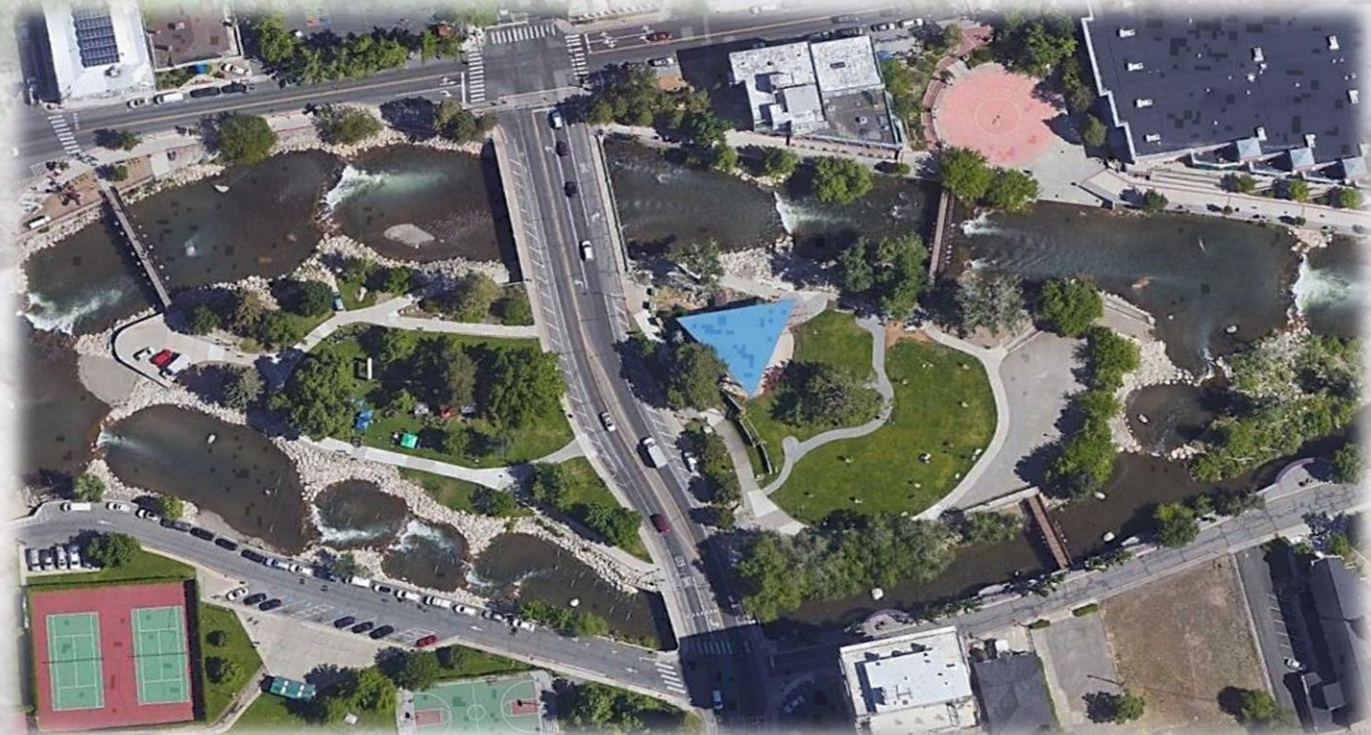


Design and Environmental Study For



ARLINGTON AVENUE BRIDGES REPLACEMENT

Aesthetics Working Group Meeting #1 | February 25, 2022

Agenda

- ✓ Project Purpose and Need
- ✓ Project History and Background
- ✓ Roles and Responsibilities
- ✓ Identified Key Groups
- ✓ Schedule
- ✓ Context- Downtown Bridges, Site History, Existing Conditions, Opportunities and Constraints
- ✓ Review Aesthetic Design Goals for the project developed during the feasibility study and obtain input
- ✓ Review Aesthetic Elements to study in the alternatives and obtain input
- ✓ Review Bridge Girder Type Options and obtain input
 - ✓ Cast in Place (CIP)
 - ✓ Precast



Purpose and Need

Agreed upon with FHWA, NDOT, and City of Reno

Vetted with Reno City Council, TAC, SWG, and the Public during the Feasibility Study

- ▶ Address structurally deficient bridges
- ▶ Preserve the hydraulic capacity of the Truckee River
- ▶ Provide safe and ADA compliant multimodal improvements
- ▶ Respond to adopted regional and community plans



Project History and Background



- ▶ Feasibility Study completed June 2021
 - ▶ Define scope, constraints, and cost
 - ▶ Extensive public engagement process
 - ▶ Started with 5 initial bridge alternatives
 - ▶ Identified bridge structure type and aesthetic package to carry forward into NEPA clearance and design
 - ▶ Funding allocated
- ▶ NEPA/Design contract awarded to Jacobs December 2021

☑ DONE!

**Honored to receive \$7 Million RAISE Grant for Construction
Must be Obligated By September 2024!**

Project History and Background

Feasibility Study Results

- ▶ Single Pier for North Bridge
- ▶ Clear Span for South Bridge (match existing)
- ▶ Aesthetics Theme - Modern Art Deco, a melding of old and new



NOTE: THIS GRAPHIC IS A GENERAL DEPICTION OF A SINGLE PIER BRIDGE, NOT A FINAL DESIGN

Project History and Background



Why Single Pier North Bridge?

- ▶ Reduced deck thickness
- ▶ Vertical clearance along path
- ▶ Opportunity for wider sidewalks along bridges
- ▶ Minor profile adjustments for hydraulic model clearance
- ▶ Similar look to existing (2-pier) bridge
- ▶ Maintenance access from bridge allows for debris removal prior to downstream narrowing of river
- ▶ Easier to construct
- ▶ Less expensive

NOTE: THIS GRAPHIC IS A GENERAL DEPICTION OF A SINGLE PIER BRIDGE, NOT A FINAL DESIGN

Roles & Responsibilities



- ▶ **RTC** - Management and Administration for NEPA/Design/Construction
- ▶ **City of Reno** - Owner, Design Review
- ▶ **NDOT** - LPA Agreement, Environmental Oversight and Review
- ▶ **FHWA** - NEPA class of action determination, Environmental Oversight and Review
- ▶ **USACE** - Section 408 Permit, Section 404 Permit
- ▶ **CTWCD** - Local sponsor of USACE for Section 408 Permit
- ▶ **Jacobs** - Prime Consultant, Survey, Environmental, Bridge, Civil, Hydro, Sign/Stripe
- ▶ **Stantec** - Landscape & Aesthetics
- ▶ **Civil FX/Parametrix** - Renderings
- ▶ **CME** - Geotechnical
- ▶ **PK Electrical** - Lighting and Electrical
- ▶ **SJ Marketing** - Public Outreach with the RTC communications Team
- ▶ **PCSG** - ICE, Constructability, Construction Schedule

Identified Key Groups



Aesthetic Stakeholder Working Group (ASWG)

- ▶ Review, provide input, and decide on aesthetic concepts and final design
- ▶ 4 meetings - February, March, April, August 2022

Design Review Committee (DRC)

- ▶ Technical review, identify/discuss major impacts of design decisions, discuss environmental impacts
- ▶ Monthly meetings through final design

Agency Involvement

- ▶ Provide update and opportunity for discussion on decisions made and permitting status
- ▶ Quarterly meetings as necessary

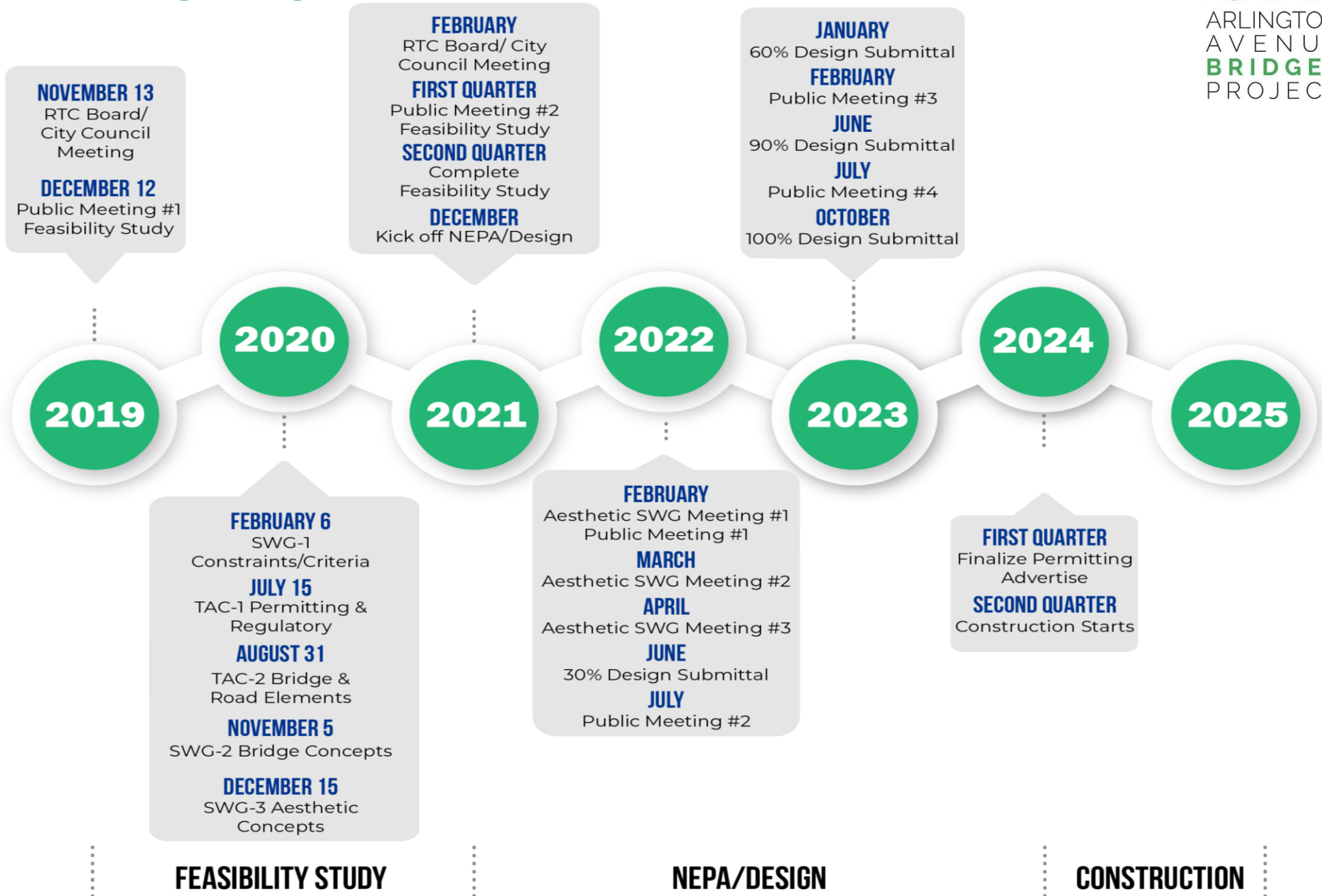
Utility Involvement

- ▶ Coordinate design, adjustment, relocation, and additional utilities
- ▶ Bi-monthly meetings as necessary with focused discussion at DRC meetings

Public

- ▶ Obtain feedback on bridge type, landscaping, and aesthetics
- ▶ Provide advance notification of what to expect during construction
- ▶ 4 public meetings anticipated

Project Timeline



FEASIBILITY STUDY

NEPA/DESIGN

CONSTRUCTION

Aesthetics Context: Downtown Bridges Reno, Nevada



--- FUTURE BRIDGE
REPLACEMENT

Context - Site History

1909 - Lewis Hinckley purchased and developed the land into a relaxing resort-like destination, known as Belle Isle

1912 - The river was partially dammed, and footbridge was added.

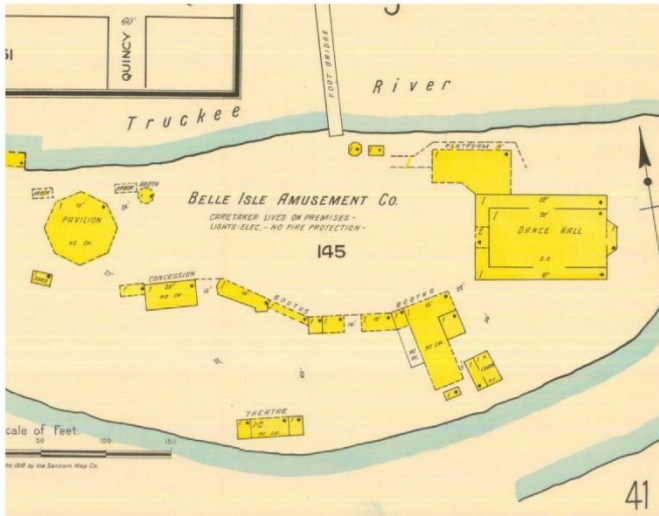
1916 - Owners of the park filed for bankruptcy and the space was acquired by Reno National Bank

1920 - Influential banker George Wingfield bought the property and donated it to the City. The island was later named “George Wingfield Park.”

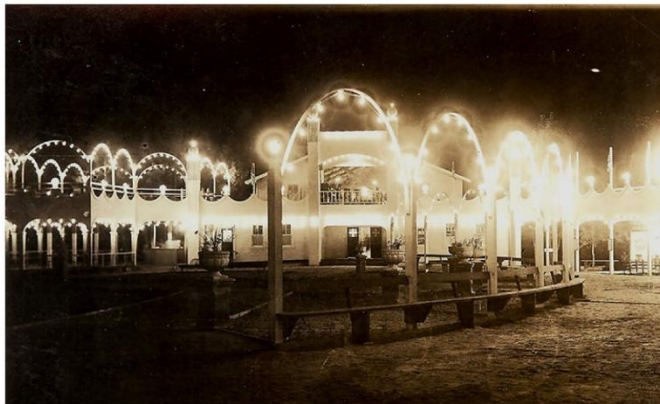
1921 - North bridge structure constructed, originally called Chestnut Street Bridge, Nevada’s oldest T-beam bridge

1928 -A flood caused substantial damage to the park, with repair help by George Wingfield

1925-1980’s - The Reno Municipal Christmas Tree stood at Wingfield Park



Belle Isle Map, 1918



Electric Lights, 1911



Belle Isle, 1911



Wingfield Park Postcard

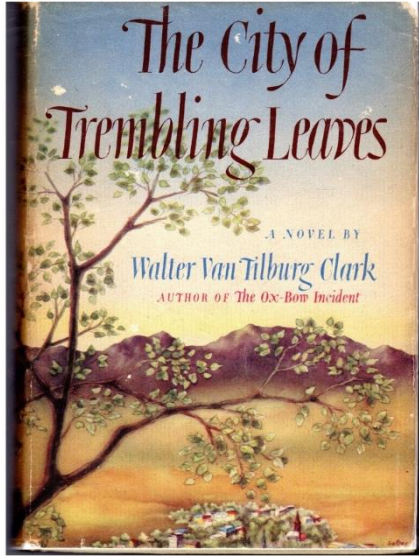
Context - Site History



Arlington Ave Looking North 1932. renohistorical.org

Design Inspiration

The City of Trembling Leaves, by Walter Van Tilburg Clark



- The City of Trembling Leaves is a well-known book about the history and development of Reno
- Reno was established as small town on the edge on the mountain range with beautiful trees and wildlife all around
- The book illustrates the natural beauty of the Reno landscape and highlights Wingfield Park as a leisurely oasis within the City
- Urbanization and development has changed the landscape of the City within the last century
- How can the proposed design reconnect to its history and celebrate the natural beauty of the Reno landscape?



Cottonwood Trees in the Nevada Landscape



Cottonwood Tree Leaf



Truckee River through Reno

Existing Conditions Inventory: Booth Street Bridge

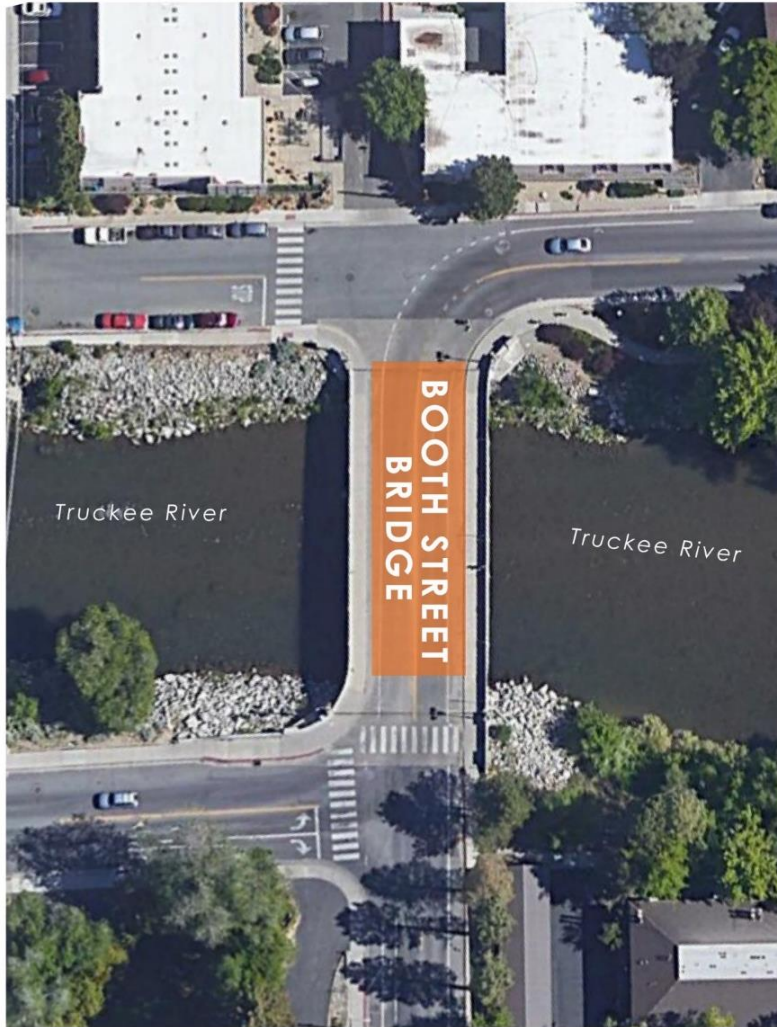
SINGLE PIER BRIDGE

SMOOTH TEXTURED ABUTMENT WALL

RIP RAP

TEXTURED SOLID CONCRETE BARRIER RAIL

PEDESTRIAN ACCESS



SITE PLAN



VIEW LOOKING SOUTH



VIEW LOOKING WEST



LIGHTING



SIDEWALK



PEDESTRIAN ACCESS

Existing Conditions Inventory: Arlington Ave. Bridges



SITE PLAN

ROCKERY FLOOD WALL

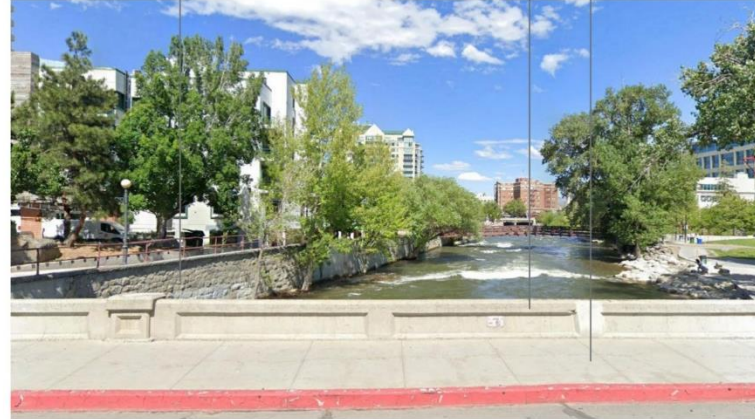
SOLID CONCRETE BARRIER RAIL

PEDESTRIAN ACCESS

RIP RAP

GIRDER

DOUBLE PIER BRIDGE



NORTHERN BRIDGE SECTION, LOOKING EAST



VIEW OF NORTHERN BRIDGE

ADJACENT PARK

ADJACENT RIVERWALK

SOLID CONCRETE BARRIER RAIL

CLEAR SPAN BRIDGE

PEDESTRIAN RAILING



SOUTHERN BRIDGE SECTION, LOOKING EAST



VIEW OF SOUTHERN BRIDGE

Existing Conditions Inventory: Arlington Ave. Bridges



NORTHERN BRIDGE SECTION, LOOKING WEST



SOUTHERN BRIDGE SECTION, LOOKING WEST



VIEW OF KAYAK PARK



VIEW OF WILDLIFE

Existing Conditions Inventory: Sierra Street Bridge

SMOOTH TEXTURED
FLOOD WALL

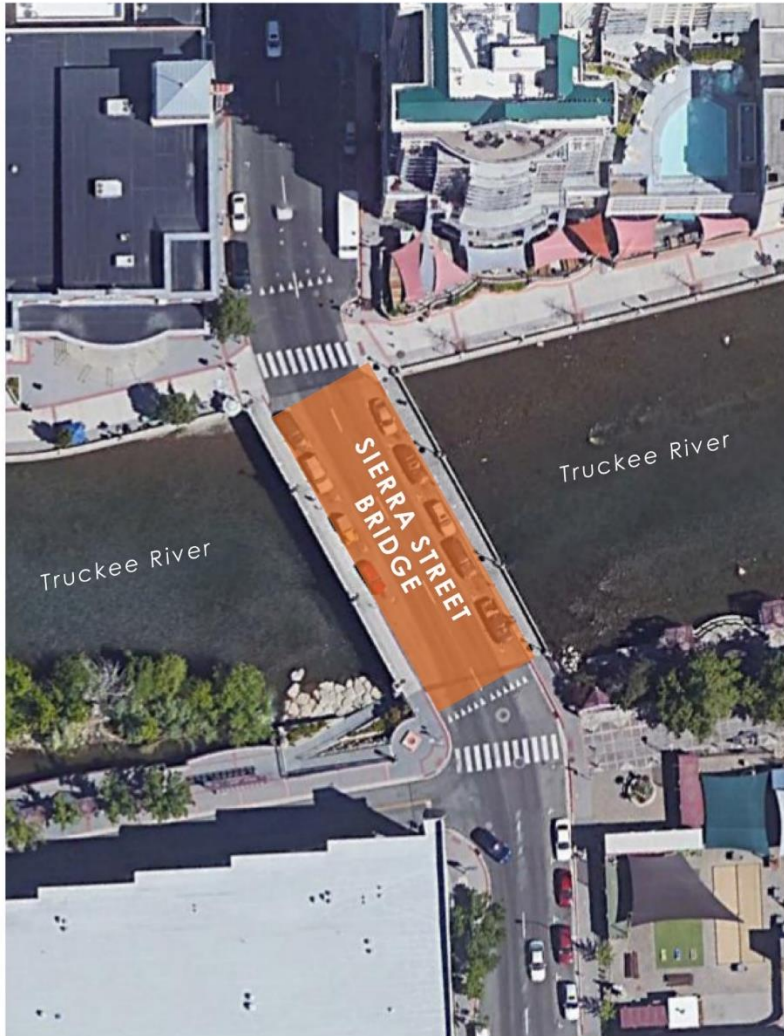
SMOOTH
TEXTURED
PIERS

DOUBLE PIER
BRIDGE

PEDESTRIAN
LIGHTING

PEDESTRIAN
ACCESS

DECORATIVE
BARRIER RAIL



SITE PLAN



VIEW LOOKING WEST



VIEW LOOKING NORTH



LIGHTING



SIDEWALK



OPEN DECORATIVE CONCRETE RAILING

Existing Conditions Inventory: Virginia Street Bridge

TEXTURED FLOOD WALL

DECK WIDENED FOR PEDESTRIAN USE

CLEAR SPAN BRIDGE

PEDESTRIAN LIGHTING

ART DECO BRIDGE ACCENT

VEHICULAR RATED INTERIOR GUARDRAIL

TRANSPARENT ART DECO INSPIRED PEDESTRIAN RAILING



SITE PLAN



VIEW OF BRIDGE



RAILING



LIGHTING

SALVAGED/
REPLACED
LIGHT FROM
HISTORIC
BRIDGE



BRIDGE
ACCENT
LIGHTING

RAILING
ACCENT
LIGHTING

PEDESTRIAN
SCALED
LIGHTING



DECORATIVE PAVING

Existing Conditions Inventory: S. Center St. Bridge

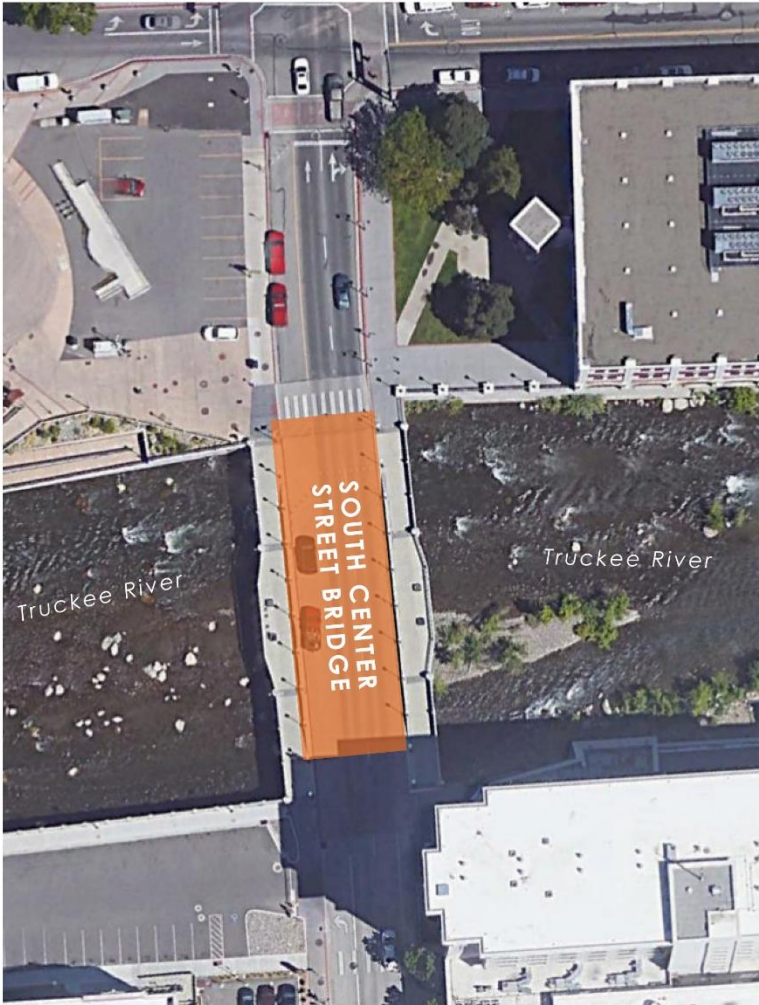
TRANSPARENT ART
DECO INSPIRED
DECORATIVE RAILING

VEHICULAR RATED
DECORATIVE
CONCRETE INTERIOR
GUARDRAIL

SCORED
PAVING

DECK WIDENED FOR
PEDESTRIAN USE

PEDESTRIAN
SCALE LIGHTS



SITE PLAN



VIEW LOOKING EAST



VIEW LOOKING WEST



LIGHTING



DECORATIVE RAILING AND GUARDRAIL



Existing Conditions Inventory: Lake Street Bridge

RENO WELCOME SIGN

DECORATIVE RAILING

PEDESTRIAN ACCESS

DECORATIVE LIGHTING ON BRIDGE PILASTER



SITE PLAN



PERSPECTIVE LOOKING SOUTHEAST



LIGHTING



REMOVABLE METAL RAILING



Existing Conditions Inventory: Riverwalk



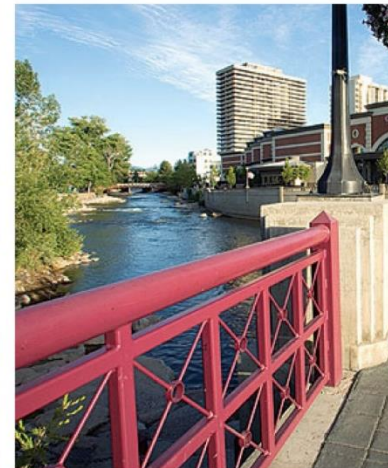
SITE PLAN



PERSPECTIVE



ARCHITECTURAL FEATURES



RAILING



PEDESTRIAN BRIDGES

Existing Conditions Inventory: Artwork



Site Inventory Map and Images

The central image is an aerial site inventory map of the Wingfield Park area. It shows the Truckee River flowing through the park, with Wingfield Park situated on both sides. Key streets include West First Street, West Street Plaza, Arlington Ave, and Island Ave. A north flood wall runs along the top of the river. The map also shows Barbara Bennett Park with tennis courts and a basketball court, and Kayak Park with a bridge pathway. Callout lines connect various features on the map to small inset images: Urban Art (a bridge over the river), Kayak Park (people kayaking), Bridge Pathway (a stone bridge), Park Pathways (a paved path), Sports Courts (tennis and basketball courts), North Flood Wall (a concrete wall), Amphitheater (an outdoor performance space), Pedestrian Access (a paved walkway), Street Trees (trees along a street), and Pedestrian Bridge (a small bridge over the river).

URBAN ART

KAYAK PARK

BRIDGE PATHWAY

PARK PATHWAYS

SPORTS COURTS

WEST FIRST STREET

TRUCKEE RIVER

ARLINGTON AVE

WEST STREET PLAZA

WINGFIELD PARK

ISLAND AVE

BARBARA BENNETT PARK

NORTH FLOOD WALL

AMPHITHEATER

PEDESTRIAN ACCESS

STREET TREES

PEDESTRIAN BRIDGE

Opportunities and Constraints Map



LEGEND

- Pedestrian Access
- Bicycle Access
- Pedestrian footbridges provide ample pedestrian access from adjacent amenities
- Existing floodwall needs renovation, providing an opportunity to update the formliner pattern
- Reno Riverwalk termination, bringing foot traffic to Arlington Avenue
- Opportunity to replace existing pedestrian railing to match new bridge aesthetics
- Landscape may require regrading if street elevation is raised; maintain existing trees and add street trees
- Views of Truckee River
- Park amenities include tennis courts, basketball courts, play equipment, and restrooms attracting visitors of all ages
- Park amenities include large grass areas, tree lined pathways, bike and pedestrian access, and river recreation
- Amphitheater hosts concerts in the park, making this location a premier summer destination
- Whitewater park includes drop pools, smooth rocks, deep pools, with many access points, attracting many visitors in summer months
- Existing stone steps are not accessible and poorly designed
- Existing utility boxes are an eyesore, consider relocating
- Street is closed for special events, between First/Island, maintain smooth pedestrian traffic flow across.

Aesthetic Design Goals:



Cohesive Design Language

1. Establish a project theme to unify all the bridge and landscape elements

Enhance Pedestrian Experience

1. Maintain vantage points of the river and surrounding landscape, avoid above street bridge types
2. Enhance pedestrian experience with shade trees, decorative lighting, decorative railing, paving, sculptural/artistic features and unified materials between sidewalk and street

Notes: Arlington Avenue acts as an urban plaza during special events; consider using unified materials for the sidewalks; new standards for sidewalks in Downtown

Contextual and Historical Relevance

1. Design structural elements to have relevance to the urban context
2. Provide design solutions that pay homage to Reno's history, while representing a new age of bridge development within the downtown core
3. Virginia Street bridge to be the landmark bridge and others focal bridges.

Innovation and Sustainability

1. Provide stormwater infiltration on street (Low Impact Development - LID) using permeable pavement or pavers
2. Use LED lighting
3. Use drought resistant and native trees and plants

Aesthetic Elements

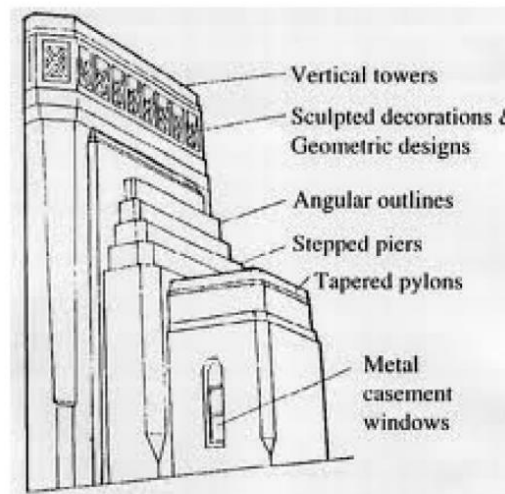
- Modern Design Elements, A Melding of Old and New
- Pedestrian Scaled Lighting
- Bridge Accent Lighting
- Transparent, Traffic Rated Bridge Railing
- Maintain Pedestrian Accessibility
- Widen Bridge Sidewalk or Provide Overlook
- Transition Areas
- Abutment and Flood Walls

Aesthetics Elements

Modern Design Elements: A Melding of Old and New



- ▶ Incorporate modern design elements with a nod to Reno's history and Art Deco historical context
- ▶ Decorative elements will focus on pedestrian lighting, railing design, under-bridge lighting, decorative texture on abutment walls, pilasters and girders



Aesthetics Elements

Pedestrian Scaled Lighting

- ▶ Provide modern pedestrian scaled lighting on both bridges, railing, and flood walls



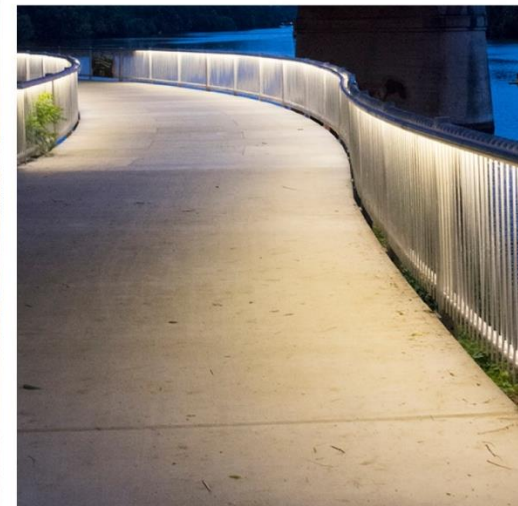
COLUMN LIGHTS



LIGHTED BOLLARD



RAILING LIGHTING



Aesthetics Elements

Bridge Accent Lighting



- ▶ Bridge aesthetic lighting and under-bridge safety/pedestrian lighting
- ▶ Aesthetic lighting gives vibrancy to bridges at night for visitors viewing the bridges and from below the bridge, could apply to other bridges
- ▶ Design for protection from flooding, debris and vandalism
- ▶ Consider impacts to aquatic species



Aesthetics Elements

Bridge Accent Lighting



PILASTER LIGHTING

- Consider a lighting concept that can be applied to other bridges in downtown to create a “family” of unified bridges
- Consider aesthetic lighting experience for visitors viewing the bridges and visitors walking along the bridges
- Provide conduit for future bridge artistic lighting



UNDER BRIDGE LIGHTING



Aesthetics Elements

Ideas on Theme and Lighting?

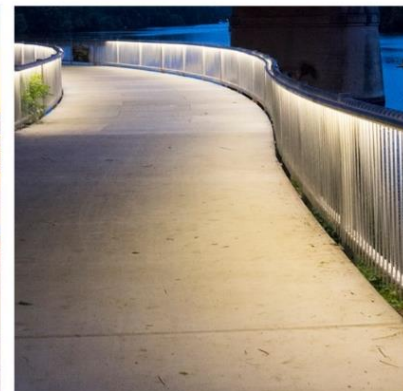
- ▶ Examples of the general theme?
 - ▶ Modern design elements with a nod to the Art Deco historical context
- ▶ Examples of lighting?
 - ▶ Pedestrian Scaled, Bridge Accent, Under Bridge



LIGHTED BOLLARD



RAILING LIGHTING



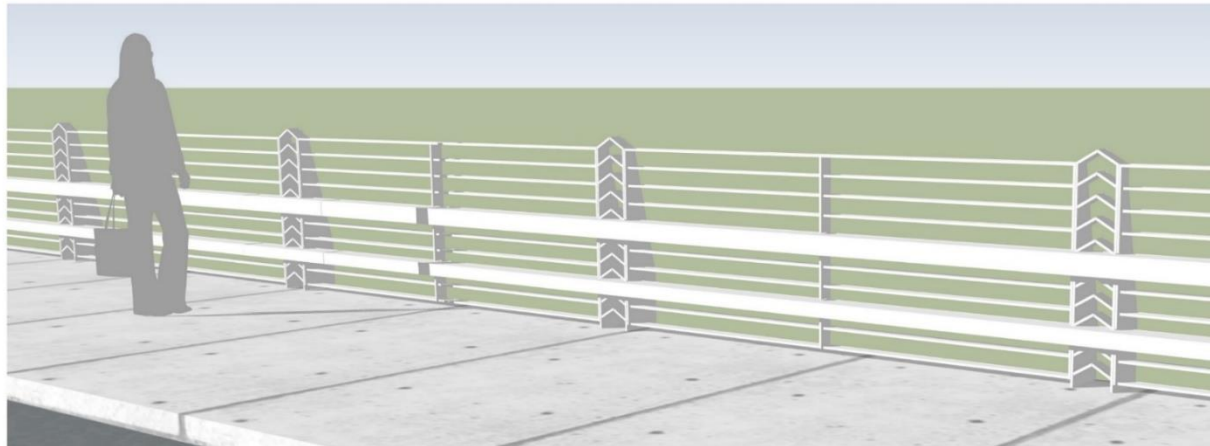
Aesthetics Elements

Transparent, Traffic Rated Bridge Railing



OPEN DECORATIVE CONCRETE VEHICULAR GUARDRAIL

- Provide exterior railing with openings/transparency for viewing river
- Avoid double railing due to large number of special events
- Potential for decorative concrete railing and decorative steel railing hybrid
- Potential vehicular rated metal guardrail with custom artistic detailing
- Note: Art deco concrete style railing exists along northern flood wall, Sierra Street Bridge, and Center Street Bridge



TYPE TL-4 VEHICULAR BARRIER WITH PEDESTRIAN MODIFICATIONS



DECORATIVE CONCRETE BARRIER RAIL AND STEEL RAILING HYBRID

Aesthetics Elements

Maintain Pedestrian Accessibility



CENTER STREET BRIDGE DOUBLE RAILING - **AVOID**

- Maintain smooth pedestrian movement across bridges and street into Wingfield Park for special events. Avoid double railing (Virginia and Center Street Bridges)
- Maintain smooth pedestrian movement across street even if elevation needs to be raised
- Acknowledge Arlington Avenue as a ‘Plaza Street’ during special events



STREET PLAZA



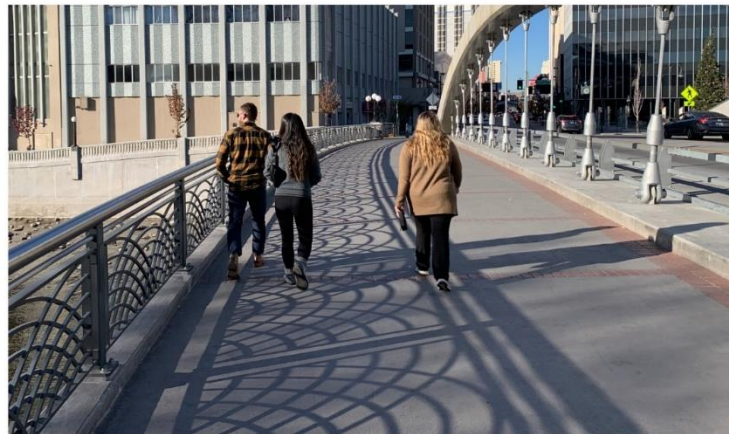
Aesthetic Elements

Widen Bridge Deck Sidewalk or Overlook

- Provide widened bridge sidewalk or overlook (single pier option only) for pedestrians to view river



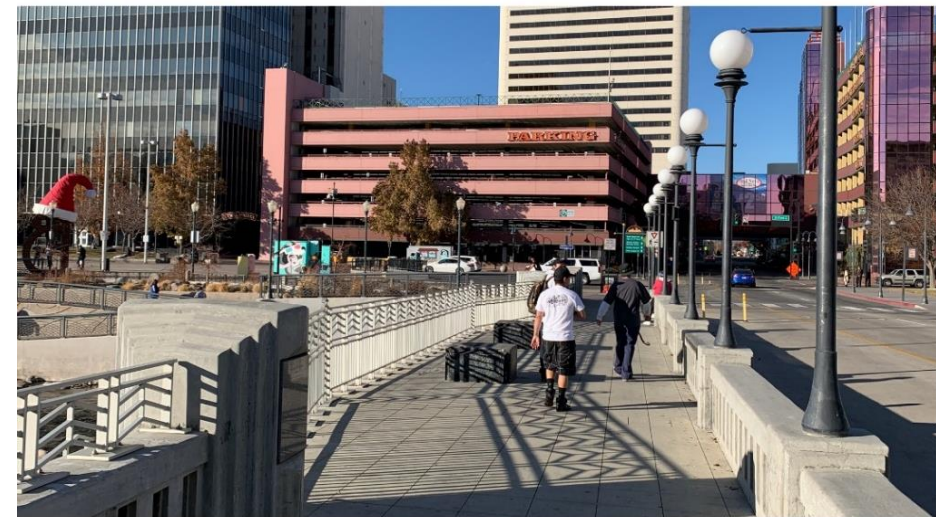
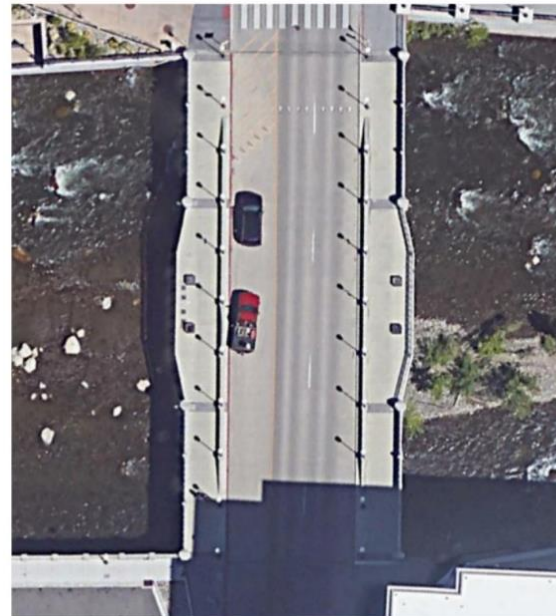
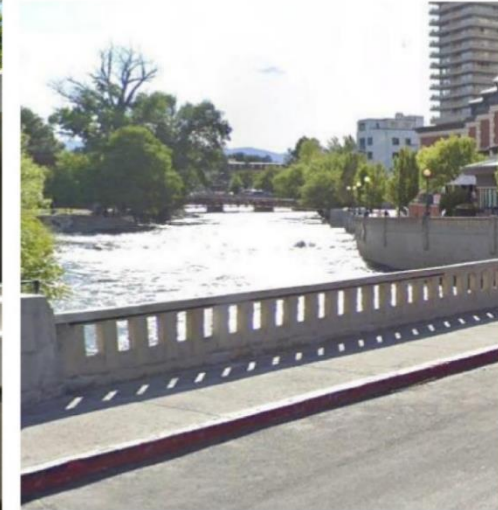
WIDENED BRIDGE SEGMENT



Aesthetics Elements

Ideas on Railing, Accessibility and Sidewalk Space?

- ▶ Examples of Railings and Pedestrian Space
 - ▶ Transparent railings?
 - ▶ Pedestrian Accessibility?
 - ▶ Widened bridge deck?



Aesthetics Elements

Transition Areas



WATER WAVE CONCRETE PATTERNS



DECORATIVE PAVING



PERMEABLE PAVERS

- Consider permeable pavers on the sidewalks to create seamless transitions and provide storm water infiltration
- Preserve existing trees, replace trees if needed to elevate street. Plant street trees along Arlington Avenue at 30 ft. O.C. to meet landscape code if street between bridges is modified



TREES ON ARLINGTON AVENUE BETWEEN BRIDGES



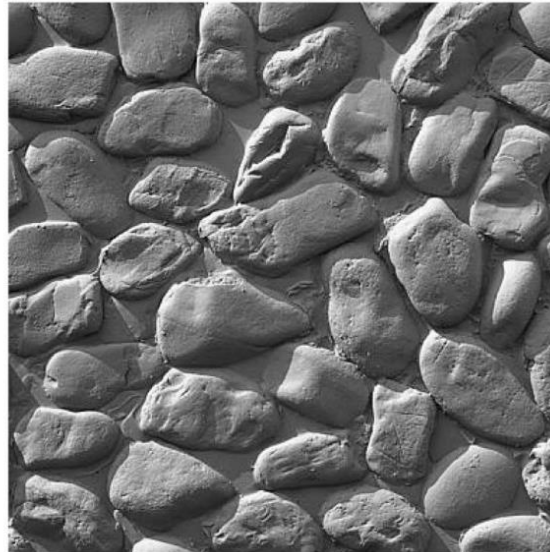
Aesthetics Elements

Abutment and Flood Walls



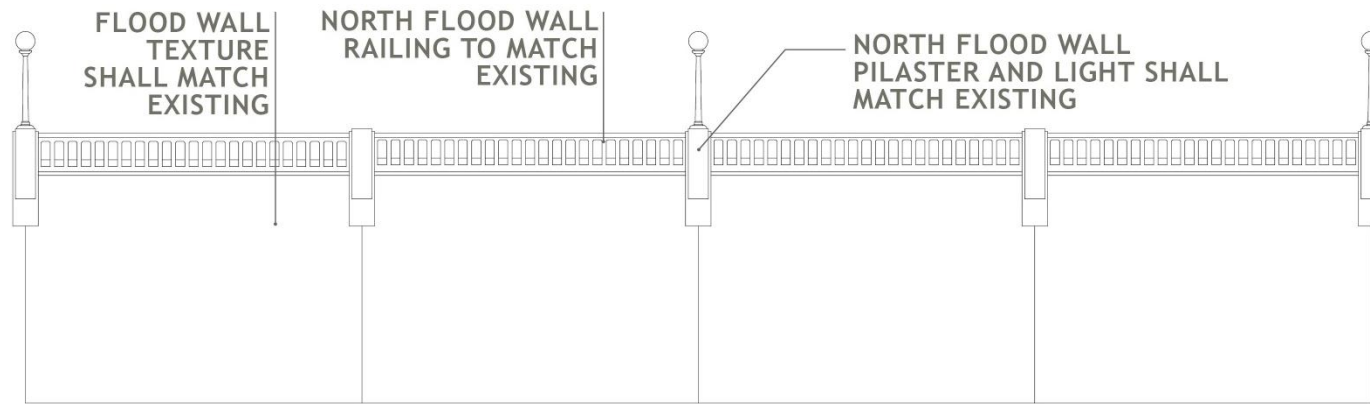
FORMLINER PATTERN FOR
ABUTMENT WALL

- Provide texture on concrete bridge abutment and flood walls to enhance pedestrian/river user experience below the bridge
- Provide anti-graffiti coating for easier maintenance



Aesthetics Elements

Abutments and Flood Walls



NORTH FLOOD WALL MOCK UP



EXISTING FLOOD WALL

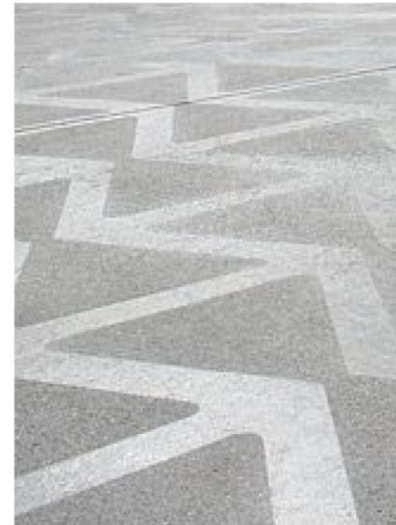
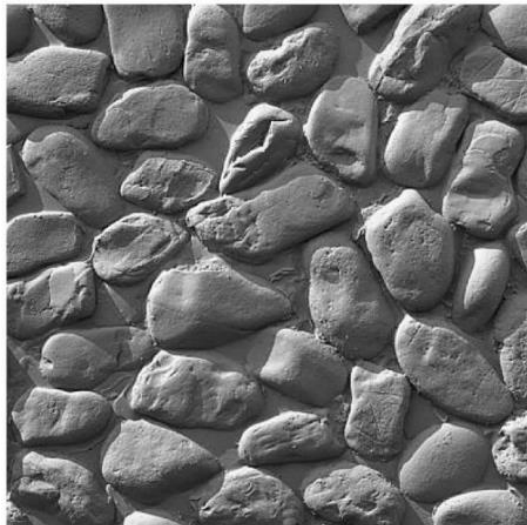


- Flood wall should have consistency between bridges
- Textures, horizontal reveals, open concrete railing, pilasters extended below, and lighting shall be consistent
- Flood wall along south side shall match with cobble wall along Riverwalk
- Consider a narrow planting at bases of walls to soften the height

Aesthetics Elements

Ideas on Transition Areas, Abutment and Flood Walls?

- ▶ Examples of transition areas?
- ▶ Examples of abutment walls and flood walls texture?



Bridge Girder

Cast in Place or Precast - Undetermined

Cast-In-Place (CIP)

- Falsework within the river for abutments and superstructure
- Aesthetically more 'park' friendly look
- Time of construction - 2-4 years (River Restrictions/Vehicle Access)

Precast

- Falsework within the river for abutments; superstructure set in place
- Aesthetically more 'highway' type look
- Piers and pier cap can have custom formliner
- Time of construction - 1-2 years (River Restrictions/Vehicle Access)

Notes:

- *South Bridge has no pier*
- *North Bridge has one solid pier wall instead of columns*



CIP - Box Girder From Veteran's Parkway (Reno)
No Columns for Arlington Bridges



Precast Girders - Project NEON (Las Vegas)
No Columns for Arlington Bridges

Next ASWGs, Group Discussion, Action Items, Consensus Items

March ASWG - Specific examples based on your ideas today; narrow ideas down to three

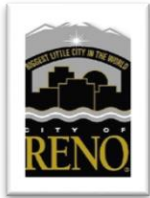
April ASWG - Refined 3 examples (sketches, example photos to be included in 30%)



Thank You for Participating!



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*Building A Better Community
Through Quality Transportation.*
rtcwashoe.com

