INTRODUCTION

Three workshop meetings were held to discuss the proposed bridge over the Los Angeles River and solicit input from the stakeholders and community on the design. The first meeting was dedicated to showing potential bridge options; the second to provide preliminary concepts based on input from the first meeting; and the third was to present the final preferred alternative based on stakeholder response to the alternative from the second meeting. Although the third meeting presented a final preferred alternative, the basis for the final type selection will need to include cost considerations as determined by the City. In addition, interim workshops were held with City staff to evaluate alternatives.
Workshop 1

September 11, 2014

Workshop 1 was a general presentation of bridges and possible bridge types for the site. Some possible bridges presented were the arch bridge with solar panels, as shown on the following page. A suspension bridge, cable-stayed bridges, a stress ribbon arch, and a space truss were also presented, as shown on the following pages.

These bridge alternatives were originally developed during the proposal phase of the project. They were meant to be a basis for discussion of the site context and to help to formulate ideas as moved to the concepts as ultimately presented during Workshop 2.
**Solar Arch – Version 1**

This is the first appearance of the solar arch where we explored which surfaces were ideal for optimizing solar incident angles onto the photovoltaic cells, therefore creating the most energy for its particular configuration. The arch members function dually to clear span the river but also provides the outer boundary control for which orientation would best provide shade, viewshed, and solar energy production.
**Solar Arch – Version 2**

This next iteration of the solar arch coincides with the change in orientation and location of the bridge. In the previous version, the bridge was oriented along more of an east-west axis making a south-facing facade more ideal for solar energy production. This version was oriented along a north-south axis making the roof more of an ideal location to optimize solar incident angle. The placement of these panels in turn provide more shade and the structural arrangement of the truss allows for a center lane of circulation with two spaces for contemplation along the exterior.
SPACE TRUSS

The space truss was inspired by the older 1920's bridges that cross the Los Angeles River and was also greatly impacted by the site's adjacency to the Los Angeles Zoo. The smooth articulation of the ribs below the deck was meant to be reminiscent of whale and animal vertebrae often seen at the zoo and the La Brea Tar Pits.
STRESS ARCH

The stress arch was dreamt as a low-impact, low visibility option where precedence was placed on the surrounding environment. Its unique structural typology provides a playful vertical curve that is reminiscent of rope and plank bridges often used nature environments on a small scale.
Asymmetric Suspension

The asymmetric suspension bridge provides an instantly recognizable iconic pylon with an experiential array of cables to frame views as users progress along the length of the bridge. The asymmetric loading of the suspension cables provide a dramatically different viewshed downstream as it does from upstream, thereby creating a dynamic experience.
Cable Stay – Version 1

This cable stay option provides a gateway entrance defined by a delta frame arch and a unique array of cables as they touchdown to the ground plane. An instant icon, this option gives bias toward Glendale while at the same time gesturing toward the city of angles and the Ferraro soccer fields.
CABLE STAY – VERSION 2

Similar to the prior version, this cable stay alternative twists its cables as they anchor back into the ground. However, this version forces users to enter from the sides rather than straight on, creating a face-to-face entrance and encouraging interaction amongst users.
**Dog Leg Cable Stay**

This cable stay alternative takes advantage of the channel’s vertical retaining wall to disguise the emergence of the pylon, thereby creating a level of intrigue as users progress across the length of the bridge. The single plane of cables along the central axis bifurcates the path, creating two distinctly different experiences traveling from Glendale to the Ferraro Soccer fields and back.
**Symmetric Suspension**

This option is a spin-off of the asymmetric suspension bridge and differs only in that the single path simply mirrors about its central axis, creating a dynamic experience as the user crosses from one side to the other. The split in the deck creates two points to access the bridge from Glendale, culminating in a larger plaza entrance on the Los Angeles side of the river.
October 29, 2014

The second workshop presented eight options displaying a wide variety of bridge alternatives based on input from the first workshop. The selected site location at Flower Street was presented with the landing on the Glendale side as depicted here.

Based on comments from the first stakeholder meeting, a cable-supported structure was not the preferred alternative for the site. However, alternatives were developed to explore the site context. An alternative that makes the bridge into a park space was also studied, a “Garden Bridge.” In addition, arches and a box girder bridge were developed.
**THE EYE – OPTION A**

This option has a cable-supported arch clear spanning the river. The curvilinear path and cable configuration provides a dramatic experience for the user walking under the cables, as well as for those viewing the bridge from the freeway or parks.
Solar Arch – Option B

This option is an arch bridge with solar panels. The low-profile arch, clear spanning the river, is minimalistic and graceful. The panels provide a sheltered area and could also power lighting on the bridge at night or feed power back to the grid.
This cable-stayed bridge has one pier in the river. The crossing of paths provide a very dynamic experience for the user while the tower height gives the structure a landmark feeling.
THE GARDEN — OPTION D

The Garden Bridge is meant to be an extension of the parks and provide a space for users on the bridge. The main feature of this option are two planted and seated areas in large overlooks, offering views of the river. The curves in the bridge add to the user experience.
Concrete Truss – Option E

This two-span arch has architectural ties to other bridges over the Los Angeles River. The inclined arches open the space and allow views of the river.
S-Curve – Option F

The asymmetric arch has the dynamic and flowing feel of the river. The depth of the arch varies along the bridge length, not only adding experience for pedestrians, but also is a simple but unique form for observers off of the bridge.
Asymmetrical Beam – Option G

This simple box bridge is enhanced with a canopy to provide shelter and experience. The shadowing changes the experience throughout the day and lighting at night offers an exciting element for users and observers.
MESH HAUNCH – OPTION H

This standard two-span box girder bridge is enhanced with organic forms. The central pier is tapered to flow into the haunched soffit of the bridge.
Based on comments from the first stakeholder meeting, a cable supported structure was not the preferred alternative for the site. However, alternatives were developed to explore the site context. An alternative that makes the bridge into a park space was also studied, a “Garden Bridge.” In addition arches and a box girder bridge were developed.

The four preferred alternatives are shown here. The workshop participants were able to express their preferences for the various bridges using colored post-it dots they could place on the renderings. Green was a favored bridge; blue was neutral; and red was not favored.
WORKSHOP 3

December 11, 2014

The Garden Bridge was the public’s preferred alternative in Workshop 2. The concept was further refined and presented in Workshop 3. It consists of a 320-foot, two-span concrete curvilinear structure, with a nominal width of 14 feet, with two canopied seating areas. The 45-foot-wide seating areas, or ‘pods’, offer viewing of the river and a continuation of the parks on the Glendale and Los Angeles sides of the river, with the canopies providing shading and space. The canopies can also include planting or solar paneling while lighting can be incorporated to enhance the user experience and make the structure a landmark viewed from the parks or the freeway.

Various options for the canopies were explored, including a steel trellis and tensile structure. These can incorporate planting over the structure. To provide a more open area, pod areas without canopies were also studied. Additionally, the concrete bridge superstructure can be patterned and colored to enhance the aesthetics of the bridge.

Between Workshop 2 and 3, refinements to the pod areas were studied to enhance these spaces. An array of designs for the canopies were studied, as depicted on the following pages. Lighting was also conceptually studied and renderings of possible nighttime scenarios were presented.

Because it is possible the Army Corps of Engineers will not allow piers in the river, the Solar Arch alternative, clear spanning the river, was further developed as shown in Appendix B. Although this alternative was not presented at Workshop 3, it was further considered as an alternative to the Garden Bridge.

Although the Garden Bridge was the preferred alternative, its higher cost may challenge funding opportunities; therefore any of the four preferred options could be further explored for development.

Options for a bridge over the Verdugo Wash were also conceptually discussed. The bridge is likely to be a three-span concrete box girder bridge about 190 feet long. It is envisioned to be a 14-foot constant width, with railings and coloration that would mimic the Garden Bridge.
GARDEN BRIDGE SECTIONS & PERSPECTIVES
GARDEN BRIDGE PERSPECTIVES
GARDEN BRIDGE PERSPECTIVES
GARDEN BRIDGE LIGHTING CONCEPTS
Garden Bridge Lighting Concepts
APPENDIX A

The parks on both the Glendale and Los Angeles sides were presented in Workshop 3, as illustrated in this appendix.
Workshop #3 – Park Locations – Proposition 84 – Measure R

Proposition 84 Funded
- Designed in tandem with Bridge design
- Design already underway
- Initial meeting with USACE
- Scheduled for construction start in 2015
- Measure R - Culvert Crossing at Flower Plaza

Glendale Narrows Riverwalk Project - “Jewel at the Bend”
APPENDIX A

GLendale Narrows Riverwalk Phase II

Glendale Narrows Riverwalk Project - “Jewel at the Bend”
Workshop #3 – Confluence Park – existing site views

Glendale Narrows Riverwalk Project - “Jewel at the Bend”
APPENDIX A

CONFLUENCE PARK

Access Road
Native Planting
Interpretive Signage:
"Infrastructure of Circulation"
Future Bridge Landing

Shade Structure
with Vines
Adirondack Chairs
New Guardrail
Communal Table

Concrete Seat Walls
Observation Binoculars
Native Grasses

GLENDALE NARROWS RIVERWALK PROJECT - "JEWEL AT THE BEND"
Workshop #3 — Flower Plaza — Existing Site Views

Glendale Narrows Riverwalk Project - “Jewel at the Bend”
APPENDIX A

FLOWER PLAZA

Culvert Crossing
River Cobble
Native Grasses
Interpretive Signage: “The River Today”

Shade Structure with Vines
Amphitheater Steps
Gateway Sign
Future Bridge Landing
Overlook
Native Grasses

Decomposed Granite
Interpretive Signage: “Infrastructure of Water & Energy”

GLENDALE NARROWS RIVERWALK PROJECT - “JEWEL AT THE BEND”
WORKSHOP #2 - RESULTS

Glendale Narrows Riverwalk Project - “Jewel at the Bend”
APPENDIX A

GARDEN BRIDGE: CANOPY ALTERNATIVES

GLENDALE NARROWS RIVERWALK PROJECT - “JEWEL AT THE BEND”
APPENDIX B

The solar arch, although not presented at Workshop 3, was further studied after Workshop 2. The graceful arch clear spans the river, which may be an option should the Army Corps of Engineers not allow piers in the river. The arch could have solar panels to power lighting or feed back into the electrical grid.
Construction cost estimates were presented to the City on September 24, 2014. An estimate of the construction cost was determined for each of the alternatives presented in Workshop 2.

**APPENDIX C**

CONSTRUCTION COST ESTIMATES

Construction cost estimates are for relative comparison between bridge types only. They do not include:
1. Ramps and approach structures
2. Soft costs
3. Construction support and inspection cost
4. Selection of materials and finishes will have a direct influence on cost
5. Does not account for material escalation
February 23, 2015

Kevin Carter, PE
City of Glendale, California
Public Works Department
Engineering Division
633 East Broadway
Glendale, CA 91206-4388

Subject: GNR Phase III Completion of Bridge Design and next steps

Congratulations to Glendale Public Works department! We’ve completed a significant step in the realization of a dream that has been over 10 years in gestation. With the completion of Workshop #3 on December 11, we reached a milestone on a public outreach journey that started where the 2011 Master Plan ended:

• Our team reached out to community stakeholders to participate in a series of 3 workshops that cumulated in 4 outstanding preferred choices, and a clear favourite for a final bridge design
• To ensure public support, we developed 3 public workshops and invited all stakeholders through a variety of meetings, email blasts, personal visits, community flyers and notices
• Workshop #1 – We updated community and requested their help to analyse 5 different bridge sites outlined in the previous Master Plan. TY Lin then introduced how to think about bridge types, through numerous diagrams
• Workshop #2 – Based on the comments from previous workshop, a preferred bridge location – “Flower Ave” was selected. To compliment this site selection an additional Verdugo Wash bridge is to span Verdugo and connect to North Atwater. TY Lin then presented 8 dynamic and widely different bridge alternatives – and asked for community votes on preferences. 4 were the most preferred, of which the Garden Bridge scheme was the clear favourite.
• Workshop #3 – Presented an update on the two new parks that anchor the future bridge locations -Flower Plaza and Confluence Park. They will complete the Glendale Riverwalk. Finally, we presented the final Garden Bridge design developed from stakeholder preference and design input during Workshop #2.

What are the next steps?
At the close of Workshop #3, we stated that the City’s intention is to complete the construction of the two parks and the pathways which are extremely important assets to the community. This part of the project is already funded. The project team will complete the Bridge options study, and summarize in a report. The team will present the design to the Glendale City Council for their approval. Once this occurs the City will begin to seek grant funding for construction. It is important to note, and we stressed to the community, the uncertainties of grant funding. The City intends to build a bridge, but it will necessarily reflect funding constraints. To that end, the City reserves its option to develop any of the 3 other schemes prioritized in Workshop #2 that may match available funding sources to be able to construct the bridge in a reasonable amount of time.
Atkins and TY Lin are ready to assist the City with the final development of the design, as the grant funding materializes. We look forward to completing this important project for the City and the LA region.

Best regards,

Johannes J Merkler AIA, NCARB  
Project Director, Atkins

Joe Tognoli  
Vice President, TY Lin International