



SRPMIC Pedestrian Connection at Pima Corridor

Bridge Alignment Project Assessment

Date: February 19, 2016



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Background

The Salt River Pima-Maricopa Indian Community (SRPMIC) is a federally recognized, self-governing American Indian Tribe encompassing approximately 92 square miles (53,675 acres). The Community is situated in the center of Maricopa County, Arizona; lying adjacent to the cities of Scottsdale, Mesa, Fountain Hills, Tempe, and the Fort McDowell Indian Reservation - Figure 1.

The Pima Corridor Pedestrian Connection (PCPC) plan was created in 2006 by the SRPMIC Council with Community member input. The goal of the PCPC planning effort was to identify opportunities to provide pedestrian amenities including sidewalks and pathways to improve connectivity through the Pima Corridor.

The SRPMIC completed a Long Range Transportation Plan in 2010 and identified the need to develop a regional connected multi-use pathway system.

In 2013 the SRPMIC submitted an application for a TIGER grant to contribute federal funding towards a planning study for the design of pedestrian and bicycle facilities within the PCPC corridor. The TIGER grant application was not selected for funding.

Purpose of Project Assessment

The SRPMIC was awarded a MAG grant to complete a project assessment report to evaluate an alignment location for a pedestrian bridge crossing of the SR-101L freeway within the PCPC corridor, connecting the east and west halves of the Community's Talking Stick Cultural Entertainment District (TSCED). This project assessment report would then be utilized by the SRPMIC in the future to apply for funding (federal funding, CMAQ, Tiger, etc.). The SRPMIC would like to leverage other funding sources for this pedestrian connection.

This report shall identify two pedestrian bridge alignments alternatives and develop two bridge concept layouts for each of the two alignment alternatives. The alignments and concepts will be presented to the study team which includes SRPMIC, MAG and ADOT for evaluation and comment.

Area of Interest

The project area for the bridge alignment study is within the SR-101L corridor from Indian Bend Road north to Via de Ventura and Pima Road east to Dobson Road. The Salt River Fields/Talking Stick alignment is situated within the northern gateway of the Pima Corridor which has a zoning classification of C-3 General Commercial – Figure 2. The SRPMIC would like to focus the analysis of this project assessment for the bridge alignment location within this corridor.

Figure #1 Project Vicinity Map

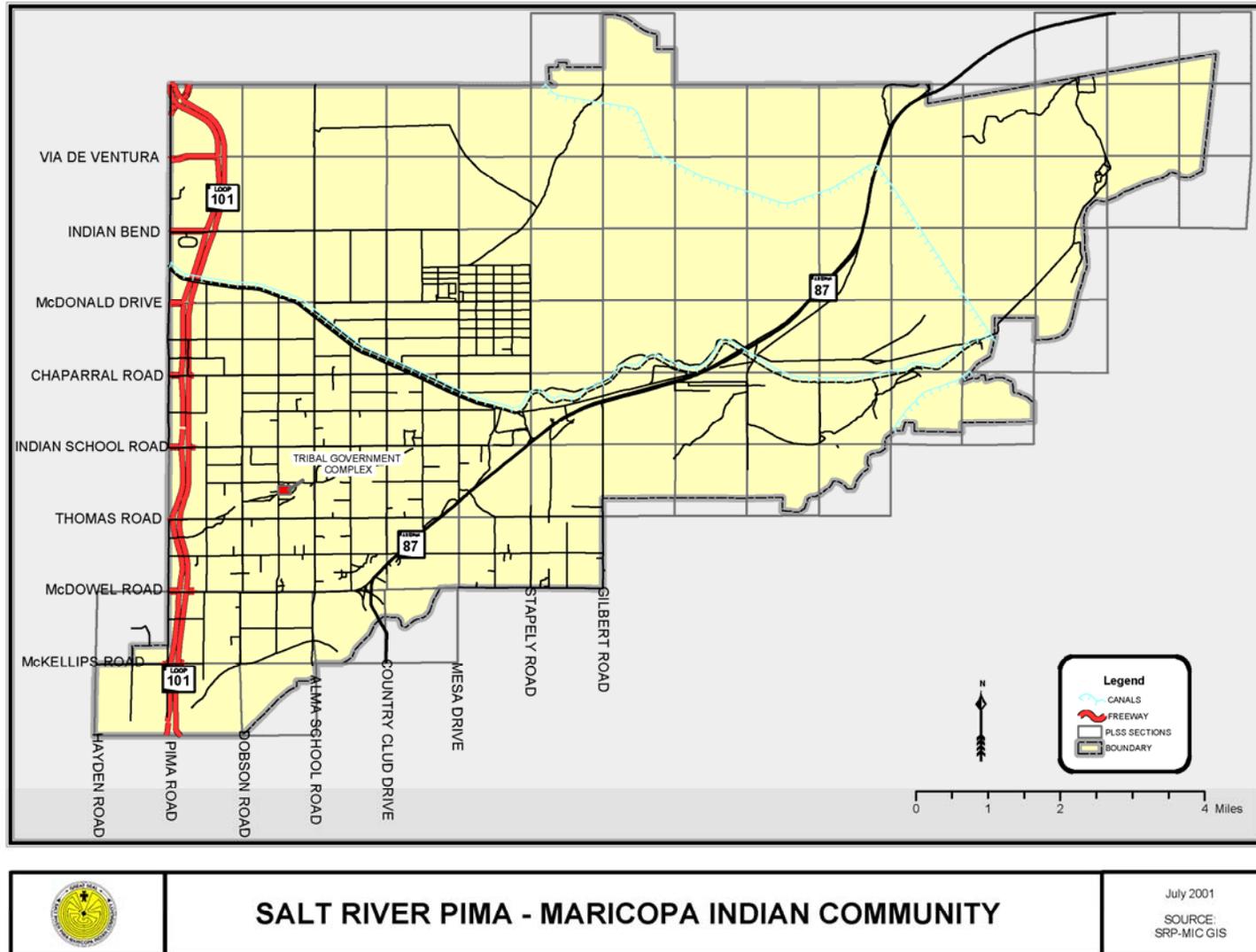
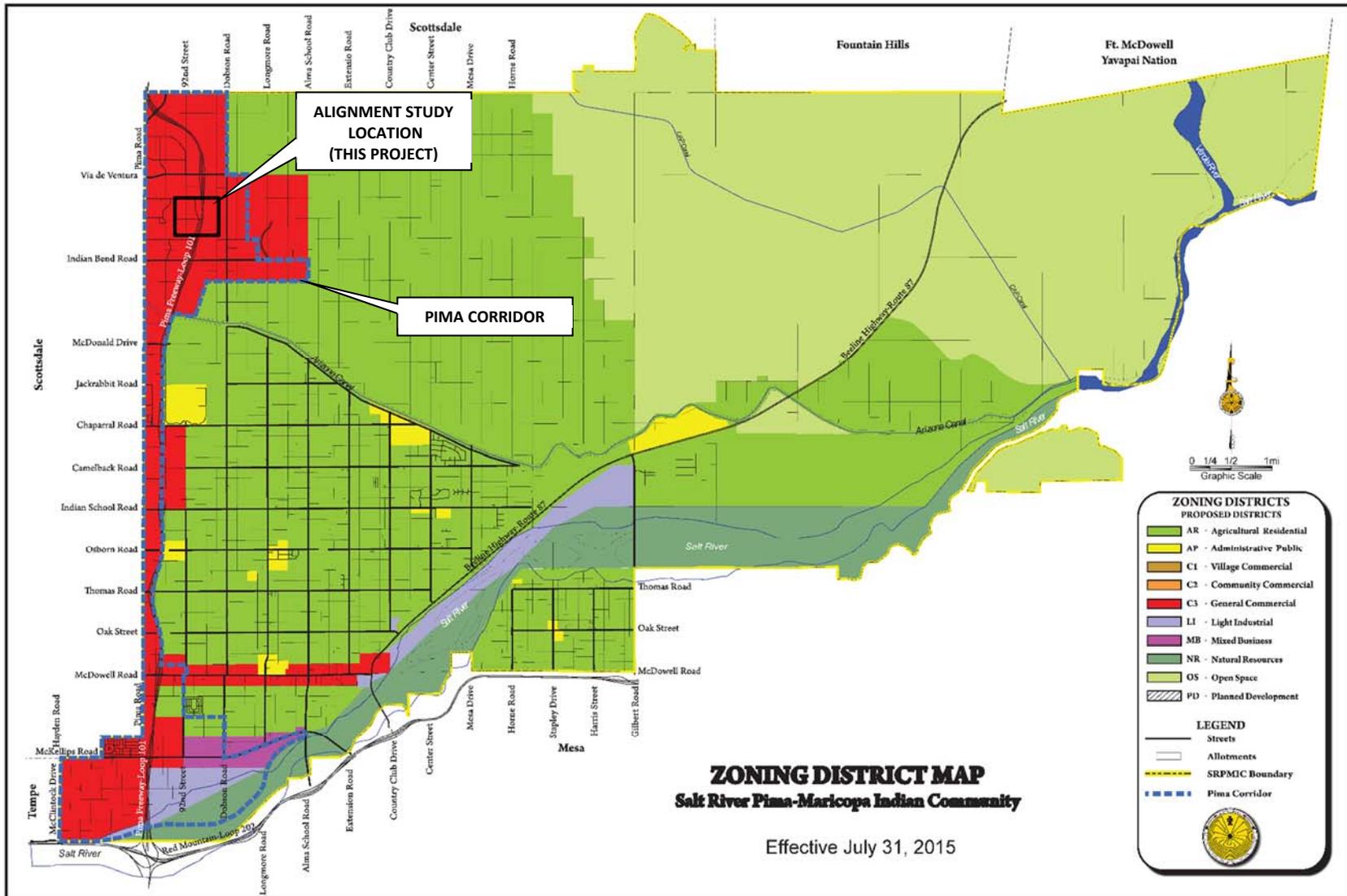


Figure #2 Zoning Map & Pima Corridor Limits



Proposed Study Area & Bridge Alignments

The pedestrian bridge alignment study location area is approximately ¼ mile north of Indian Bend Road to align with the Salt River Fields/Pavilions area (west) with the Talking Stick resort / TSCED area (east) – Figure 3. The SRPMIC currently has a pathway enhancement project in design around the lake area at the Salt River Fields near Pima Road and ¼ mile north of Indian Bend Road. This would provide a pathway around the lake up to the corner of the Salt River Fields loop road. The proposed pathway alignment within the Salt River Fields corridor also provides an opportunity to tie-in with the City of Scottsdale’s multi-use pathway along the west side of Pima Road.

Figure 3 – Project Study Area & Bridge Alignments



Existing Conditions

The Arizona Department of Transportation (ADOT) is currently in construction of the SR-101L widening project which includes the pedestrian bridge alignment study area. The bridge alignment concepts within this report utilize the SR-101L ultimate improvement design.

The SR-101L corridor includes existing infrastructure including freeway lighting, Freeway Management Systems (FMS), and drainage culverts with the ADOT concrete lined drainage channel just east of the freeway. Along the west side of SR-101L within Salt River Fields/Pavilions area are two existing pylon monument signs: the Pavilions sign and Salt River Fields sign.

The Salt River Fields loop road has 80 feet of right-of-way and only the north 24 feet of half street was constructed. The future build out includes an additional 24 feet wide street build out on the south side. Utilities within the loop road corridor include natural gas (Southwest Gas); 8-inch sanitary sewer, 12-inch domestic water main and underground electrical with existing transformers / cabinets west of the looped road (SRP).

Right of Way

SRPMIC has an intergovernmental agreement (IGA) with ADOT granting the SRPMIC the ability to install utilities perpendicular and horizontal within the SR-101L perpetual easement.

SRPMIC has right-of-way within the Salt River Fields area to accommodate the bridge ramp and connection to the existing sidewalk.

SRPMIC would be responsible for obtaining right-of-way between Top Golf / Riverwalk office development and SR-101L. This area is allotted land and the SRPMIC has assurances that pedestrian improvements within this land area is fully supported by the land owners.

Allotted land is owned by the family and extends ownership to the generations of the family. The Bureau of Indian Affairs (BIA) set up the allotted land system for large reservations to provide standalone land for housing. This system was set up to transition the BIA out of the reservations and community. Allotted land is held in trust requiring the owner's (can include several family generations) permission (through the BIA) to sell the land. This started in 1900 and has continued through generations which could have 60 to 70 people including deceased and Aires, requiring sign off from all land holders.

Salt River Fields Demand

Salt River Fields draws an average of about 500,000 people per year to games and events. Major League Baseball spring training generates about 330,000 people over February and March and about 160,000 people attending year round events, such as festivals/concerts and races. The SRPMIC estimates that of the 500,000 people, about 2% come to events on bicycles, which translates to roughly 10,000 people. Most of the bicyclist users come from the McCormick Ranch area.

The SRPMIC has a trolley program which provides shuttle service between the Talking Stick Resort and Salt River Fields/Pavilions area. The trolley program is not in service during the summer months.

Out of Town Visitors

TSCED attracts year round, out of state tourism. In particular, the Salt River Fields draws large out of town visitors during the major league baseball spring training season. The Community believes a pedestrian bridge connection spanning the SR-101L would encourage visitors to walk between the areas instead of driving, to alleviate traffic and help decrease parking demand at Salt River Fields during the spring training season.

The TSCED area includes hotels located on both the east and west sides of the SR-101L. The east side includes the Talking Stick Resort as well as the Hampton Inn. The west side has a Staybridge Suites Hotel that is currently in the planning stages. The following usage numbers were provided by hotel management.

- The Talking Stick Resort estimates 83.6% of all guest rooms within March of 2015 were from out of state; however, when group bookings were separated out, this translated to 79.8% of the transient guests were from out of state.
- The Hampton Inn in March has an estimated 72% of business attributed to Spring Training. They have 108 rooms with 100% occupancy during the spring training season, 72% equates to 66 rooms utilized within the month of March resulting in 2,046 rooms out of the 3,348 rooms available.
- A Staybridge Suites Hotel is currently planning to construct on the undeveloped triangular parcel located east of the existing Home Depot within the Pavilions. The hotel will consist of 110 hotel rooms and will be 4 stories (146,218 SF) on 3.357 AC. This hotel shares similar room counts as the Hampton Inn and will most likely experience similar usage within the month of March as the Hampton Inn.

Bridge Design Criteria

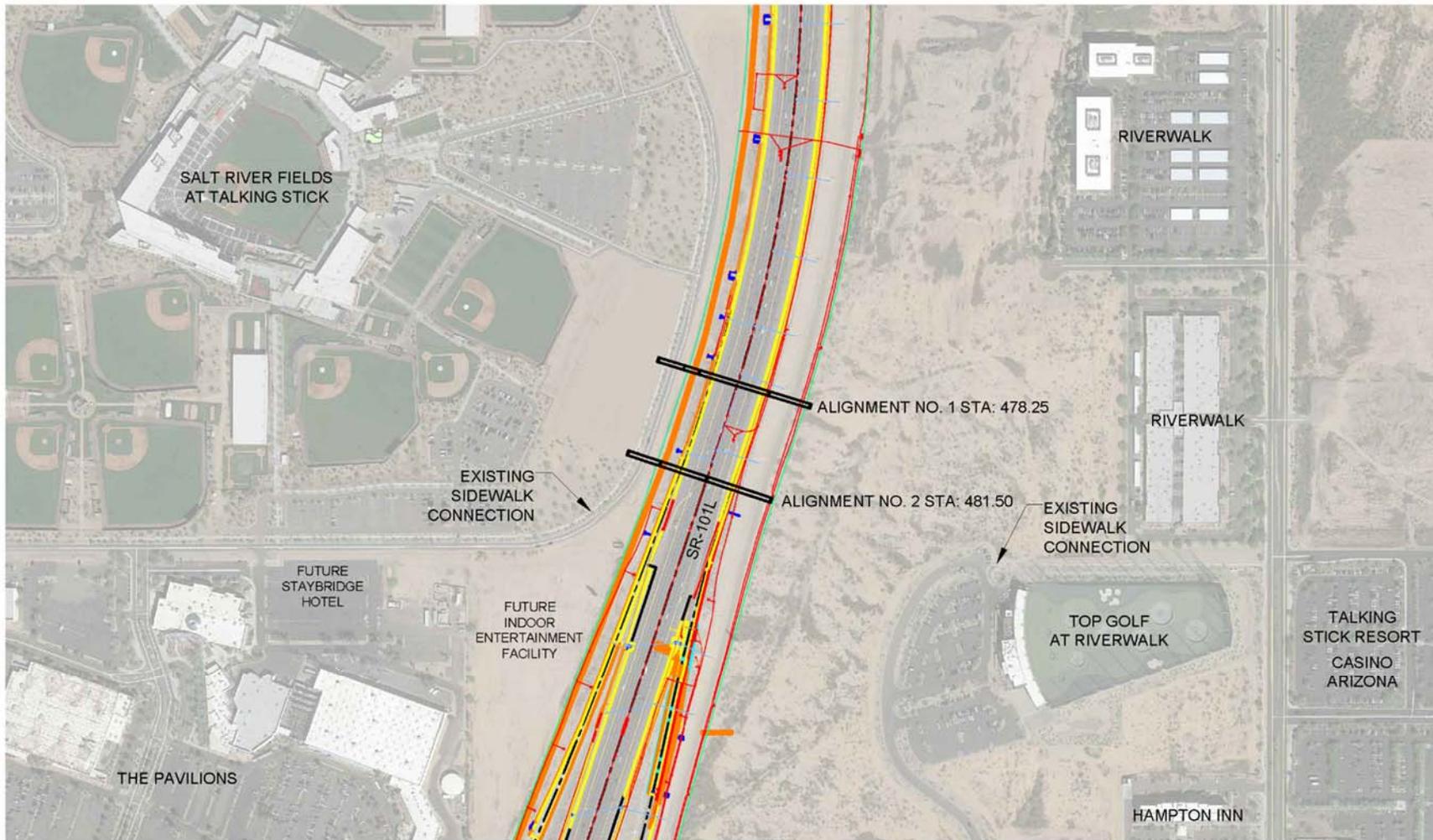
Pedestrian bridge types within the ADOT corridor are typically steel truss or cast-in-place post tension box girder bridges. A review of as-built plans show that the clear path width of these existing pedestrian bridges vary from 8 feet to 12 feet. Design of the ultimate pedestrian bridge will follow ADOT Bridge Design Guidelines and AASHTO LRFD Design Specifications for the Design of Pedestrian Bridges. ADOT Bridge Design Guidelines require a minimum vertical clearance of 17 feet – 6 inches below pedestrian bridges. In discussions with ADOT related to this project they requested that 18 feet - 6 inches of clearance be provided.

Several of the existing pedestrian bridges within the ADOT corridors have also involved an artist providing artist elements to the bridge during design. The SRPMIC would like to have the proposed pedestrian bridge include artwork that celebrates the SRPMIC culture. The purpose of this project assessment report is to identify bridge alignment options within the proposed pathway corridor. Artistic elements can be considered by the SRPMIC beyond this initial study.

Bridge Concepts

This report evaluated two alignment locations with two bridge concepts per each alignment. Both alignments cross SR-101L perpendicularly in order to minimize the span lengths across the freeway. Please refer to Figure 4 and Exhibit 1 for the two bridge alignment 1 and 2 locations.

Figure 4 Bridge Alignments 1 and 2



Alignment No. 1 Concept 'A' & Concept 'B' is located at SR-101L station 478+25. Please refer to Exhibits 1 through 4 for the Concept 'A' and 'B' layouts with sidewalk connections. The exhibits show preliminary ramp layout locations for the pedestrian bridge. The ramps utilize 8% slopes with a flat 10 foot landing area every 30 feet per Americans with Disabilities Act (ADA) requirements.

The bridge utilizes a double switch back ramp that extends approximately 250 feet along the west side of the SR-101L and ties into the existing 8-foot wide sidewalk west of the existing Salt River Fields loop road. The east side utilizes a single ramp that extends approximately 250 feet to a proposed 10 foot wide concrete pathway which ties in with the existing 5' wide concrete sidewalk on the north side of the TopGolf facility.

The Concept 'A' bridge profile utilizes three truss spans (140 ft / 238 ft / 140 ft for a total length of 518 ft) and four concrete piers (two piers within the ADOT right-of-way and two piers within the SRPMIC ROW). This concept avoids the placement of a bridge pier within the SR-101L median. Please see Exhibit 2 for the Concept 'A' bridge profile.

The Concept 'B' bridge profile utilizes three truss spans (110 ft / 160 ft / 239 ft for a total length of 509 ft) and four concrete piers (one pier within the ADOT right-of-way and three piers within the SRPMIC ROW). This concept utilizes a bridge pier within the SR-101L median. Please see Exhibit 4 for the Concept 'B' bridge profile.

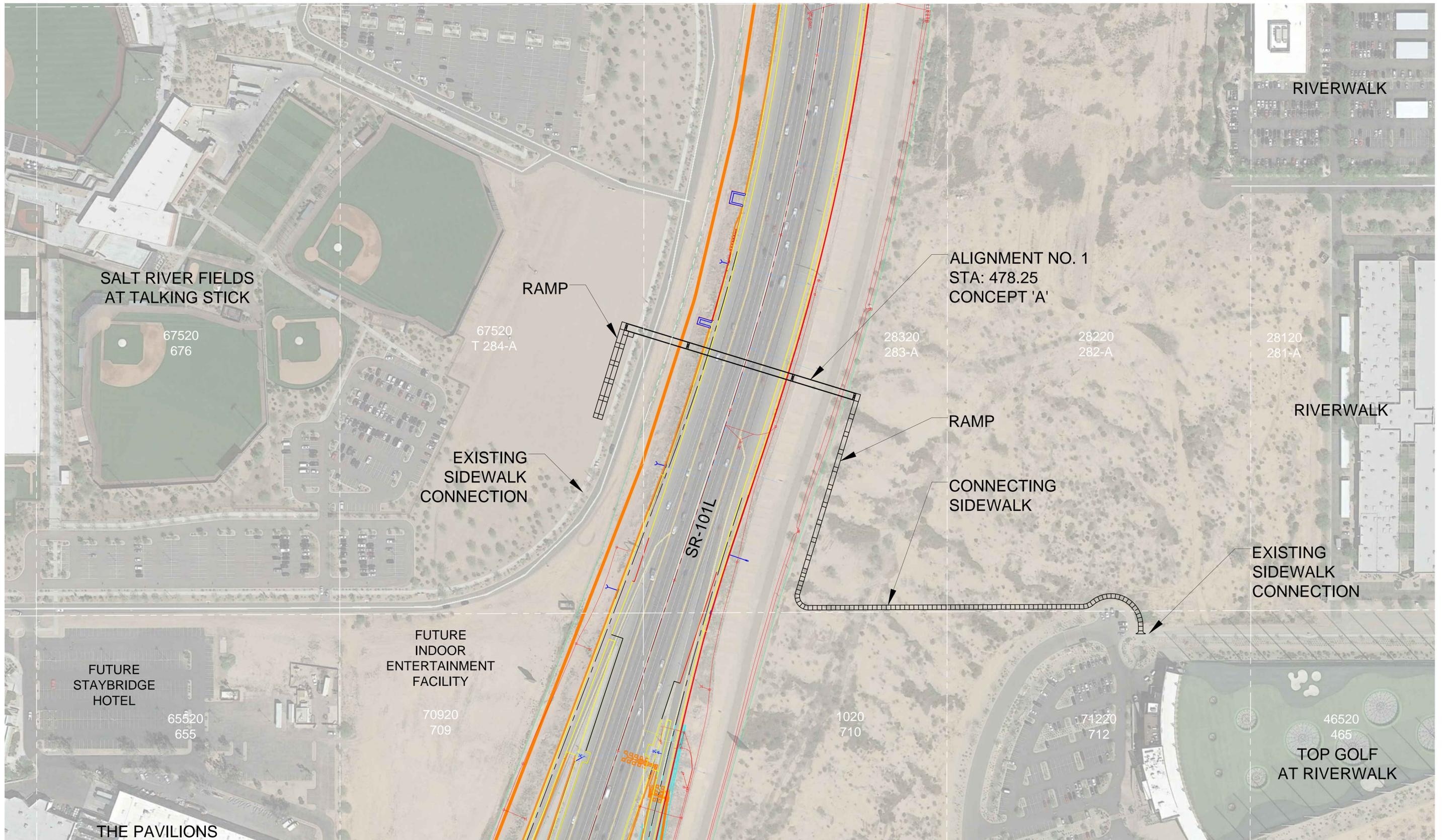
Alignment No. 2 Concept 'A' & Concept 'B' is located at SR-101L station 481+50. Please refer to Exhibits 5 through 8 for the Concept 'A' and 'B' layouts and sidewalk connections. The location of Alignment No. 2 occurs south of Alignment No. 1 closer to the Indian Bend on and off ramps. The exhibits show preliminary ramp layout locations for the pedestrian bridge. The ramps utilize 8% slopes with a flat 10 foot landing area every 30 feet per ADA requirements.

The bridge utilizes a double switch back ramp that extends approximately 250 feet along the west side of the SR-101L and ties into the existing 8-foot wide sidewalk west of the existing Salt River Fields loop road. The east side utilizes a double switch back ramp that extends approximately 250 feet to a proposed 10 foot wide concrete pathway which ties in with the existing 5' wide concrete sidewalk on the north side of the TopGolf facility.

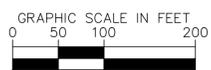
The Concept 'A' bridge profile utilizes three truss spans (110 ft / 160 ft / 220 ft for a total length of 490 ft) and four concrete piers (two piers within the ADOT right-of-way and two piers within the SRPMIC ROW). This concept includes the placement of a bridge pier within the SR-101L median. Please see Exhibit 7 for the Concept 'A' bridge profile.

The Concept 'B' bridge profile utilizes three truss spans (130 ft / 242 ft / 130 ft for a total length of 502 ft) and four concrete piers (two piers within the ADOT right-of-way and two piers within the SRPMIC ROW). This concept avoids the placement of a bridge pier within the SR-101L median. Please see Exhibit 9 for the Concept 'B' bridge profile.

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ALIGNMENT NO. 1 STA: 478.25 CONCEPT 'A'



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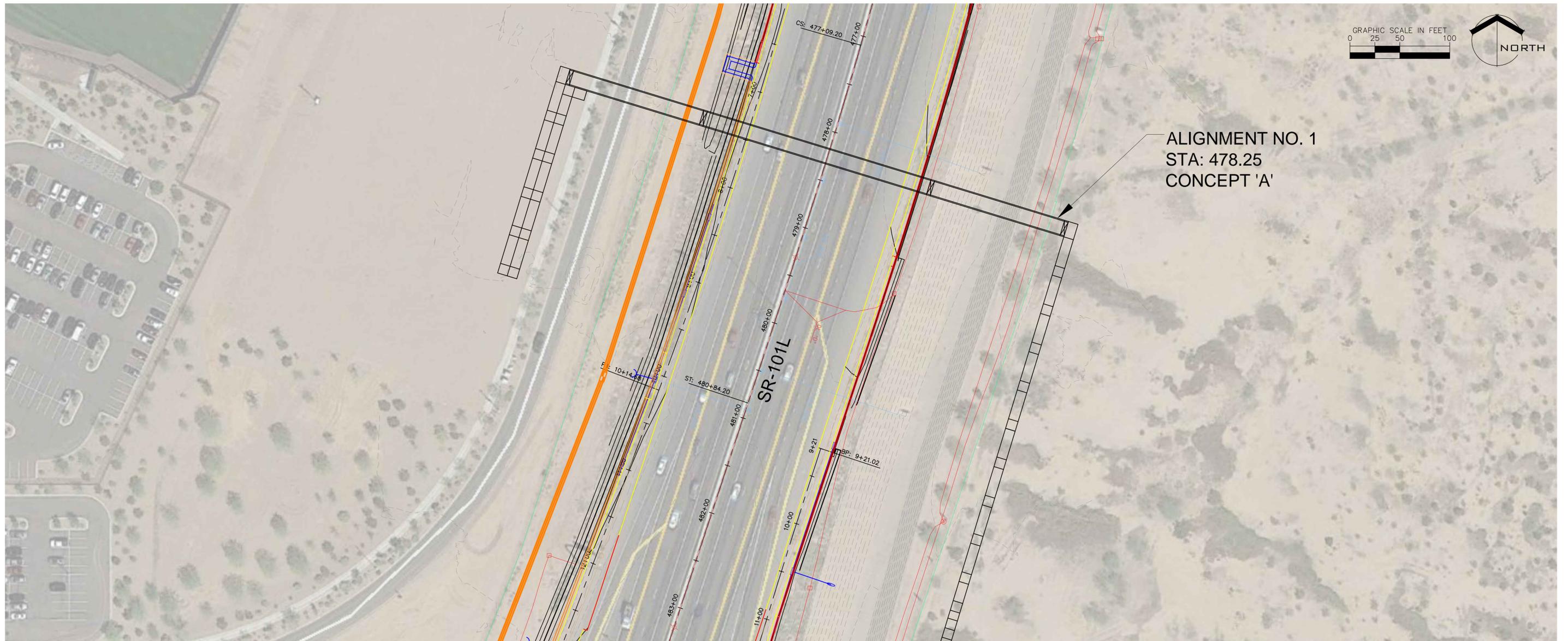
7740 N. 16TH STREET, SUITE 300, PHOENIX, AZ 85020
PHONE: 602-944-5500 | WWW.KIMLEY-HORN.COM

SRPMIC PEDESTRIAN CONNECTION AT PIMA CORRIDOR
ALIGNMENT 1 - CONCEPT 'A' SITE PLAN

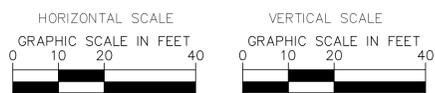
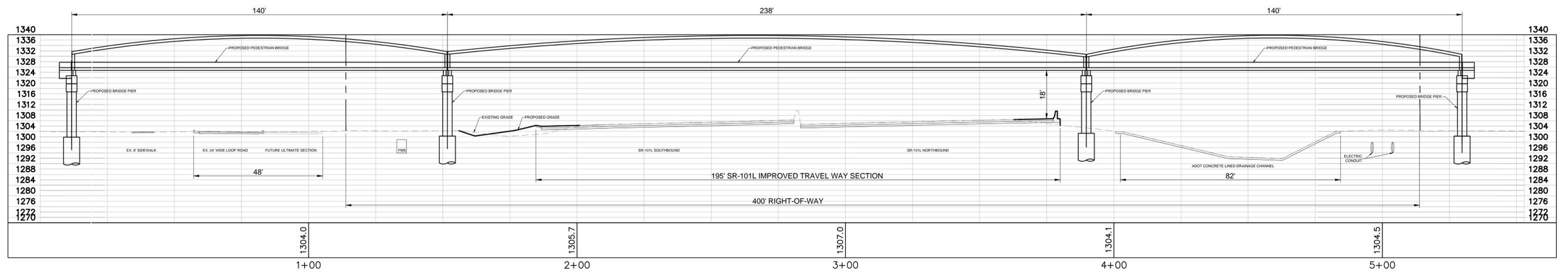
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ALIGNMENT NO. 1 STA: 478.25 CONCEPT 'A'



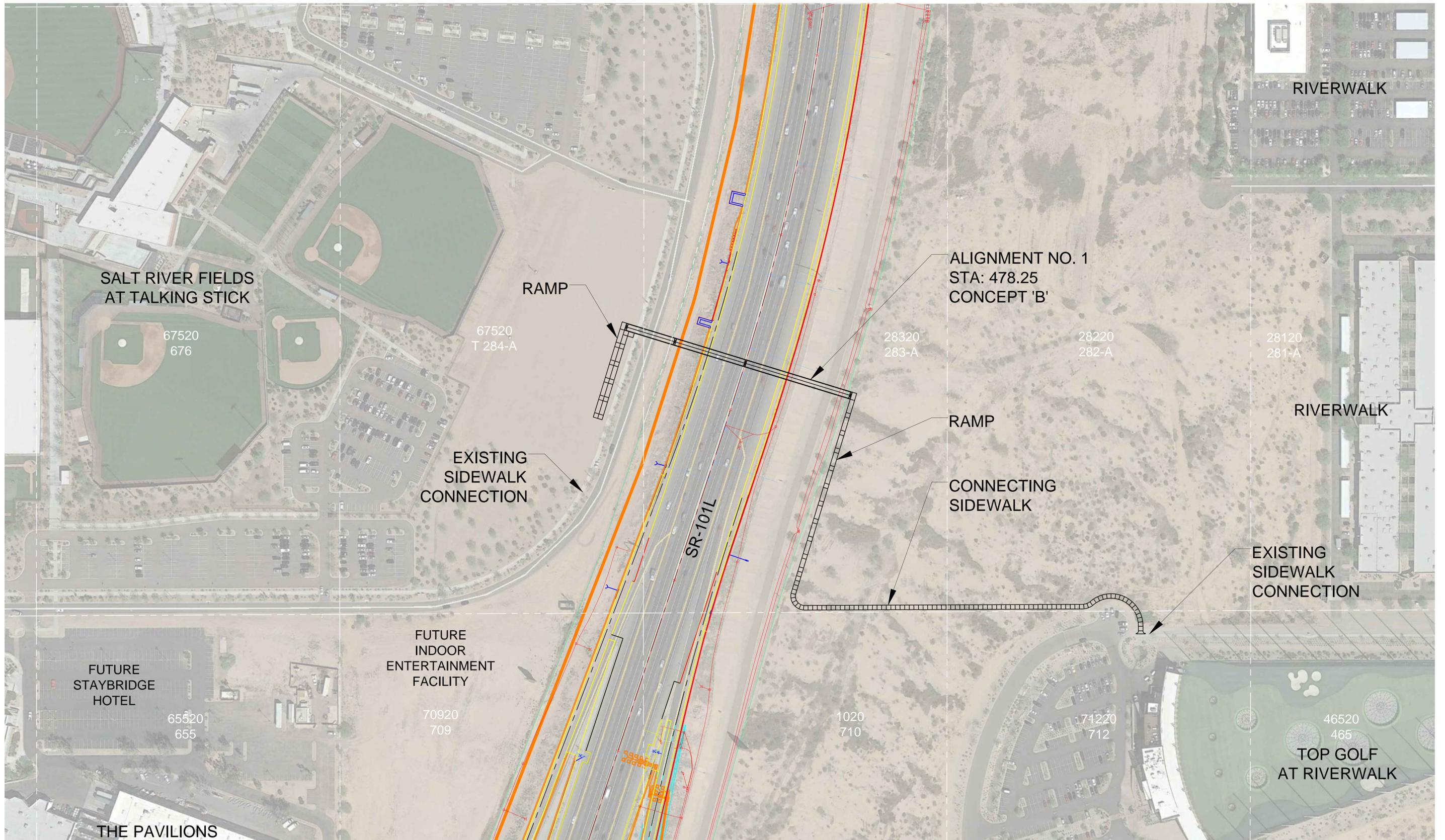
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SRPMIC PEDESTRIAN CONNECTION AT PIMA CORRIDOR
 BRIDGE PROFILE - ALIGNMENT #1 STA: 478.25 OPTION 'A'

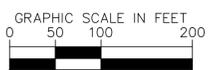
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ALIGNMENT NO. 1 STA: 478.25 CONCEPT 'B'



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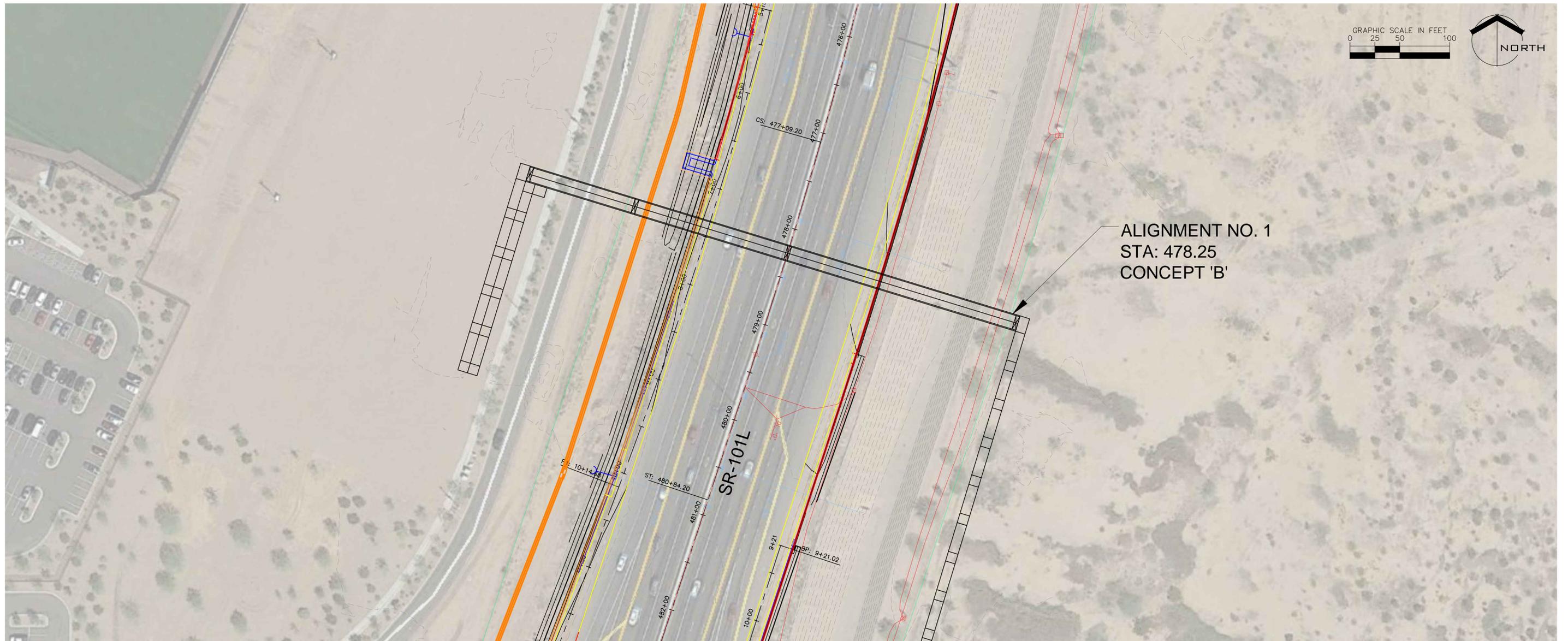
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SRPMIC PEDESTRIAN CONNECTION AT PIMA CORRIDOR
ALIGNMENT 1 - CONCEPT 'B' SITE PLAN

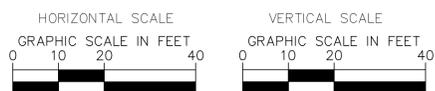
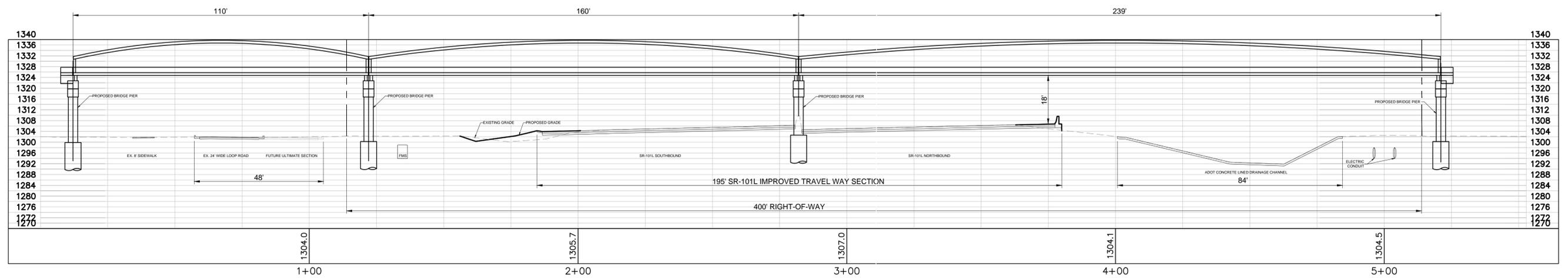
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ALIGNMENT NO. 1 STA: 478.25 CONCEPT 'B'



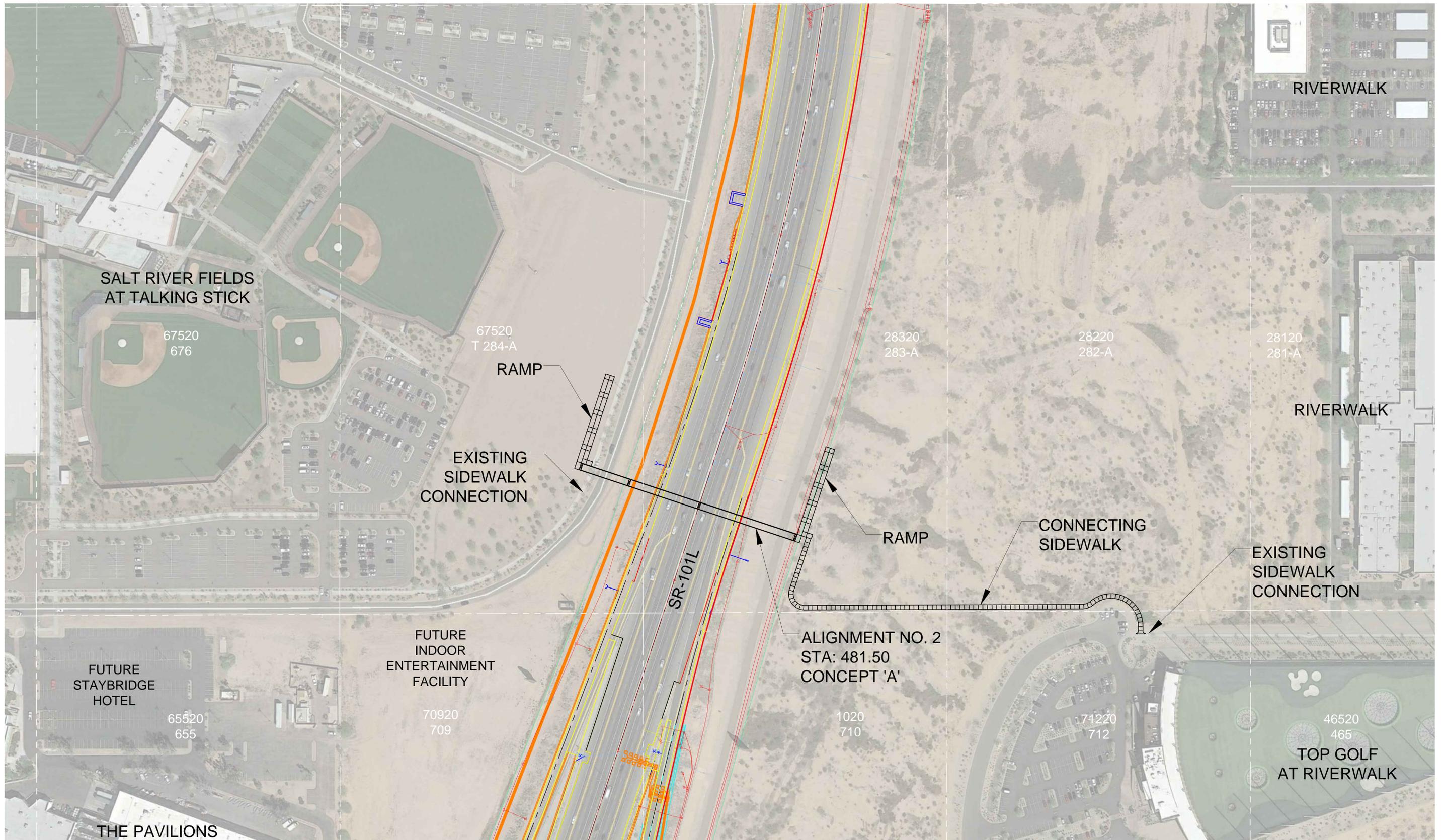
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SRPMIC PEDESTRIAN CONNECTION AT PIMA CORRIDOR
 BRIDGE PROFILE - ALIGNMENT #1 STA: 478.25 OPTION 'B'

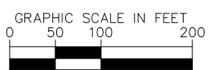
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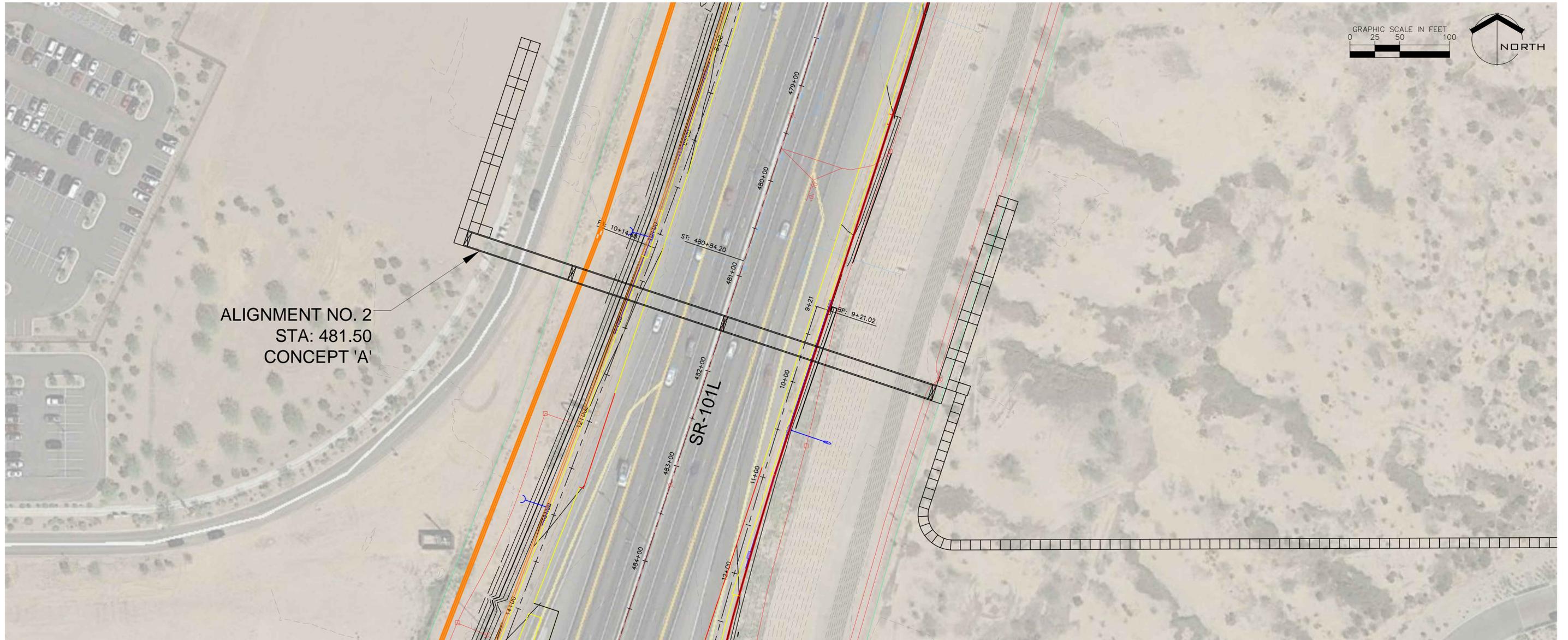
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SRPMIC PEDESTRIAN CONNECTION AT PIMA CORRIDOR
ALIGNMENT 2 - CONCEPT 'A' SITE PLAN

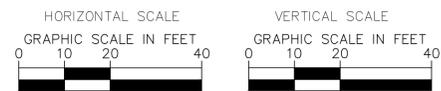
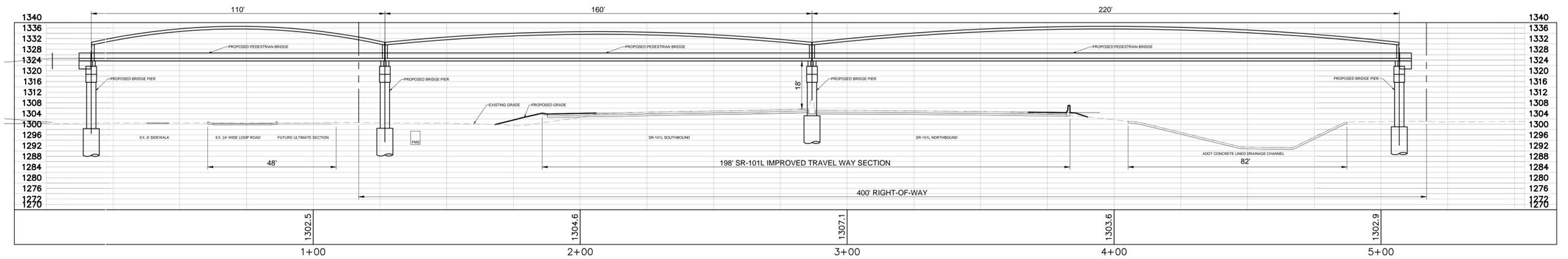
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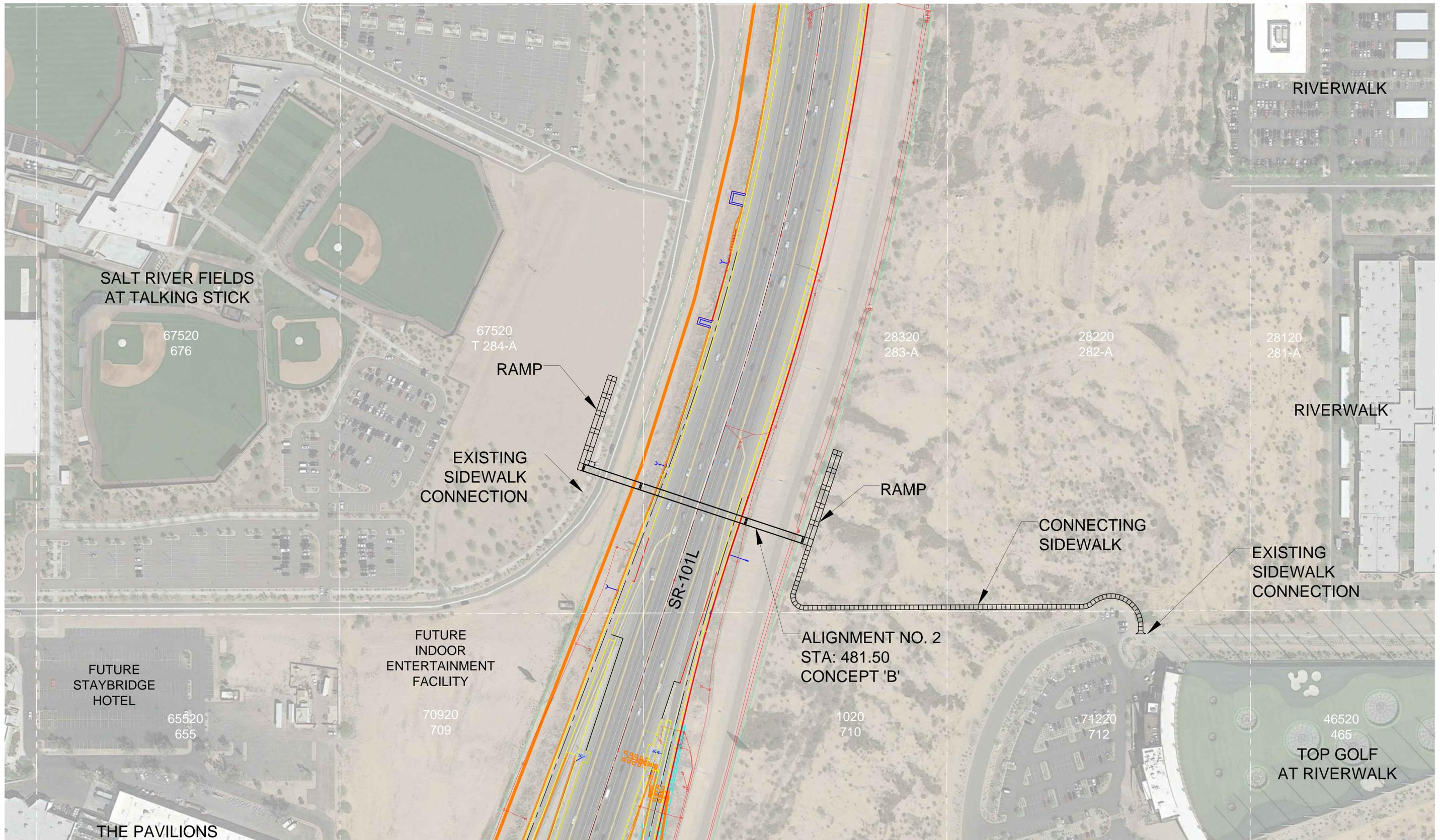
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SRPMIC PEDESTRIAN CONNECTION AT PIMA CORRIDOR
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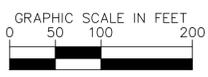
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ALIGNMENT NO. 2 STA: 481.50 CONCEPT 'B'



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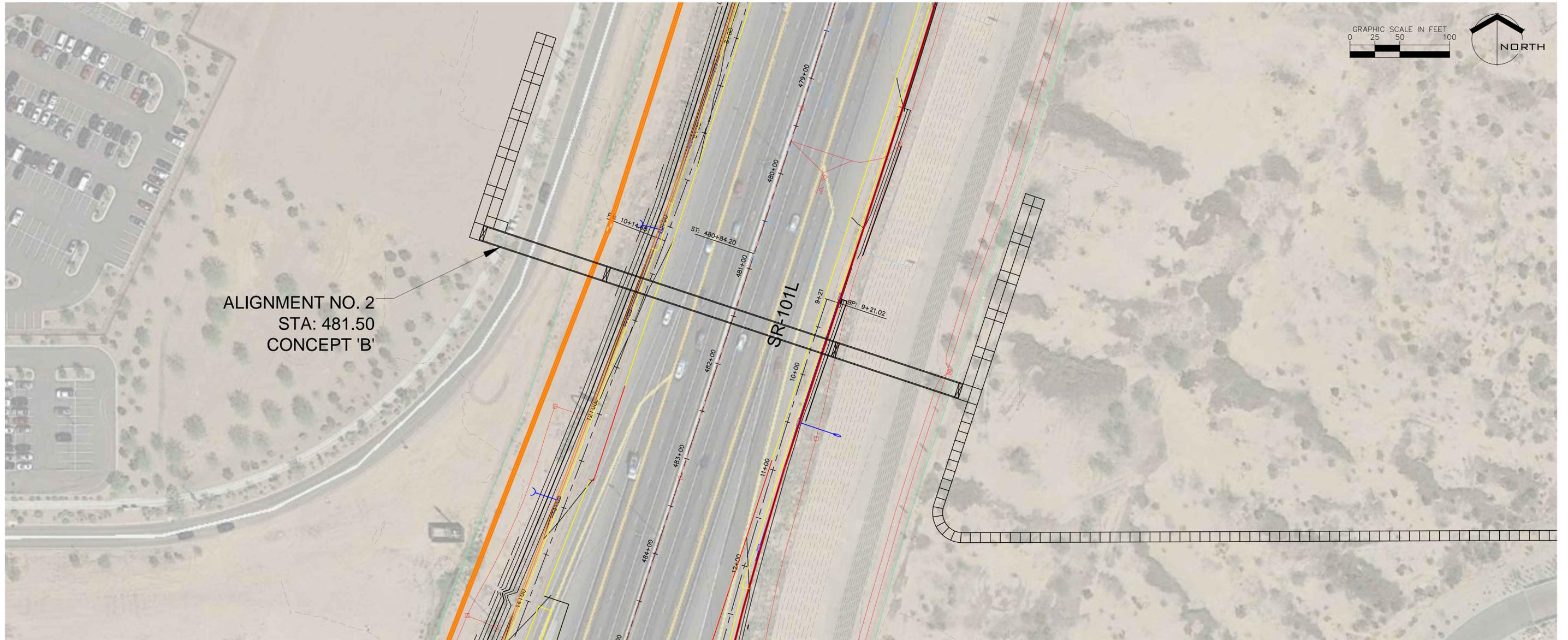
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SRPMIC PEDESTRIAN CONNECTION AT PIMA CORRIDOR
ALIGNMENT 2 - CONCEPT 'B' SITE PLAN

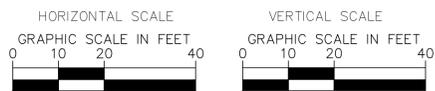
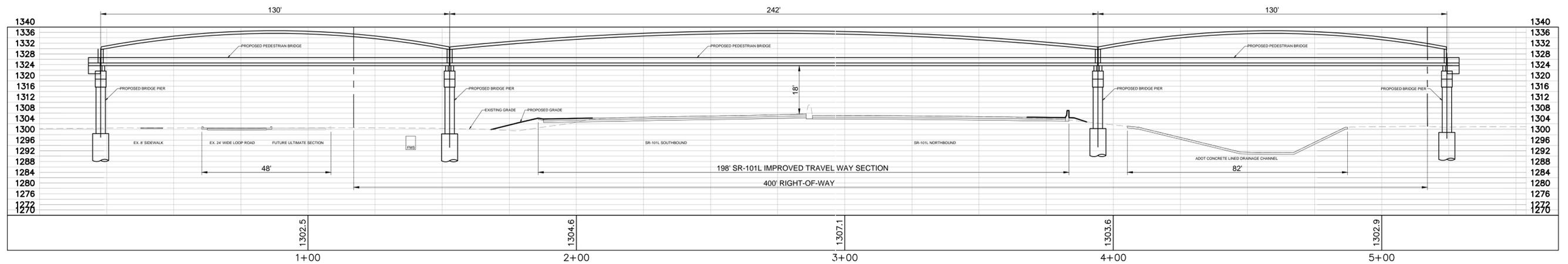
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SHEET NO: **EXHIBIT 7**

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ALIGNMENT NO. 2 STA: 481.50 CONCEPT 'B'



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SRPMIC PEDESTRIAN CONNECTION AT PIMA CORRIDOR
 BRIDGE PROFILE - ALIGNMENT #2 STA: 481.50 OPTION 'B'

DATE: **2-19-2016**

SHEET NO: **EXHIBIT 8**

ADOT Constructability & Maintenance Review

The four alignments were presented to ADOT for constructability and maintenance review and comment. The following are comments that were discussed with ADOT.

Constructability:

The bridge type would most likely be a prefabricated steel truss or steel girders with cast-in-place deck. Trusses and/or steel girders would be assembled adjacent to the freeway so that erection could be done with minimal freeway closures. The window for construction for this segment of the SR-101L is contingent on several seasonal events within nearby venues located in both the City of Scottsdale and SRPMIC. The current SR-101L widening project has a moratorium of construction activities within the SR-101L from January to April. The window for construction in this area depends on the time of year and will be limited to a possible weekend closure from 10pm Friday to 4am Monday morning. Lane closures and full freeway closures during construction will be coordinated with and approved by ADOT, the City of Scottsdale, and SRPMIC prior to construction and included in the project special provisions.

Maintenance:

ADOT and SRPMIC will need to coordinate maintenance responsibilities for the pedestrian bridge and pedestrian access ramps which would include graffiti, trash, etc. An IGA will be required between ADOT and SRPMIC to define maintenance responsibilities.

Permitting:

A permit from ADOT would be required for work within the SR-101L corridor which also requires a review of design.

ADOT Comments to the Concepts:

ADOT's initial comments focused on Option Alignment No. 1 – A (spanning over both the Northbound and Southbound lanes without any pier column in the median of the SR-101L). The current SR-101L widening project includes placing new AR-ACFC and installation of a middle pier would cause damage to this new surfacing. ADOT review the lights and signs and at this time they do not see any conflicts, however the future pedestrian bridge alignment will need to look at the placement of new freeway signs.

Next Steps:

SRPMIC plans on having a Design Concept Report completed to further investigate the proposed alignments and to continue coordination with ADOT. The Design Concept Report outcome would provide a recommended alternative which could move forward into final design.

Planning Level Cost Estimate

The following opinion of probable costs have been developed from each of the four concepts utilizing a cost per square foot estimate which incorporates the trust spans and approach ramps, piers, concrete pathway tie-in connections. Due to the planning level of this project assessment a 20% contingency has been included within the estimates.

Alignment No. 1-A

Alignment No. '1A':		
Total Area =	14,308	SF
Est. Cost per SF =	\$250	\$/SF
ROW / Easement Acquisition Area	39,716	SF
Est. Cost per SF =	\$20	\$/SF
Total Cost =	\$4,402,015.56	
Contingency =	\$880,403	20%
Total =	\$5,282,418.68	

Alignment No. 2-A

Alignment No. '2A':		
Total Area =	13,916	SF
Est. Cost per SF =	\$250	\$/SF
ROW / Easement Acquisition Area	34,283	SF
Est. Cost per SF =	\$20	\$/SF
Total Cost =	\$4,195,355.56	
Contingency =	\$839,071	20%
Total =	\$5,034,426.68	

Alignment No. 1-B

Alignment No. '1B':		
Total Area =	14,182	SF
Est. Cost per SF =	\$250	\$/SF
ROW / Easement Acquisition Area	39,716	SF
Est. Cost per SF =	\$20	\$/SF
Total Cost =	\$4,370,515.56	
Contingency =	\$874,103	20%
Total =	\$5,244,618.68	

Alignment No. 2-B

Alignment No. '2B':		
Total Area =	14,084	SF
Est. Cost per SF =	\$250	\$/SF
ROW / Easement Acquisition Area	34,283	SF
Est. Cost per SF =	\$20	\$/SF
Total Cost =	\$4,237,355.56	
Contingency =	\$847,471	20%
Total =	\$5,084,826.68	