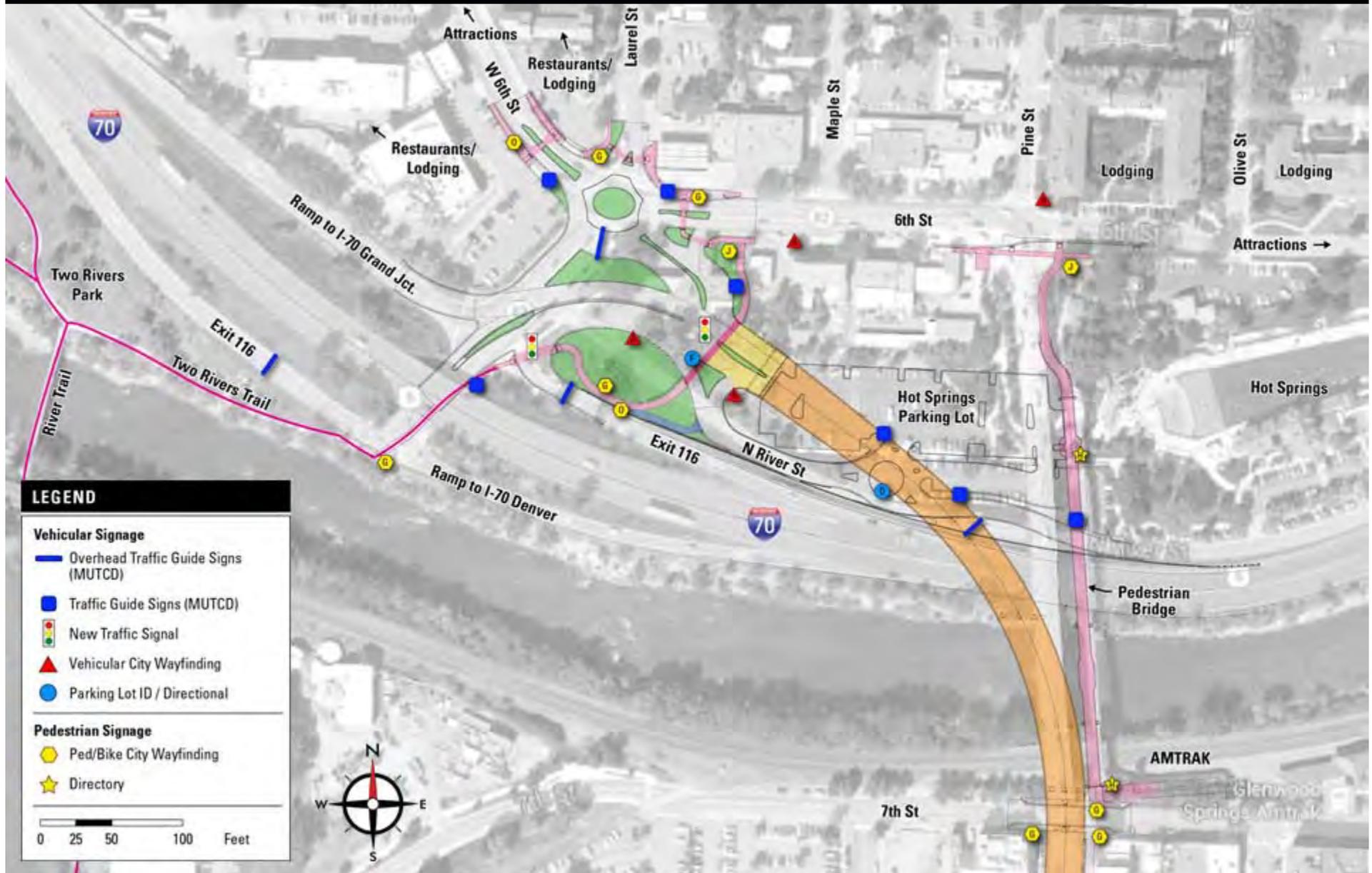
Destinations

- Visitor Info
- Parking
- Amtrak
- Hot Springs
- Trailhead
- Restaurants/Lodging
- Attractions

Parks & Trails

- Two Rivers Park
- Vogelaar Park
- Centennial Park
- Two Rivers Trail
- River Trail





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GRAND AVENUE BRIDGE

North Side Aesthetics

- Streetscape
 - Furniture
 - Lighting





- City Council package following ITF and SWG/public input
- Additional revisions based on input
- PWG meeting on April 21
 - Decisions about what to incorporate into design documents
- Communication of PWG decisions and what is in design
 - Press releases
 - Website
 - Exhibits
 - Physical model updated – at City Hall
 - Presentations to groups as requested
- June - 60% design documents

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GRAND AVENUE BRIDGE

7th Street Vision

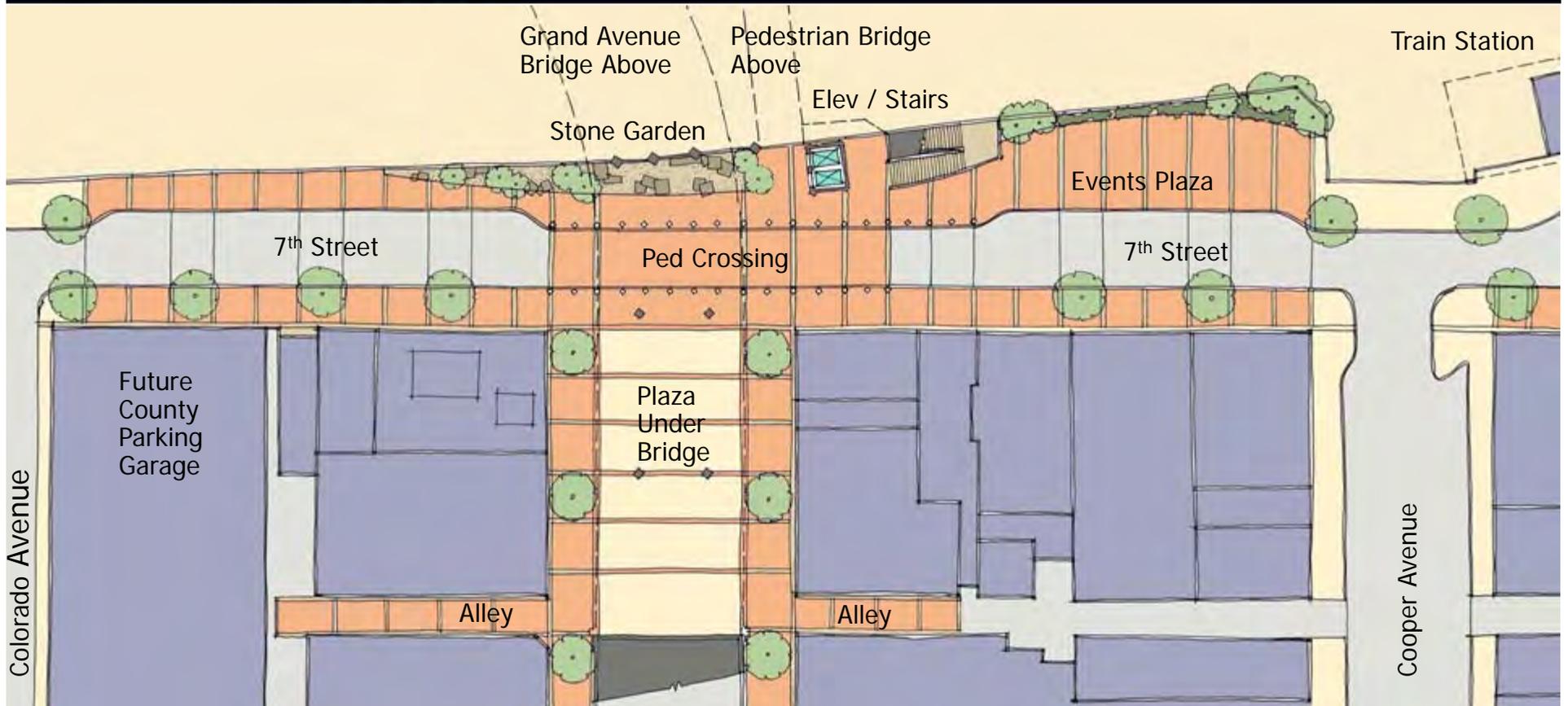


Existing Site Location

SH 82

GRAND AVENUE BRIDGE

7th Street Vision



Consolidated Option “River Place”

- Maintains on-street parking north side of 7th Street
- 7th Street narrows to 24' in central section maximizes space in front of elevators
- Special paving at central section where pedestrian activity occurs

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GRAND AVENUE BRIDGE

7th Street Vision



Consolidated Option “River Place”

Aerial View Looking Southwest

SH 82

GRAND AVENUE BRIDGE

7th Street Vision



Consolidated Option “River Place”

Aerial View Looking Southeast

7th Street Vision



Consolidated Option “River Place”

Aerial View Looking West

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GRAND AVENUE BRIDGE

7th Street Vision



Consolidated Option “River Place”

Festival Aerial View Looking West



Consolidated Option "River Place"

Aerial View Looking Southeast

7th Street Vision



Consolidated Option “River Place”

Aerial View Looking South on 7th St

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GRAND AVENUE BRIDGE

7th Street Vision



Consolidated Option "River Place"

Aerial View Looking South on 7th St



Consolidated Option “River Place”

Festival Aerial View Looking South on 7th St

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GRAND AVENUE BRIDGE

7th Street Vision



Consolidated Option "River Place"

Eye Level View Beneath Bridge

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GRAND AVENUE BRIDGE

7th Street Vision



Consolidated Option “River Place”

Eye Level View Beneath Bridge

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GRAND AVENUE BRIDGE

7th Street Vision



Consolidated Option “River Place”

Eye Level View of 7th Street Looking West

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GRAND AVENUE BRIDGE

7th Street Vision



Consolidated Option “River Place”

Eye Level View on 7th Looking West

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GRAND AVENUE BRIDGE

7th Street Vision



Consolidated Option “River Place”

Festival Eye Level View on 7th Looking West

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GRAND AVENUE BRIDGE

7th Street Vision



Consolidated Option “River Place”

Aerial View From Bridge Looking East



Consolidated Option “River Place”

Festival Aerial View From Bridge Looking East

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GRAND AVENUE BRIDGE

7th Street Vision



Consolidated Option "River Place"

Eye Level View Looking Across 7th Street

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GRAND AVENUE BRIDGE

7th Street Vision



Consolidated Option "River Place"

Festival View Looking Across 7th Street