WELCOME

CITY OF AUSTIN BARTON SPRINGS ROAD BRIDGE

Purpose of the meeting

- ✓ **Learn** about the project
- ✓ **Ask** questions about potential improvements
- ✓ **Share** your thoughts on the recommended option

City of Austin Barton Springs Road Bridge

About the Bridge

Nearly
100
years old
built in 1926

20,000
Vehicles per day

1946
Bridge Expansion

Key Entrance
to Zilker Park and for Major City Events

$36 million
Preliminary Funding Estimate (Construction + Soft Costs)

FUNDING SOURCE:
- Preliminary Design: 2012, 2018 and 2020 Bonds
- Design: 2020 Bonds
- Construction: TBD

City of Austin Barton Springs Road Bridge

Park/Historic

1 Park - National Register of Historic Places
2 Landmark Monuments
3 Zilker Eagle Train
4 Umlauf Gardens
5 Parkland on All Sides
6 Continual Recreation - All Modes

Environmental

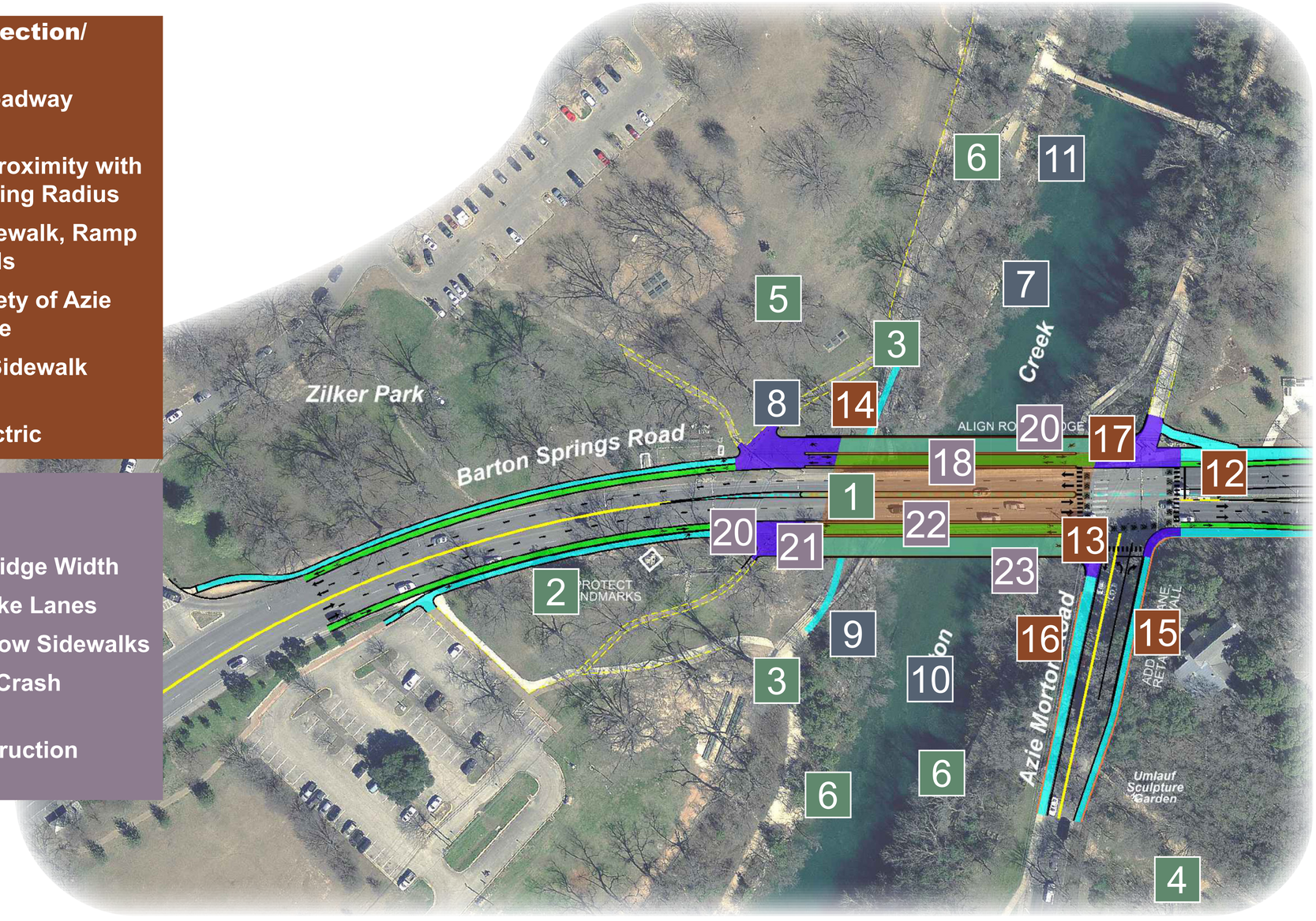
7 Critical Water Quality Zone - Lady Bird Lake
8 Park Heritage Trees
9 Critical Habitat for Austin Blind Salamander
10 Corps of Engineers Jurisdiction
11 FEMA Floodplain

Roadway/Intersection/ Utilities

12 Misaligned Roadway Approaches
13 Intersection Proximity with Obsolete Turning Radius
14 Extensive Sidewalk, Ramp Hike/Bike Trails
15 Instability/Safety of Azie Morton Hillside
16 Instability of Sidewalk Overhang
17 Overhead Electric

Bridge

18 Aging Bridge
19 Insufficient Bridge Width
20 Insufficient Bike Lanes
21 Obsolete/Narrow Sidewalks
22 Deteriorating Crash Barriers
23 Limited Construction Access



City of Austin Barton Springs Road Bridge

Roadway Alignment Issues

Public Meeting | March 2023

City of Austin Barton Springs Road Bridge

Project Needs

Age of Structure
- 100 yrs old, Associated structural degradation

Safety
- Barton Springs roadway not aligned
- Hillside instability at Umlauf Gardens

Insufficient Paths
- Not enough bike or pedestrian paths on bridge

Intersection Congestion
- At Barton Springs / Azie Morton intersection

Project Goals / Outcomes

- ✓ **Provide 75 Year Bridge Service Life**
- ✓ **Improve Safety**
- ✓ **Stabilize Umlauf Gardens**
- ✓ **Add Multi-modal and Connect with Park Trails**
- ✓ **Reduce Congestion with addition of right turn**

City of Austin Barton Springs Road Bridge

Goal During Construction

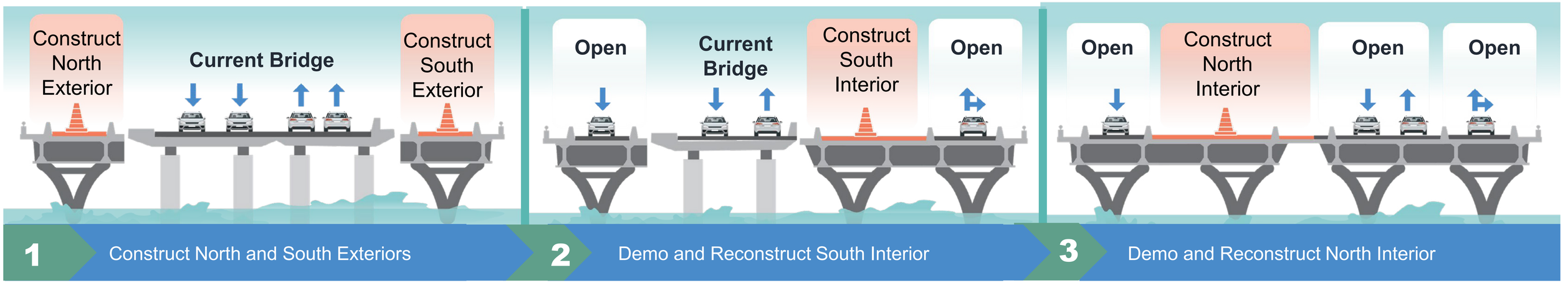
- ✓ Maintain all 4 lanes of traffic during construction
- ✓ Maintain the Azie Morton / Barton Springs intersection during construction

20,000
Vehicles per day on Barton Springs Road

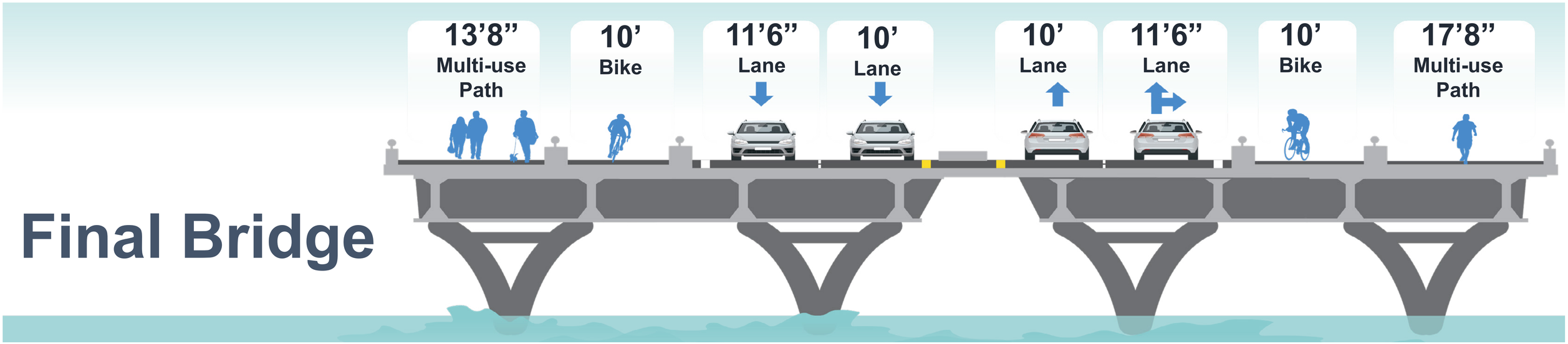
- Important commuter route
- Key access to Zilker Park
- Access to many special events (Trail of Lights, Austin City Limits, Blues on the Green, Zilker Park)
- Access to Zilker and Barton Hills neighborhoods

City of Austin Barton Springs Road Bridge

Bridge Construction Phasing: 4 lanes open through construction



Final Bridge



City of Austin Barton Springs Road Bridge

Rehabilitation Options

1. **PRESERVE** existing structure, consider separate bike/ped structure (minimal rework - light touch)

2. **REHABILITATE** and widen deck to include bike/ped

Replacement Options

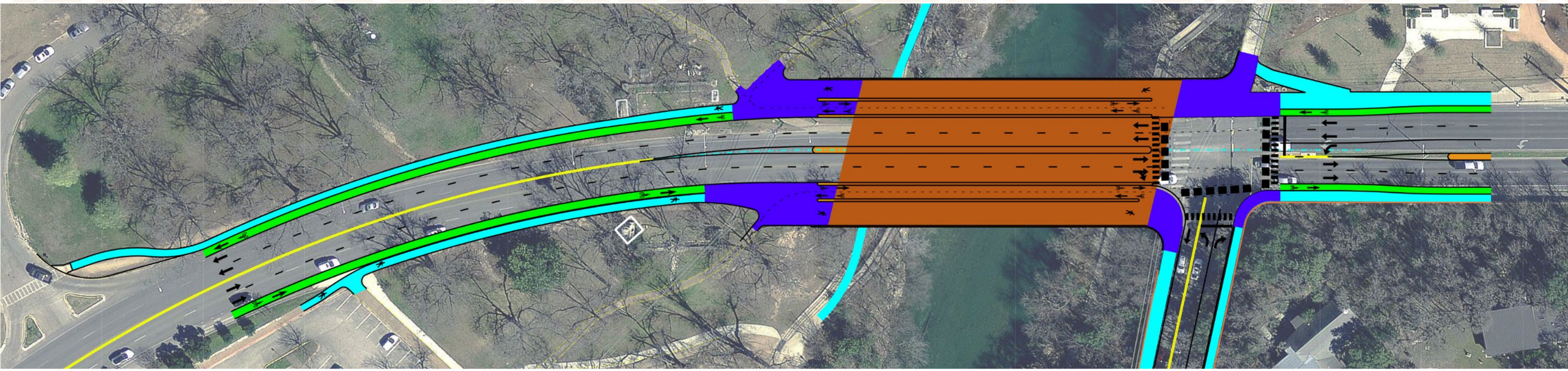
RECONSTRUCT BRIDGE completely and widen deck to include bike/ped

1. **One-Span** option

2. **Two-Span** option

3. **Three-Span** option

City of Austin Barton Springs Road Bridge



Elements Required for Rehabilitation or Replacement

Bike Lanes

- ✓ Widened Bike Lane
- ✓ Accommodate off-road biker trail users

Sidewalk / Path

- ✓ Accommodate hiking Trails
- ✓ Wider Ped. Paths
- ✓ Accommodate Pedestrians for Special Events

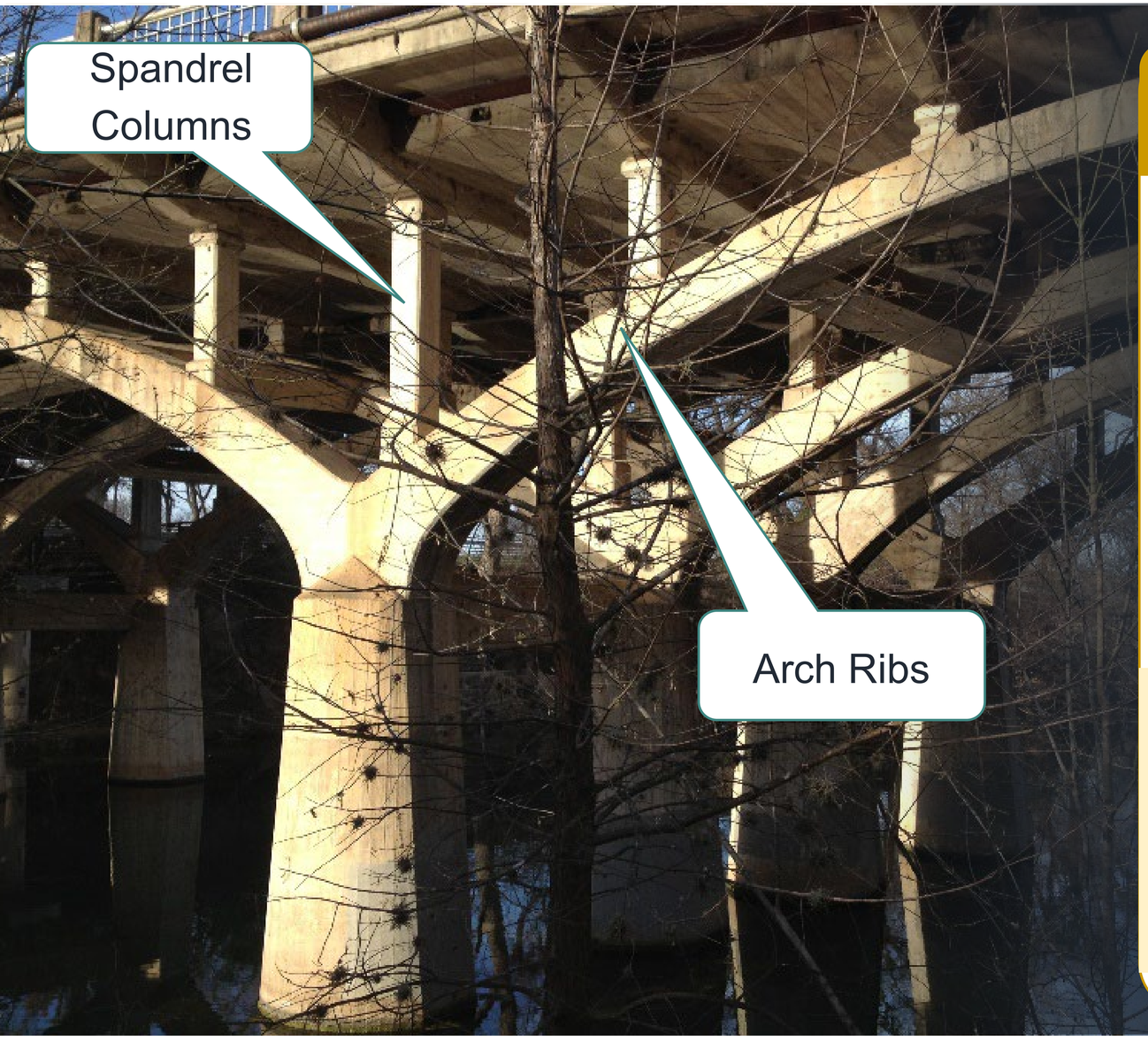
Shared Use Path

- ✓ Multimodal areas to accommodate off-road hike and bike trail users

Proposed Bridge

- ✓ Longer service life length
- ✓ Wider bridge
- ✓ Better alignment for safety
- ✓ Dedicated bike lanes

City of Austin Barton Springs Road Bridge



Bridge Inspection Findings

Rehabilitation for increased service life requires removal of deck, floor beams, and spandrel columns

- ✓ Demolish the structure to the arch ribs.
- ✓ Significant work is needed: major rehabilitation or bridge replacement.

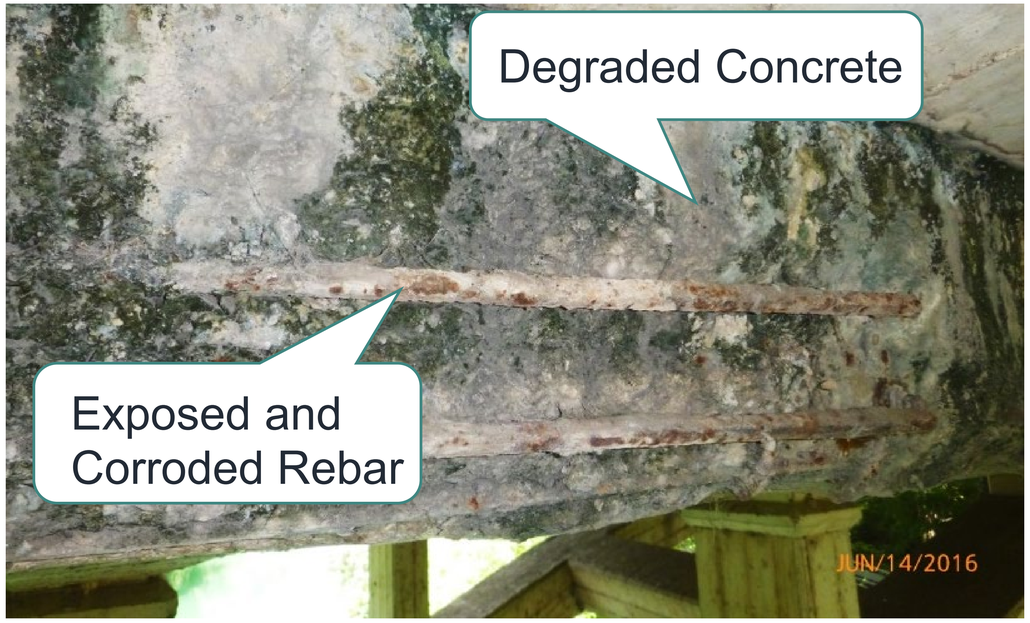
Do Nothing is not an option

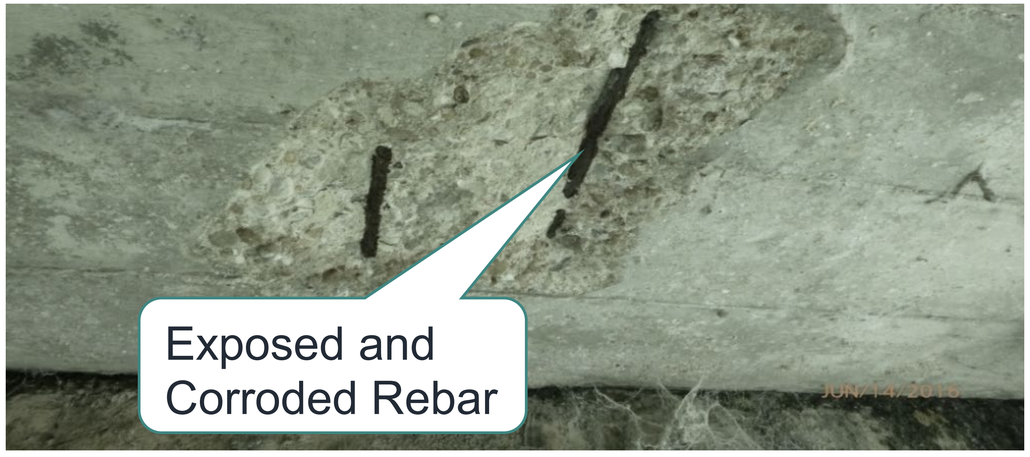
1 **Preserve** Rehabilitation Option 1 is not feasible

City of Austin Barton Springs Road Bridge

Bridge Inspection Findings

- ✓ Deck (with integral longitudinal joint), floor beams, and spandrel columns exhibited the most degradation.
- ✓ All structural components exhibited some degradation.



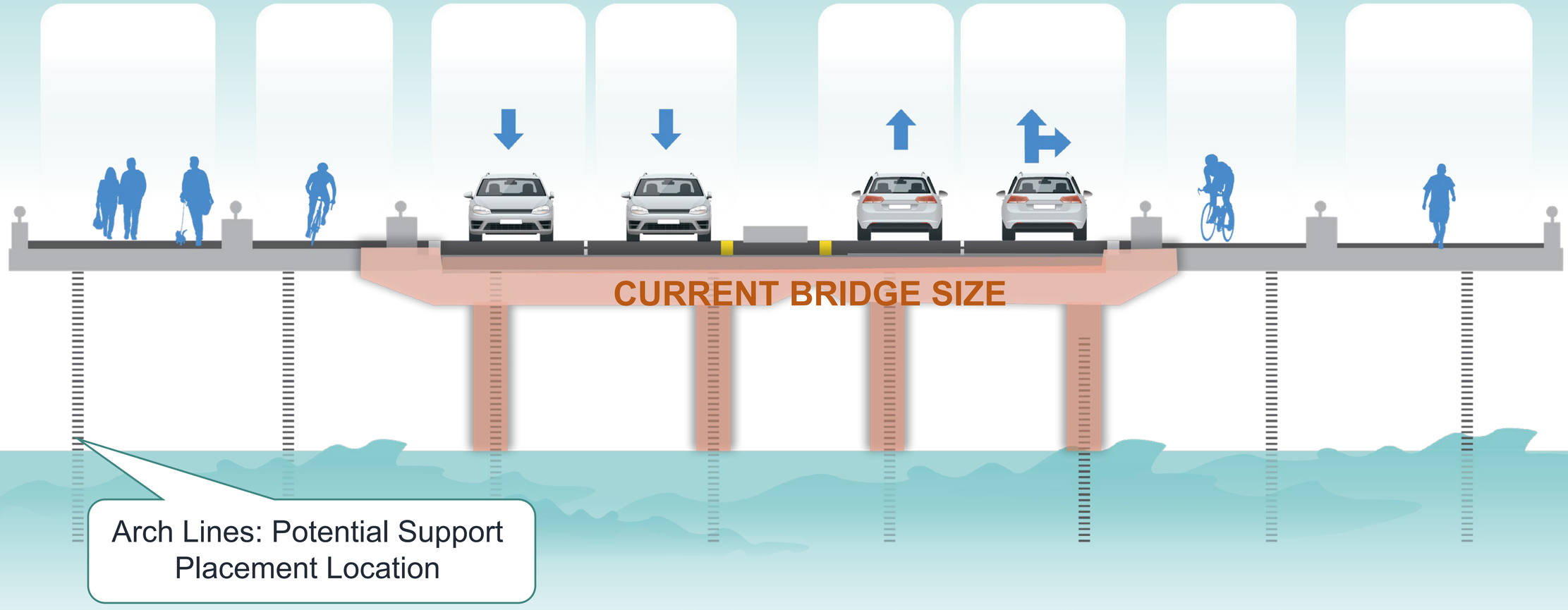


City of Austin Barton Springs Road Bridge

Bridge Rehabilitation Considerations

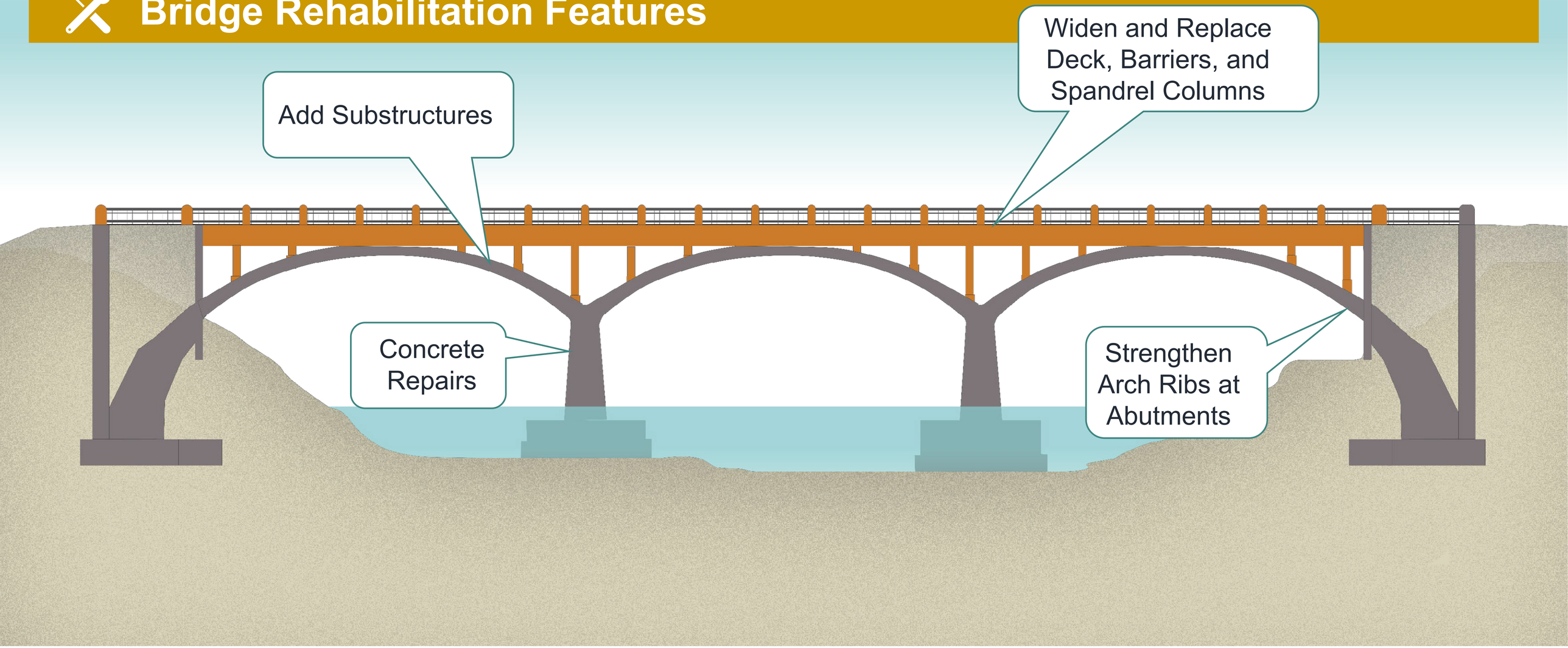
City of Austin Barton Springs Road Bridge

Bridge Rehabilitation Option



City of Austin Barton Springs Road Bridge

Bridge Rehabilitation Features



City of Austin Barton Springs Road Bridge

Bridge Structure Rehabilitation

1 Remove Existing Bridge Deck and Spandrel Columns

2 Remaining Portion of Existing Structure

3 New Components: Exterior Pairs of Arch Ribs, Spandrel Columns, Deck, and Abutment Extensions

Less than half of the original historical structure will remain

- ✓ Remaining historical structure will require refacing with new material surfaces
- ✓ View of historical structure will be mostly blocked by new structure

City of Austin Barton Springs Road Bridge

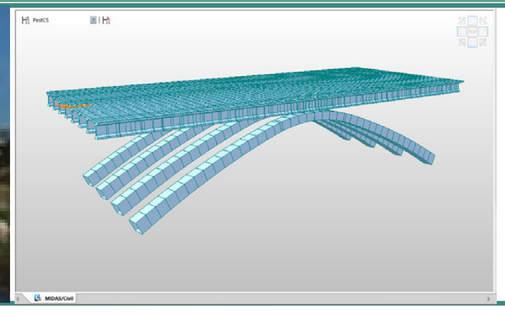
Bridge Rehabilitation Features

Rehabilitation Option Rendering

City of Austin Barton Springs Road Bridge

Bridge Replacement Options by Span Arrangement

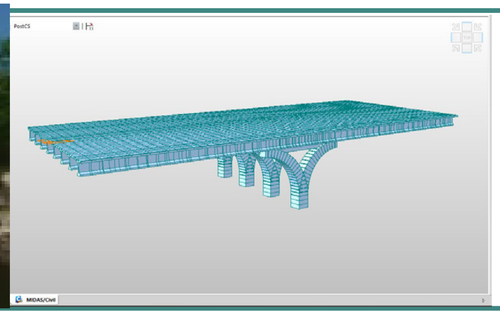
1
One-Span



Single Arch

- ✓ Four Arch ribs spanning creek
- ✓ Arch references existing bridge form

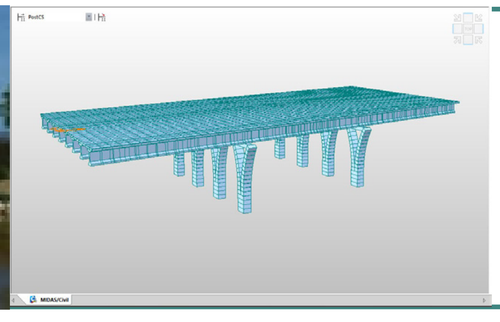
2
Two-Span



“Y” Pier Longitudinal

- ✓ Four Y-Piers in the center of the creek
- ✓ Arch-like Appearance

3
Three-Span

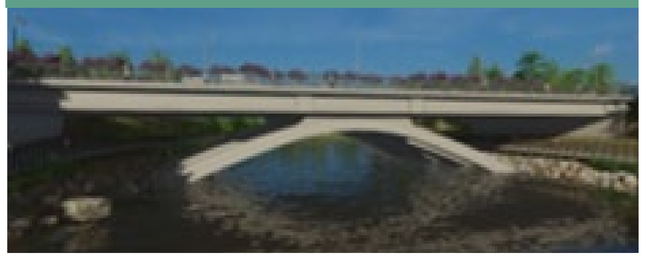
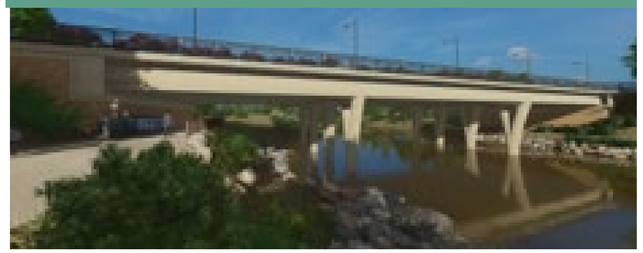


“Y” Pier Transverse

- ✓ Eight Y-Piers in two sets of four
- ✓ Opens center channel of the creek

City of Austin Barton Springs Road Bridge

Bridge Replacement Option Comparison

	1-Span	2-Span	3-Span
			
Structural Complexity	• Complex system	• Less complex • Uses conventional foundations	• Least Complex
Visual Openness	• Obstructed visuals • Views along center line maintained • Potential scour and bank/trail complexities	• More visually open than 1-span option • View along center of creek obstructed	• Most visually open • Clear views along center line of creek
Constructability	• Most complex to build • Requires temporary piers and falsework to make the arches	• Fewest number of foundations in water • Top of bridge requires specialty construction and falsework	• Specialty construction with fewest challenges
Initial Const. Cost (Bridge Only)	• $18.1M	• $13.6M	• $10.2M

City of Austin Barton Springs Road Bridge

Rendering of Recommended Bridge Replacement Option (3-span)

Public Meeting | March 2023

City of Austin Barton Springs Road Bridge

Rendering of Recommended Bridge Replacement Option (3-span)

City of Austin Barton Springs Road Bridge

Rendering of Recommended Bridge Replacement Option (3-span)

Public Meeting | March 2023

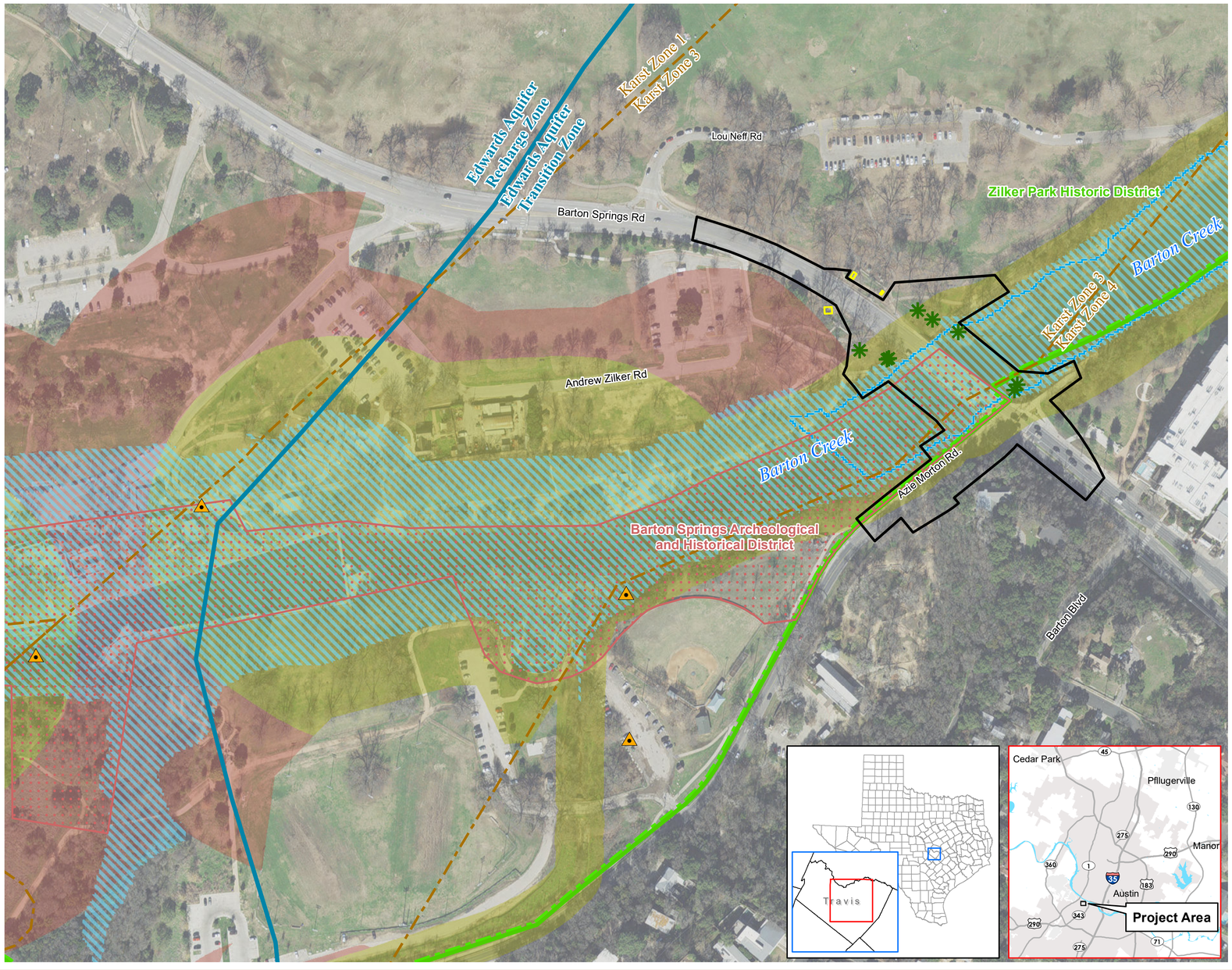
City of Austin Barton Springs Road Bridge

Environmental Analysis of Project Area

- ✓ Document understanding of environmentally sensitive areas
- ✓ Conduct detailed field investigations for critical environmental features
- ✓ Work with design engineers to avoid, minimize, or mitigate environmental impacts
- ✓ Coordinate with regulatory agencies

- US Fish and Wildlife Service
- US Army Corps of Engineers
- Texas Historical Commission
- Texas Commission on Environmental Quality
- Multiple City of Austin Departments

City of Austin Barton Springs Road Bridge



0 200 400

SCALE IN FEET

- Known Heritage Tree Location
- Spring
- Regulatory Floodplain (100-Year)
- City of Austin Fully Developed 100-Year Floodplain
- Karst Zone
- Edwards Aquifer Zone
- Preliminary Limits of Construction Operations
- Entrance Monuments
- Zilker Park Historic District
- Barton Springs Archeological and Historical District
- Critical Water Quality Zone
- Water Quality Transition Zone

KARST ZONE KEY	
Karst Zone	Description
1	Areas known to contain endangered cave fauna
3	Areas that probably do not contain endangered cave fauna.
4	Areas which do not contain endangered cave fauna

Data Sources: City of Austin, Texas Historical Commission, Federal Emergency Management Agency, US Fish and Wildlife Service, National Hydrography Dataset, Texas Parks and Wildlife Department

Imagery: TNRIS 2020.

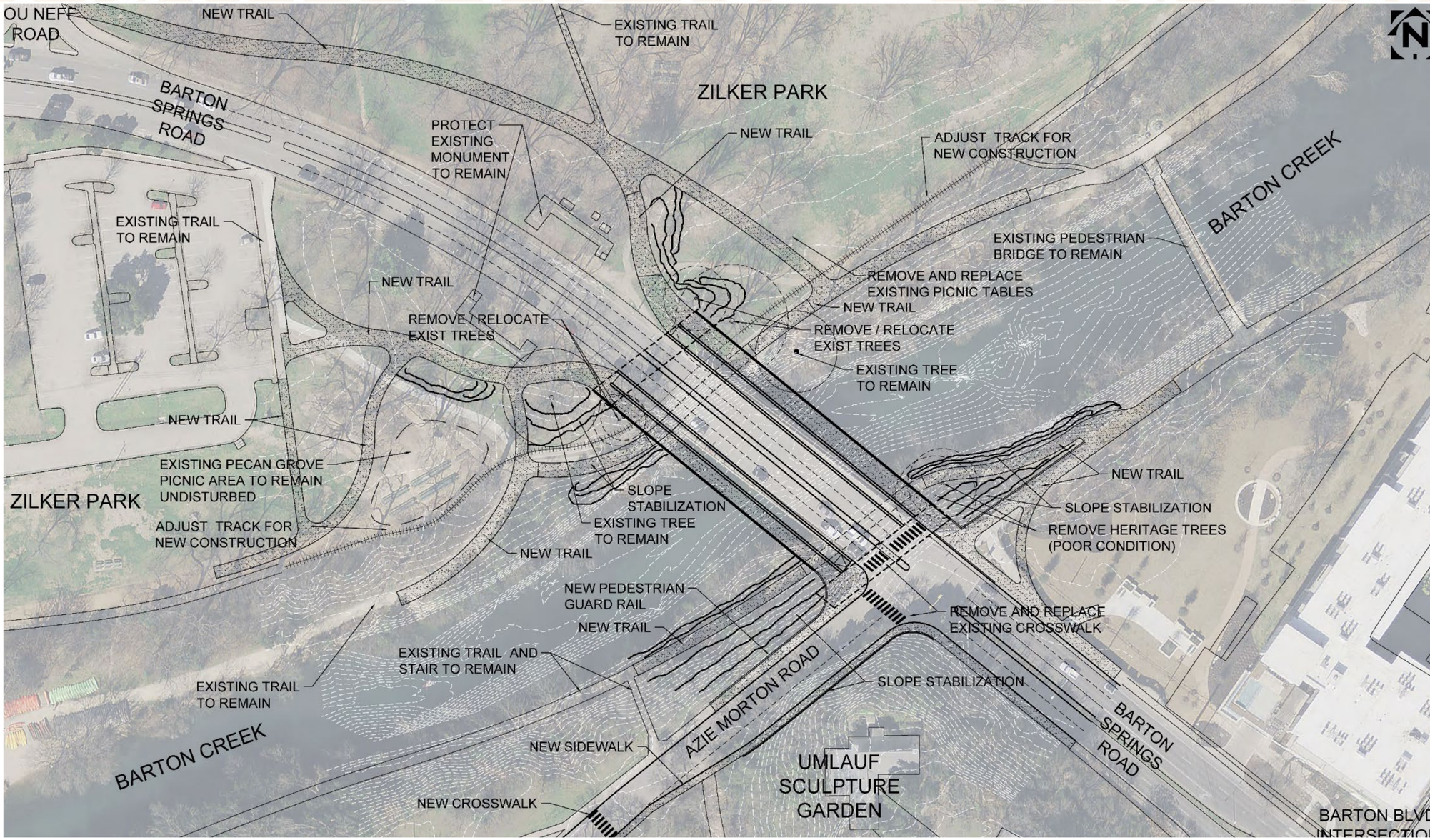
Barton Springs Road Bridge
City of Austin

Preliminary Environmental Constraints Map

City of Austin Barton Springs Road Bridge

Multi-modal Connectivity with Parks

- ✓ Protect Historic Landmarks
- ✓ Protect or move Heritage Trees
- ✓ **Flexibility and Connectivity with Zilker Park Vision Plan**



City of Austin Barton Springs Road Bridge

Comparison of Rehabilitation to Recommended Replacement Option

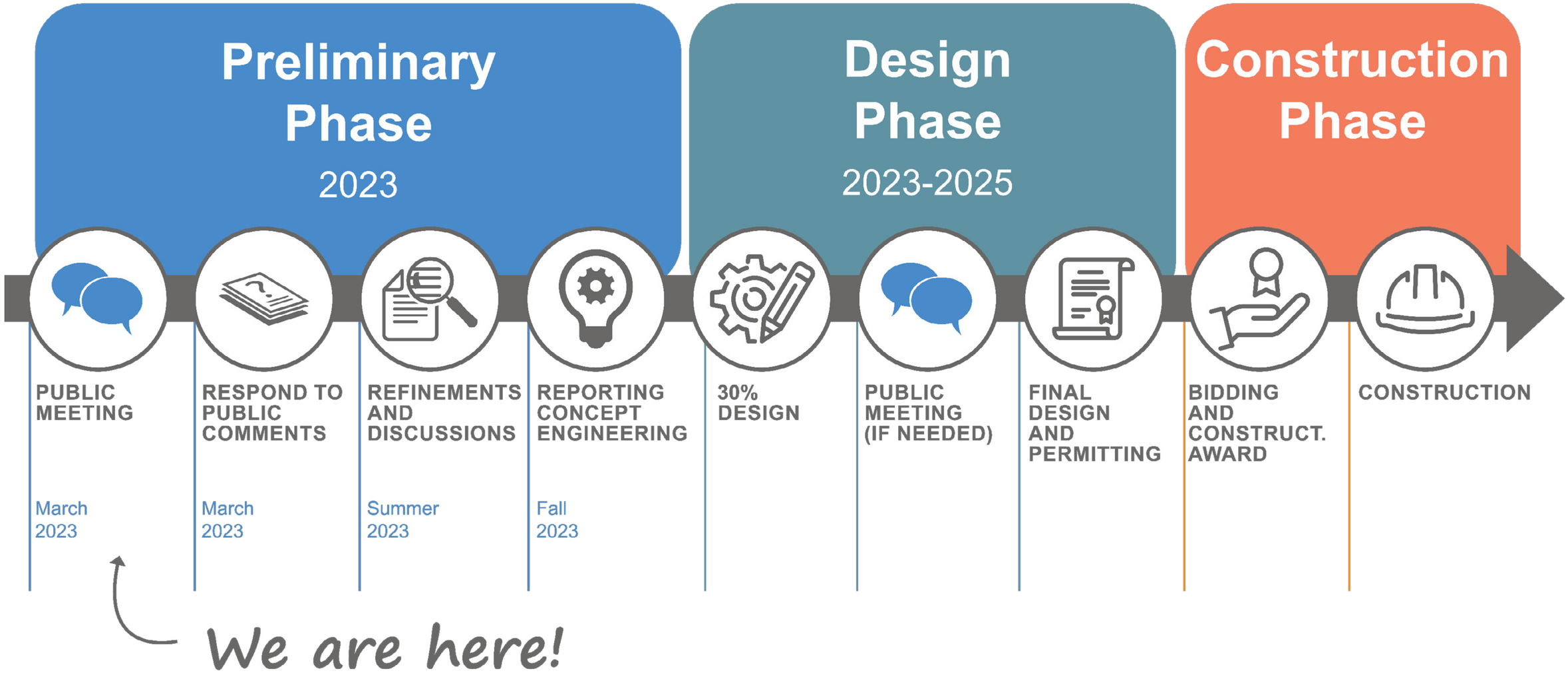
	Roadway Geometry		Park Amenities / Improvements			Bridge Structure								
	Right Turn lane onto Barton Springs Road	Alignment	Zilker Eagle Train	West bank hike/bike trail pedestrian bridges	Hike / Bike Trail below bridge	Architecture and Aesthetics	Impacts to Historic Structure	Length and Abutments	Foundation Work	Temporary Construction in Creek	Bicycles + Pedestrian	Service Life + Maintenance	Cost	Constructability / Risk
Rehab	✓	-	-	-	-	-	✓	-	-	-	-	-	-	-
Replace	✓	✓	✓	✓	✓	-	-	✓	-	-	-	✓	✓	✓

City of Austin Barton Springs Road Bridge

Comparison Highlights

Rehabilitation Options		Replacement Options
Fewer	Number of Benefits	MORE
More Expensive	Cost	40% Less
Riskier	Short and Long Term Risk	Less Risk
		Replacement Recommended

City of Austin Barton Springs Road Bridge



City of Austin Barton Springs Road Bridge

	Rehabilitation	Replacement
ROADWAY GEOMETRY		
Azie Morton Road – Extended Right Turn Lane	✔	✔
Barton Springs Road Alignment	• Improved but still unaligned • Less abrupt “zig zag”	✔ • Straight intersection with no “zig zag” • No east/westbound conflicts
PARK AMENITIES / IMPROVEMENTS		
Zilker Eagle Train	• Train replacement under bridge similar to current layout	✔ • Train replacement similar to current layout or relocation for additional space and safety
West Back Hike / Bike Trail / Pedestrian Bridge	• Pedestrian bridge replaced	✔ • Pedestrian bridge replaced or relocated
Hike / Bike Trail Passage Below Bridge	• Passage roughly twice as wide • Passage space and headroom similar to existing	✔ • Passage roughly twice as wide • Passage space increased vertically and horizontally
BRIDGE STRUCTURE		
Bridge Architecture and Aesthetics	• Existing arches and foundation remain • Structures undergo cathodic protection • New arches up/downstream complementary to existing arches • 8 arch lines	• Existing arches removed • 4 substructure elements at two locations • New bridge aesthetic complementary to existing arrangement • 4 arch lines
Impacts to Historic Structure	✔ • Preserves some existing historic bridge elements	• Removes historic elements • Mitigation strategies offset impacts
Bridge Length and Abutment Locations	• Existing abutment remains • Expansion to north and south for additional arches	✔ • Shift west abutment further west • Provides more space and safety for pedestrian trail and train
Bridge Foundation Work	• Existing foundations receive cathodic protection, concrete mitigation and re-surfacing • 8 new foundations • 4 new arch lines with two piers	• Existing arches and foundations removed down to creek bed • 8 foundations • 4 substructure elements at 2 locations
Temporary Construction	• Foundations for temporary works required	✔ • Construction by barge mounted cranes, no foundations for temporary works required
Bicycle Elements	• 10-ft wide bike lanes on each side • 2-way bike operation	• 10-ft wide bike lanes on each side • 2-way bike operation
Pedestrian Elements	• 14-ft wide sidewalk on south side • 18-ft wide sidewalk on north side	• 14-ft wide sidewalk on south side • 18-ft wide sidewalk on north side
Service Life	• Target Service Life Extension: 50-75 years • Dependent on additional sampling/testing of existing bridge	✔ • Target Service Life: 75 years • Can be extended to 100 years with enhancements to design basis and materials. 10%+ increase in cost
Bridge Maintenance	• Increased long term maintenance cost and requirements	✔ • Less maintenance cost and staffing labor required
Cost (Range including 50% inflation over course of project)	$14.5M - $22M	✔ $10.2M – 15.5M
Constructability / Risk	• Constructability difficult due to precision-demolition and protection of remaining existing structures • Greater project risk with unknown material and subsurface foundation conditions	✔ • Comparatively less construction and project risk