

09 / PROJECTS

SITE DESIGN CONCEPT PROJECTS

SOUTHERN AVENUE CONNECTOR

LA RIVER PLATFORM PARK

RIO HONDO PLATFORM PARK

SOUTH GARFIELD TRANSMISSION RIGHT-OF-WAY PARK

NORTH IMPERIAL TRANSMISSION RIGHT-OF-WAY PARK

SOUTH IMPERIAL TRANSMISSION RIGHT-OF-WAY PARK

CONFLUENCE POINT PARK

BLUE PARK

WATER EDUCATION CENTER

IMPERIAL WETLANDS

SELA BRIDGE PARK

LYNWOOD CONNECTOR

PROJECTS

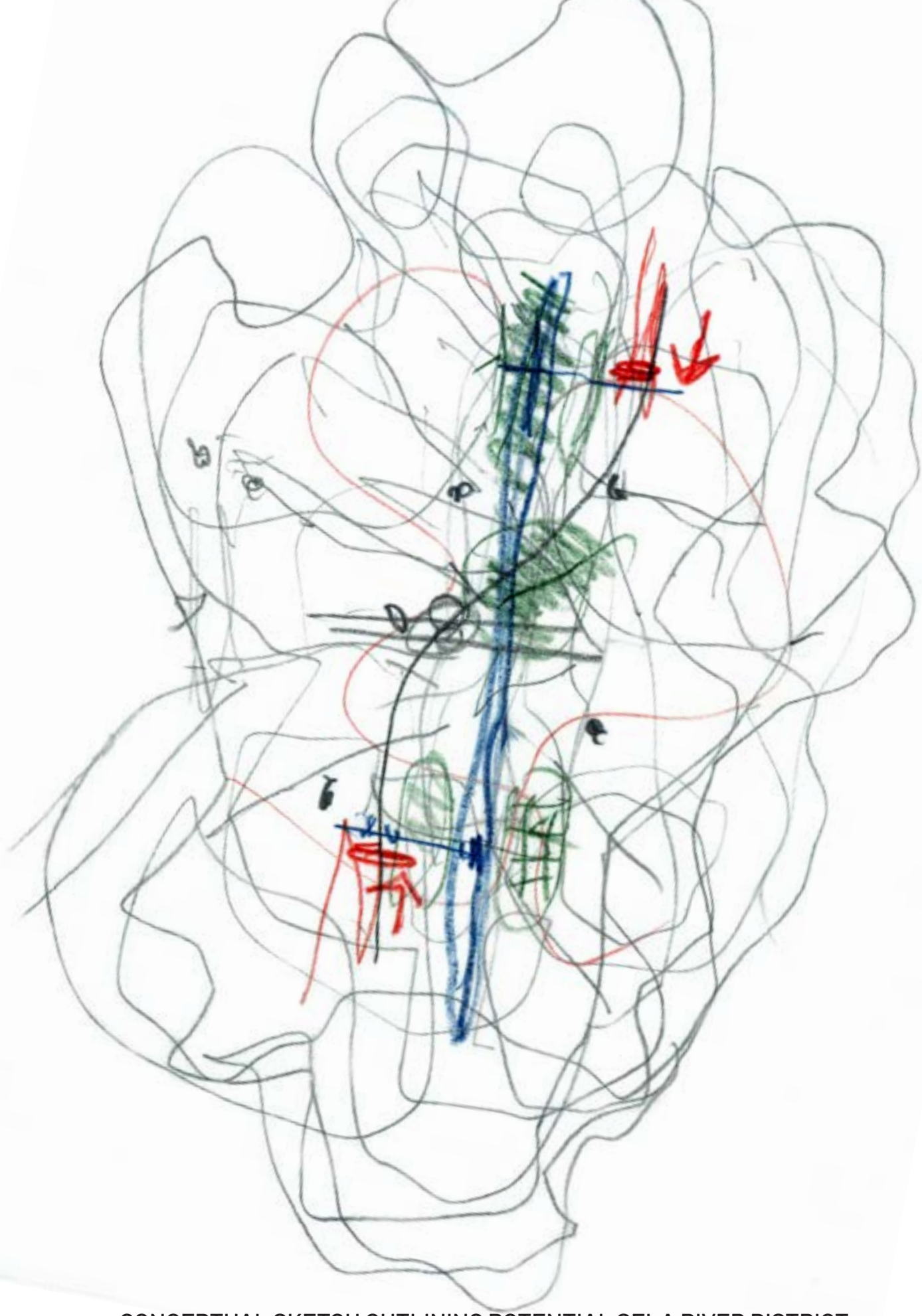
SITE DESIGN CONCEPT

12 OPPORTUNITY AREAS

The 12 Rio Hondo Confluence Area projects would establish an unprecedented system of open space, parks, and amenities along the LA River in Southeast LA. As shown in the sketch to the right, pedestrian and bicycle bridges at the north and south extents of the district will cross the I-710 freeway, proudly announcing the area and the broader LA River corridor. These gateways will bring residents to the river's banks while connecting communities across the very infrastructures that once divided them. More broadly, the projects between the gateway connectors will construct a substantive network of connected parks and trails to form a regional asset for communities that flank the area. The projects work in concert with one another and relate to other ongoing projects, namely the Urban Orchard, Parque Dos Rios, Metro West Santa Ana Branch and the future SELA Cultural Center. In an area that is a largely barren and industrial landscape, the Rio Hondo Confluence Area projects will propel diverse occupations of the river and its adjacent lands, enliven the community with thoughtful, multi-benefit improvements, and form a singular identity of public space, connectivity, and access, along the river and across it.

Twelve distinct projects are contained within this report. Each can be undertaken as a single project or joined with neighboring projects to create a connective open space network.

Projects include low flow modifications for habitat improvement and educational opportunities, wetlands for habitat and water quality improvement, bridges for improved connectivity, multi-benefit parks and trails, and platform parks (large-scale bridge parks) to create new open space, and foster connectivity, ecosystem function, and cultural resources while respecting critical needs, such as flood risk reduction.



CONCEPTUAL SKETCH OUTLINING POTENTIAL SELA RIVER DISTRICT

PROJECTS








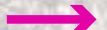
PROJECTS

SITE DESIGN CONCEPT

SOUTH GATE

DOWNEY

LYNWOOD

-  RHCAP Project Opportunity Area
-  RHCAP In-Channel Opportunity Area
-  Gateways
-  SELA River Projects Corridor
-  Future West Santa Ana Branch
-  Approach Via I-710

PROJECTS

12 OPPORTUNITY AREAS

SOUTH GATE

DOWNEY

LYNWOOD

- SOUTHERN AVENUE CONNECTOR
- LA RIVER PLATFORM PARK
- RIO HONDO PLATFORM PARK
- SOUTH GARFIELD TRANSMISSION RIGHT-OF-WAY PARK
- NORTH IMPERIAL TRANSMISSION RIGHT-OF-WAY PARK
- SOUTH IMPERIAL TRANSMISSION RIGHT-OF-WAY PARK
- CONFLUENCE POINT PARK
- BLUE PARK
- WATER EDUCATION CENTER
- IMPERIAL WETLANDS
- SELA BRIDGE PARK
- LYNWOOD CONNECTOR

PROJECTS

SITE DESIGN CONCEPT

The Rio Hondo Confluence Area Project (RHCAP) Concept plan illustrates twelve distinct projects and a connective open space network that can integrate with other projects underway in this area. In total, the various projects of the Site Design Concept could provide approximately 120 acres of new park space with community desired programming and amenities. The following section outlines each project along with the challenges and opportunities that are associated with each typology and site location. Specifics regarding concept design strategies, as well as relevant hydraulic and structural engineering considerations, are described for each project.



PROJECTS

12 PROJECTS

SOUTHERN AVENUE CONNECTOR

LA RIVER PLATFORM PARK

RIO HONDO PLATFORM PARK

SOUTH GARFIELD TRANSMISSION RIGHT-OF-WAY PARK

NORTH IMPERIAL TRANSMISSION RIGHT-OF-WAY PARK

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CONFLUENCE POINT PARK

BLUE PARK

WATER EDUCATION CENTER

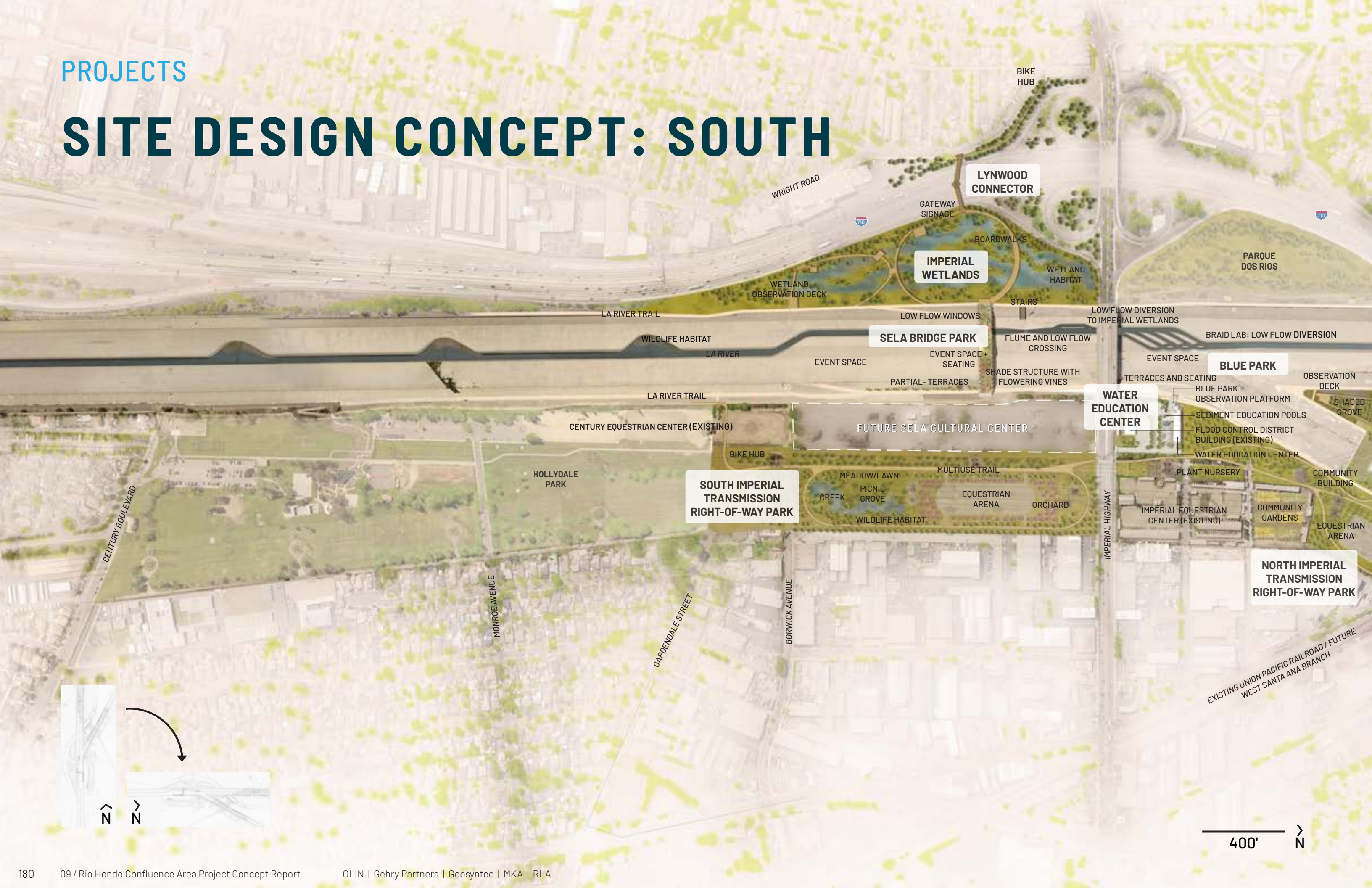
IMPERIAL WETLANDS

SELA BRIDGE PARK

LYNWOOD CONNECTOR

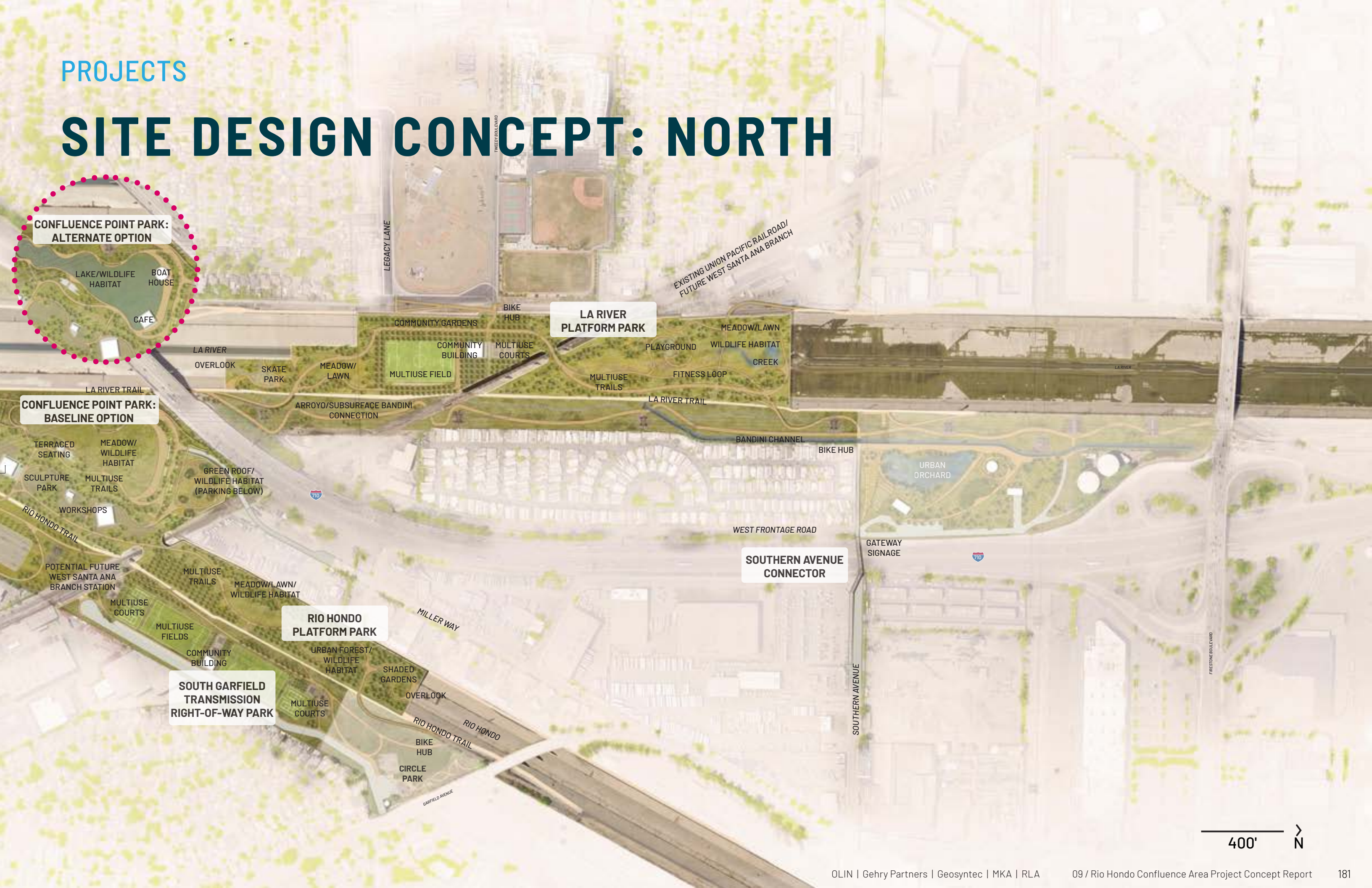
PROJECTS

SITE DESIGN CONCEPT: SOUTH



PROJECTS

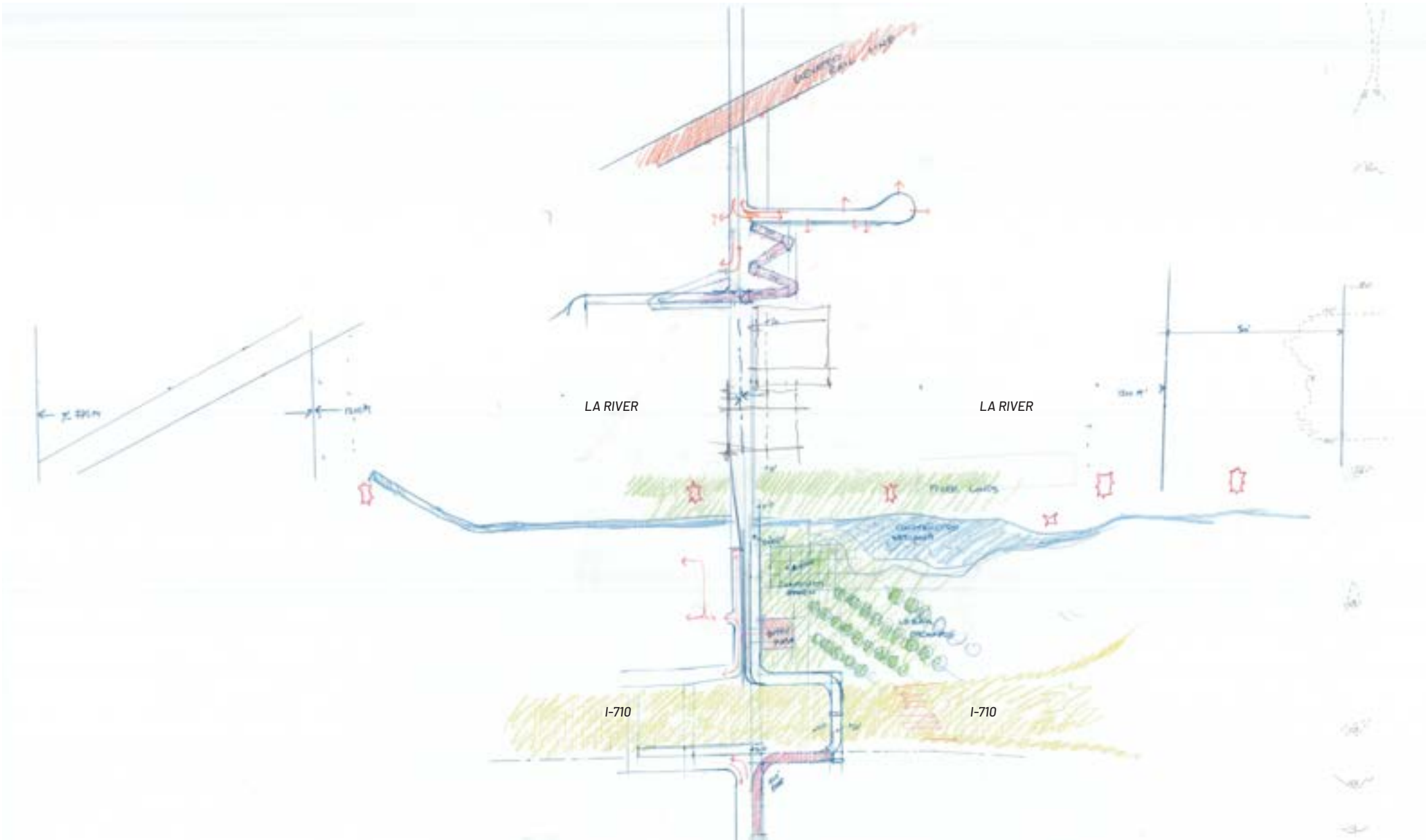
SITE DESIGN CONCEPT: NORTH



SOUTHERN AVENUE CONNECTOR

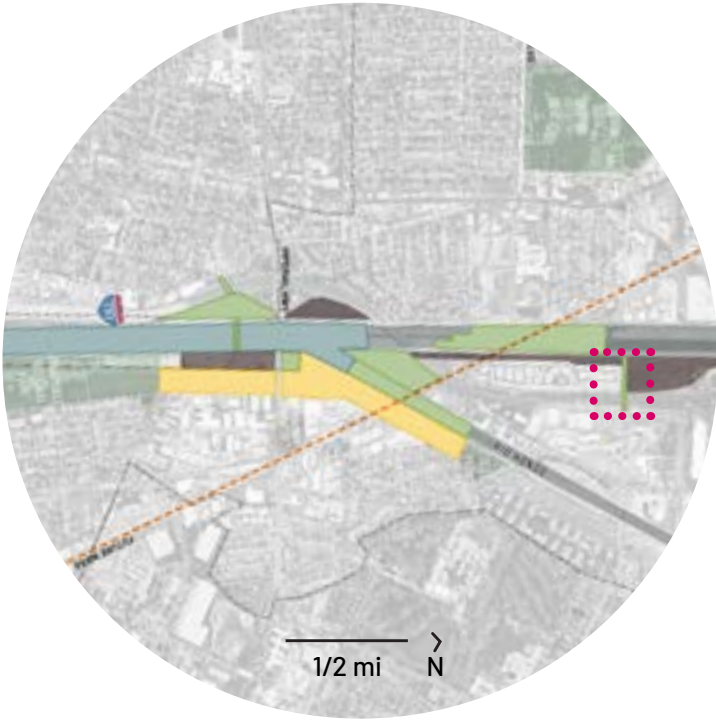
SITE INTRODUCTION

The Southern Avenue Connector will serve as a connection for pedestrians and bicyclists, across the I-710, from the neighborhoods east of the LA River to the Urban Orchard Project, LA River Trail, platform parks, and a rich network of community spaces. The Connector begins on grade on Southern Avenue, east of Frontage Road, and provides access for those travelling from Garfield Avenue and east of the Rio Hondo. The Connector is elevated above the I-710, where there is currently no pedestrian crossing above or below the freeway. The Connector provides access to the Urban Orchard Project, the extended multiuse trail network along the LA River, and also provides access to the LA River Platform Park at its northern end.



PROJECTS

KEY PLAN

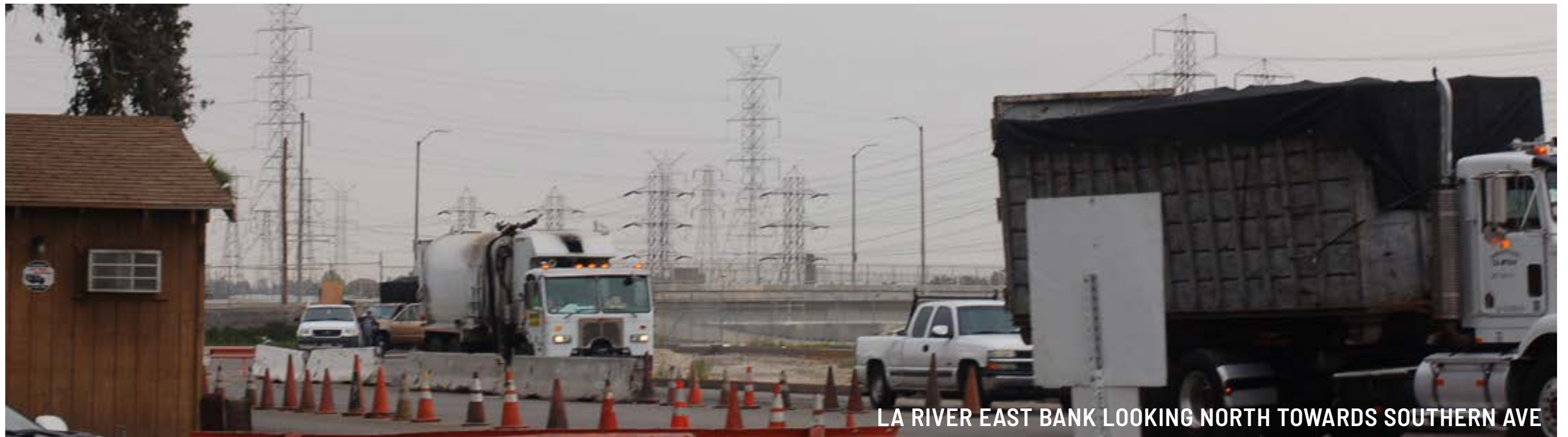


PROJECTS

SOUTHERN AVENUE CONNECTOR

CHALLENGES

- The Southern Avenue Connector will need to be coordinated with the LA River Platform Park.
- Further pedestrian access to the Connector east of the LA River and Rio Hondo to the residential neighborhoods of South Gate and Downey will need to be coordinated through wayfinding and improved sidewalk access through the industrial and commercial parcels between Frontage Road and Garfield Ave



LA RIVER EAST BANK LOOKING NORTH TOWARDS SOUTHERN AVE

Source: OLIN

SOUTHERN AVENUE CONNECTOR

STRUCTURE

The Southern Avenue Connector crosses an overall 200 foot span above the I-710 with an intermediate support at the highway median, and an additional 95 foot span to cross the intersection of Southern Ave and Frontage Rd E. Supported on steel framed elevated structures at the ends for access and concrete pile caps and columns at the center highway median, the spans crossing I-710 and roadway intersection consist of box truss bridges. Intermediate steel framing supporting a composite concrete slab will make up the walkway structure supported by the lower horizontal truss to limit the height required for pedestrians and cyclists to climb. Access ramps to bring pedestrians from grade up to bridge elevations to be steel framed. Secondary framing at bridge pivot point to support signage or art installation for gateway design.

DESIGN

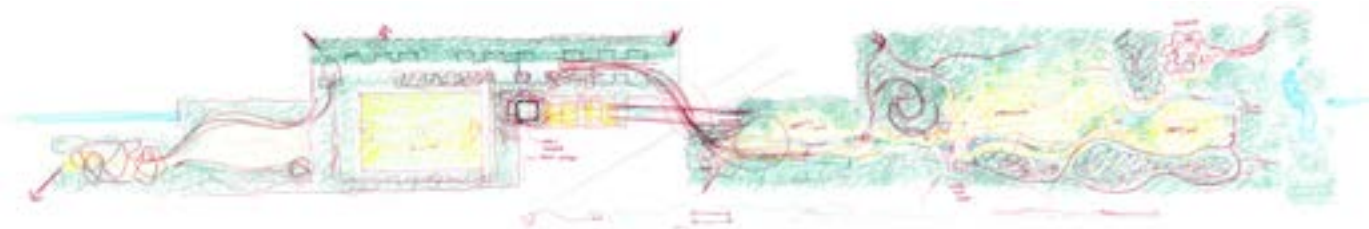
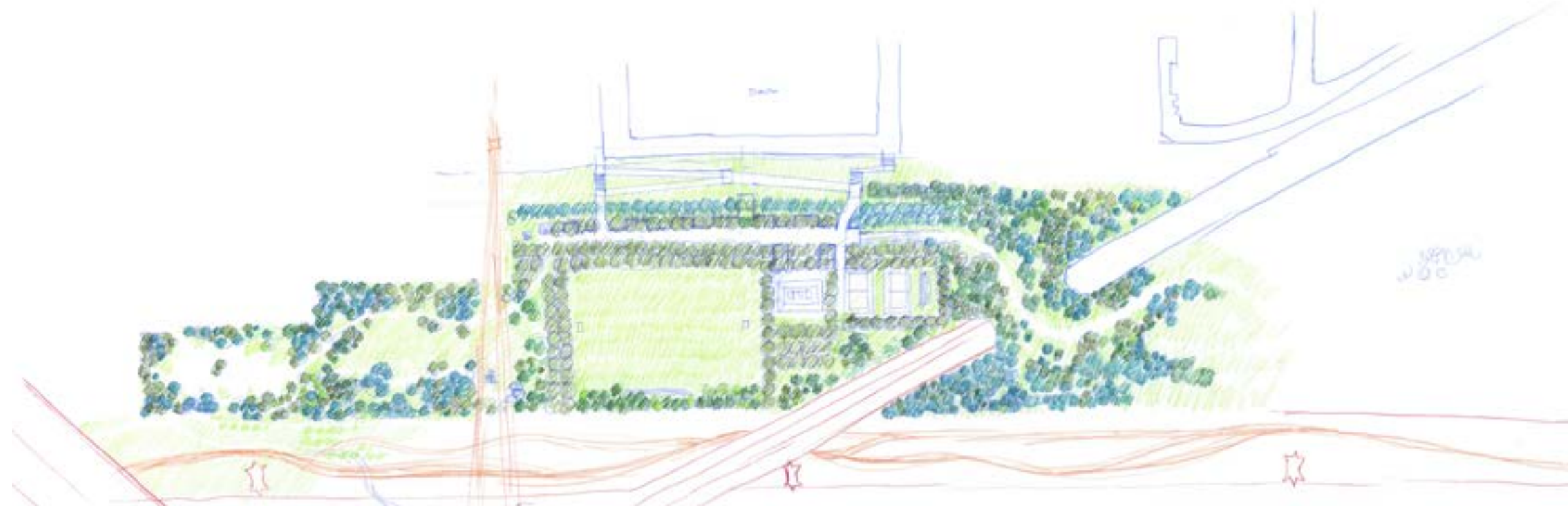
The Southern Avenue Connector provides access across the I-710 from the neighborhoods north and east of the LA River. Like the Lynwood Connector to the south, the Southern Avenue Connector will serve as a visual gateway, announcing the arrival into the Rio Hondo Confluence Area. Considerations for pedestrian and cycling connectivity and wayfinding will provide much-needed accessible linkage to existing and planned trails from communities east of the LA River and the I-710. As the northern gateway to Rio Hondo Confluence Area projects, the Connector will offer a safe and convenient way for pedestrians and cyclists to bridge over existing challenges presented by channel and transportation infrastructure, as well as industrial land use.

PROJECTS

LA RIVER PLATFORM PARK

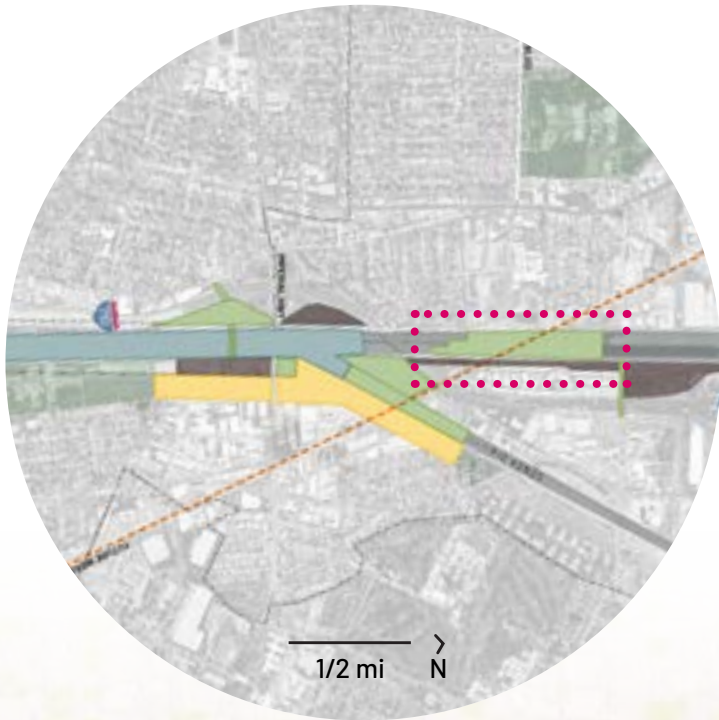
SITE INTRODUCTION

The LA River Platform Park is situated over an approximately 3,200-foot stretch of the LA River. The platform park site is bounded to the north by the LA River channel jurisdiction line between the LACFCD and the USACE. A separate project could potentially extend the platform park north of that line in the future, creating the Southern Avenue Bridge Park. This continuation of the platform would allow for a connection of communities on the east and west of the LA River, in alignment with Southern Avenue. To the south, the platform park boundary is offset a minimum of 300' feet from the nearest platform wall, and staggered away from the residential neighborhoods directly to the west. The eastern and western edges of the platform park are defined by the location of the flood channel parapet walls, or the inner edge of the levee when no parapet walls are present.



PROJECTS

KEY PLAN



CONFLUENCE POINT PARK:
BASELINE OPTION

PROJECTS

LA RIVER PLATFORM PARK

CHALLENGES

A major challenge of the LA River Platform Park is the coordination of the existing UPRR and future Metro WSAB line, which will have significant implications on the hydraulics, structure, and pedestrian access. The design of the platform park must allow for easy visitor access over this rail corridor in order to maintain continuity across the park experience. The Design Team has developed two distinct options for how the platform park will coordinate with these rail crossings. Option A, assumes full replacement of the UPRR bridge and Metro WSAB addition. Option B, assumes the Metro WSAB crossing will be an extension of the existing

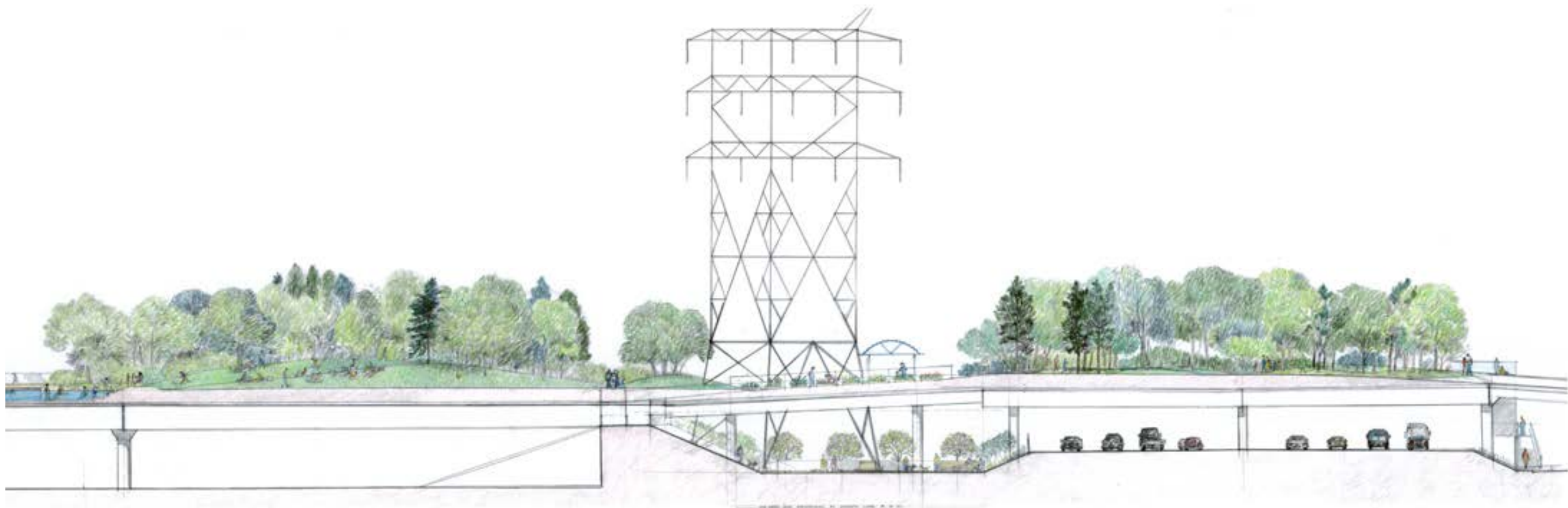
UPRR bridge crossing. Furthermore, as the platform park will need to be positioned above the LA River channel and the surrounding grade, the western and eastern edges of the platform park will need to be designed in such a way as to achieve an acceptable visual impact for the surrounding residential neighborhoods. The design will need to find ways to create convenient access and connectivity to and from the platform park, as well as between the northern and southern portions of the platform park.



CONCEPTUAL SECTION

LA RIVER

PROJECTS

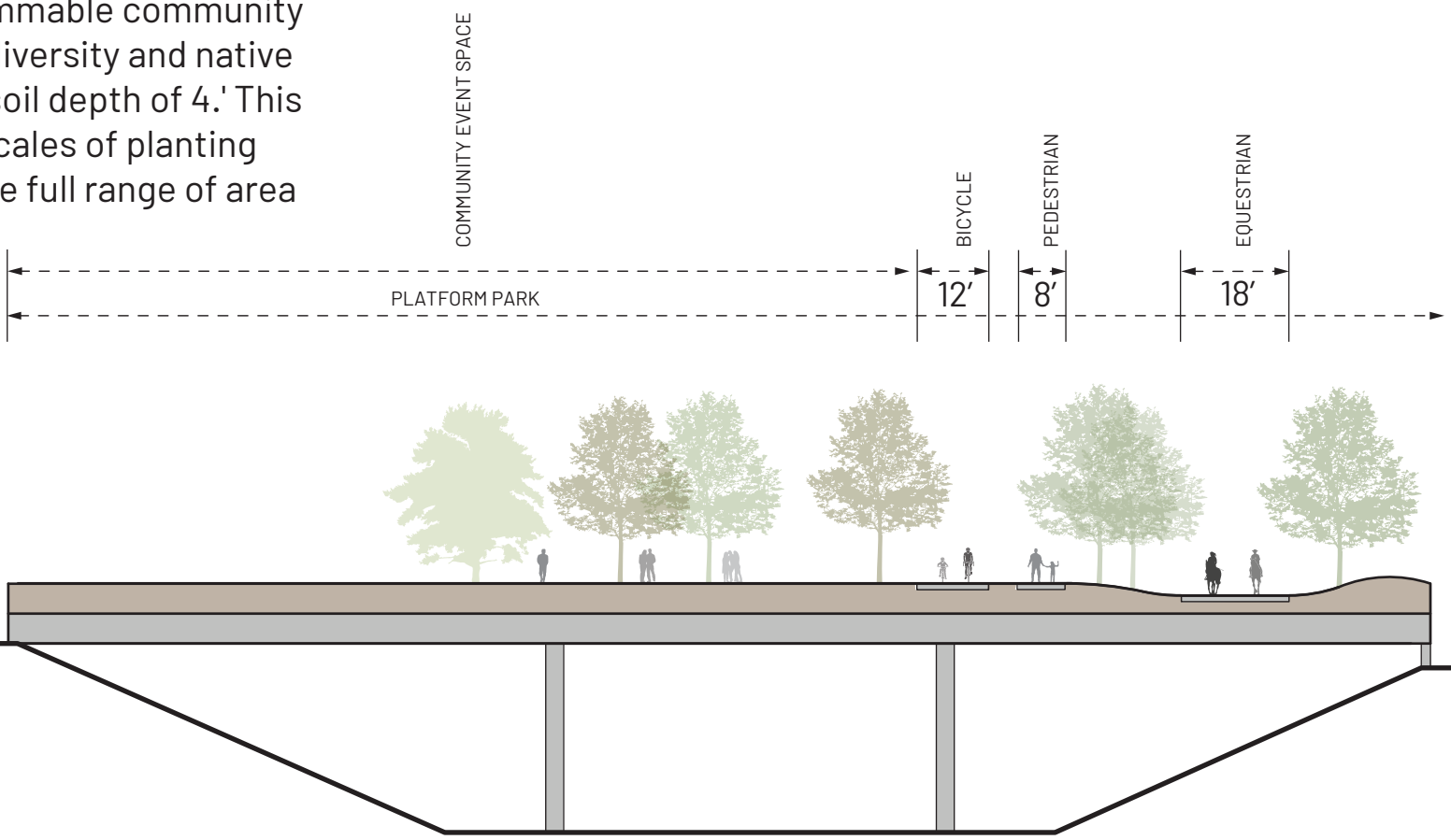


710 FREEWAY

LA RIVER PLATFORM PARK

PLATFORM STRATEGIES

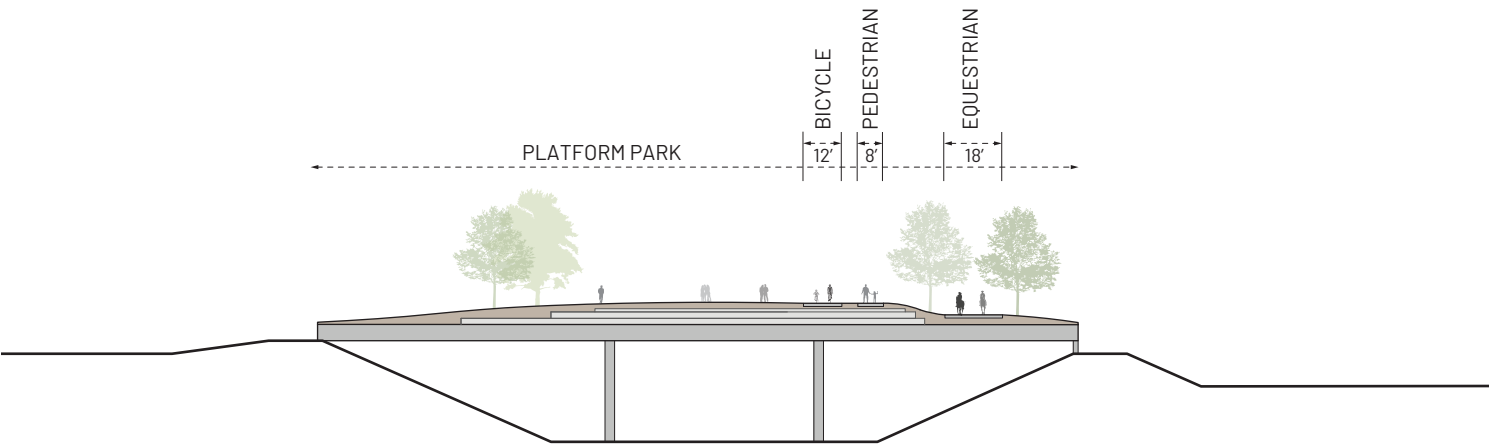
The baseline condition provides a park dimensional width from 200 to 450' wide in cross-section. The dimension provides ample room for trail separations between pedestrians, cyclists, and equestrians and for natural and recreational open spaces. The design of the structure is capable of supporting loads for programmable community events and is built to support planting diversity and native ecosystems by incorporating a typical soil depth of 4'. This will enable the platform to support all scales of planting diversity from canopy shade trees to the full range of area appropriate native LA River flora.



BASELINE CONDITION

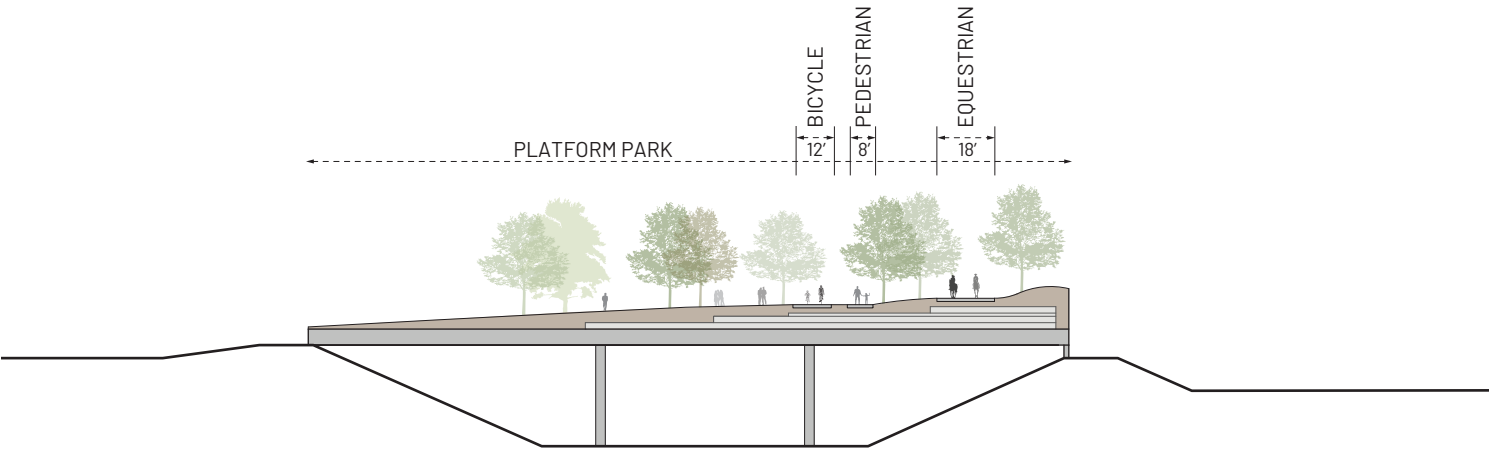
Level platform with maximum soil depth of 4' throughout.

LA RIVER PLATFORM PARK



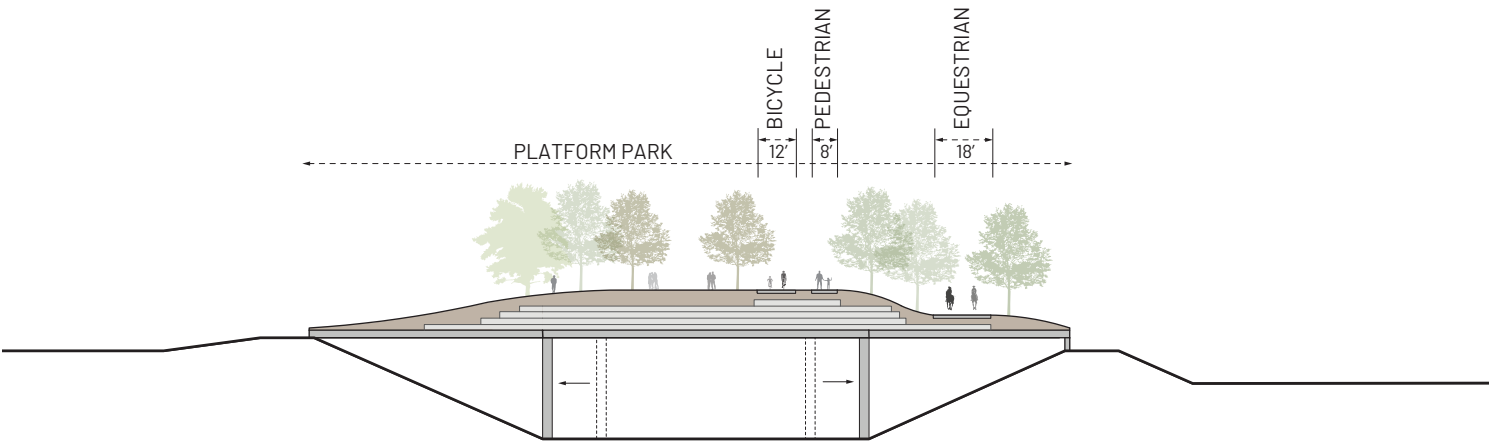
TAPERED EDGES

Slope the outer edges of the landscape downward, decreasing the height of platform and amount of soil used.



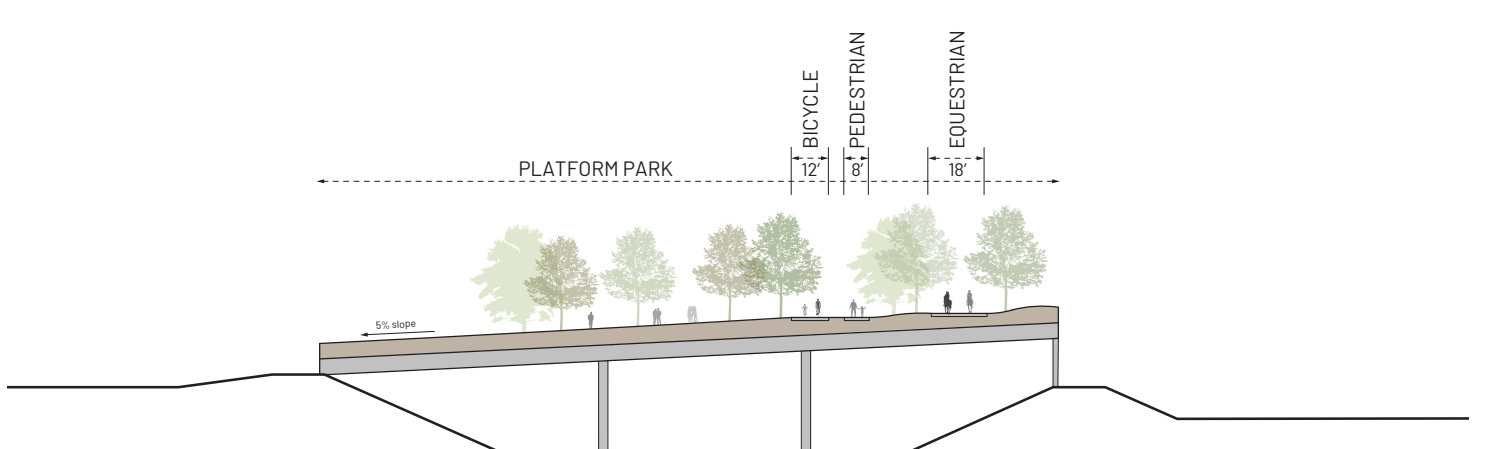
TILTED LANDSCAPE

Keep structure level, and increase the height of one side of the landscape, sloping the platform in one direction.



TAPERED STRUCTURE

Slope the outer edges of the platform downward by increasing height at the center of the structure and moving support walls outward.



TILTED STRUCTURE

Increase the height of one side of structure, sloping the entire platform in one direction.

PROJECTS

LA RIVER PLATFORM PARK

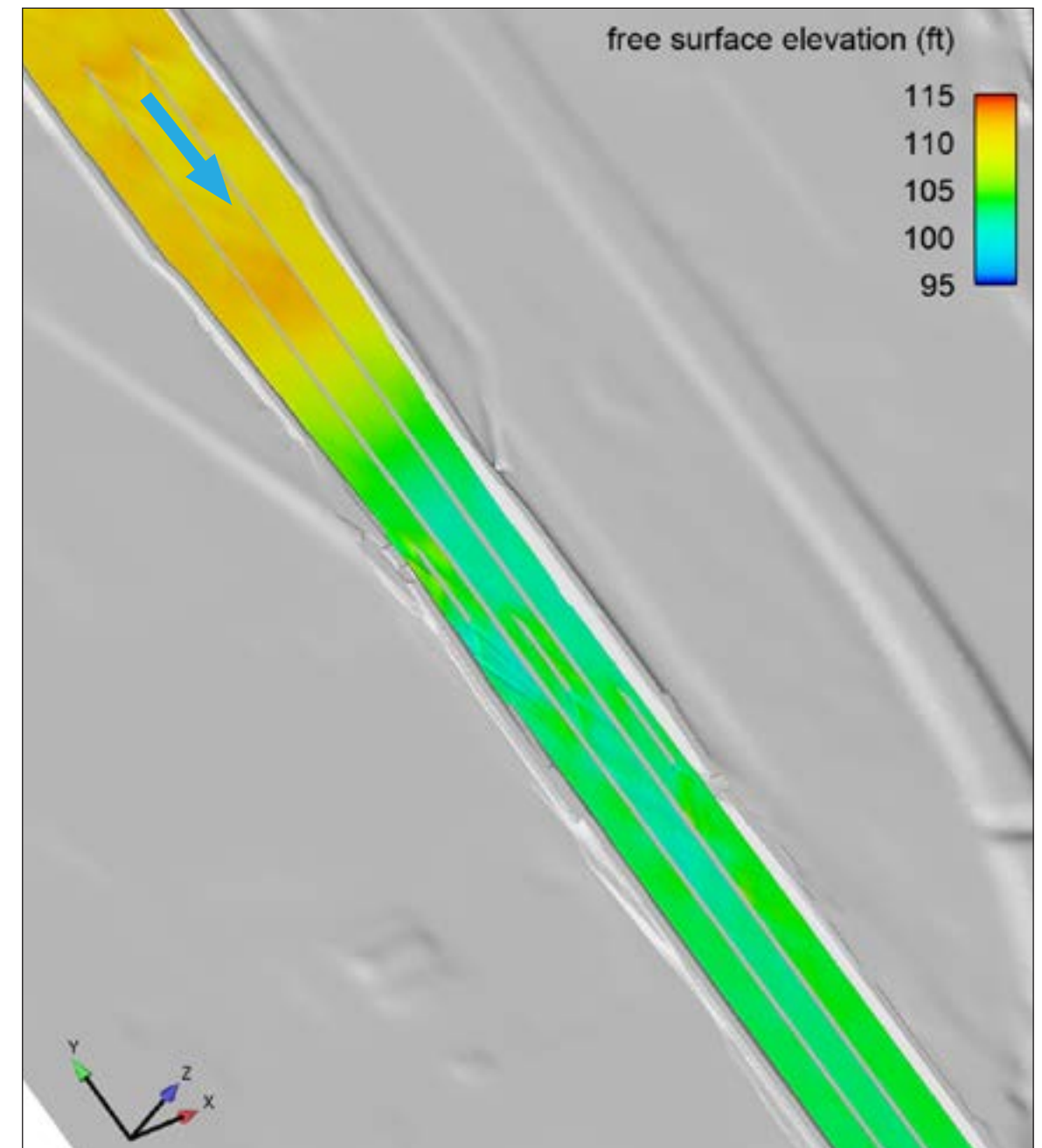
HYDRAULICS

Feasibility and conceptual design of project elements summarized below are based upon 3D hydraulic modeling analyses. An emphasis was placed on minimizing impacts to the design water surface elevation, and coordination with USACE will be required during future design phases.

OPTION A: Rebuilding the UPRR bridge will enable the existing rail crossing and the Metro WSAB to be raised above the design flow event and built with the platform, thereby minimizing hydraulic impacts. This would enable a continuous platform and relatively equally spaced support walls.

- Flow patterns from an initialization model without bridges were used to optimize the wall positions to equalize water surface elevations across the bays.
- Additional piers to support the WSAB Crossing were included in the model.
- The support walls may have to be locally thickened (i.e., greater than ~3') to support the rail load, and this has not yet been assessed hydraulically.

Modeled free surface elevation for LAR Platform Park support walls for the LAR design peak flow conditions (~0.2% event). Model results indicate flows are contained within the channel and below the platform deck.



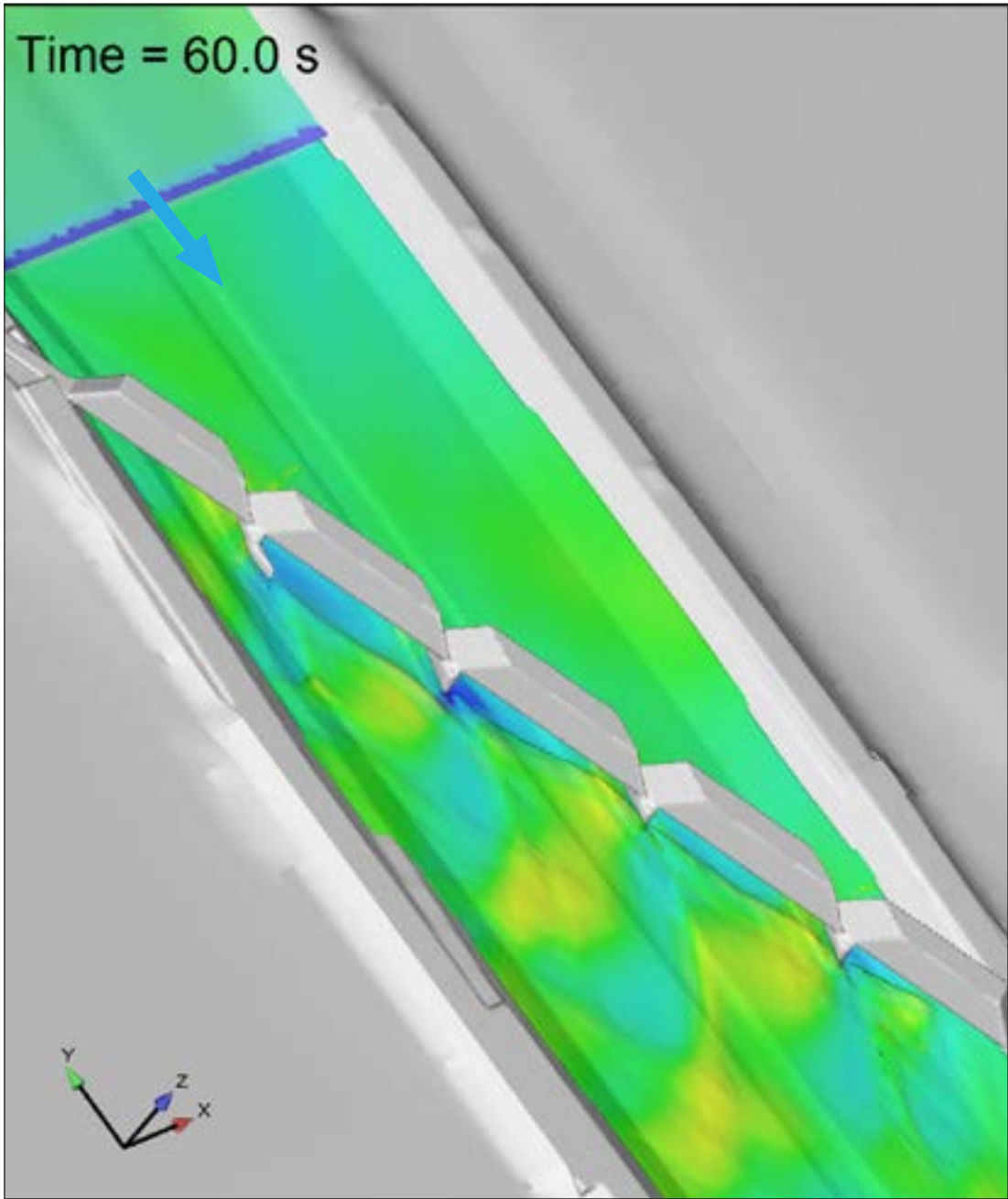
Platform Model: Free Surface Elevation

LA RIVER PLATFORM PARK

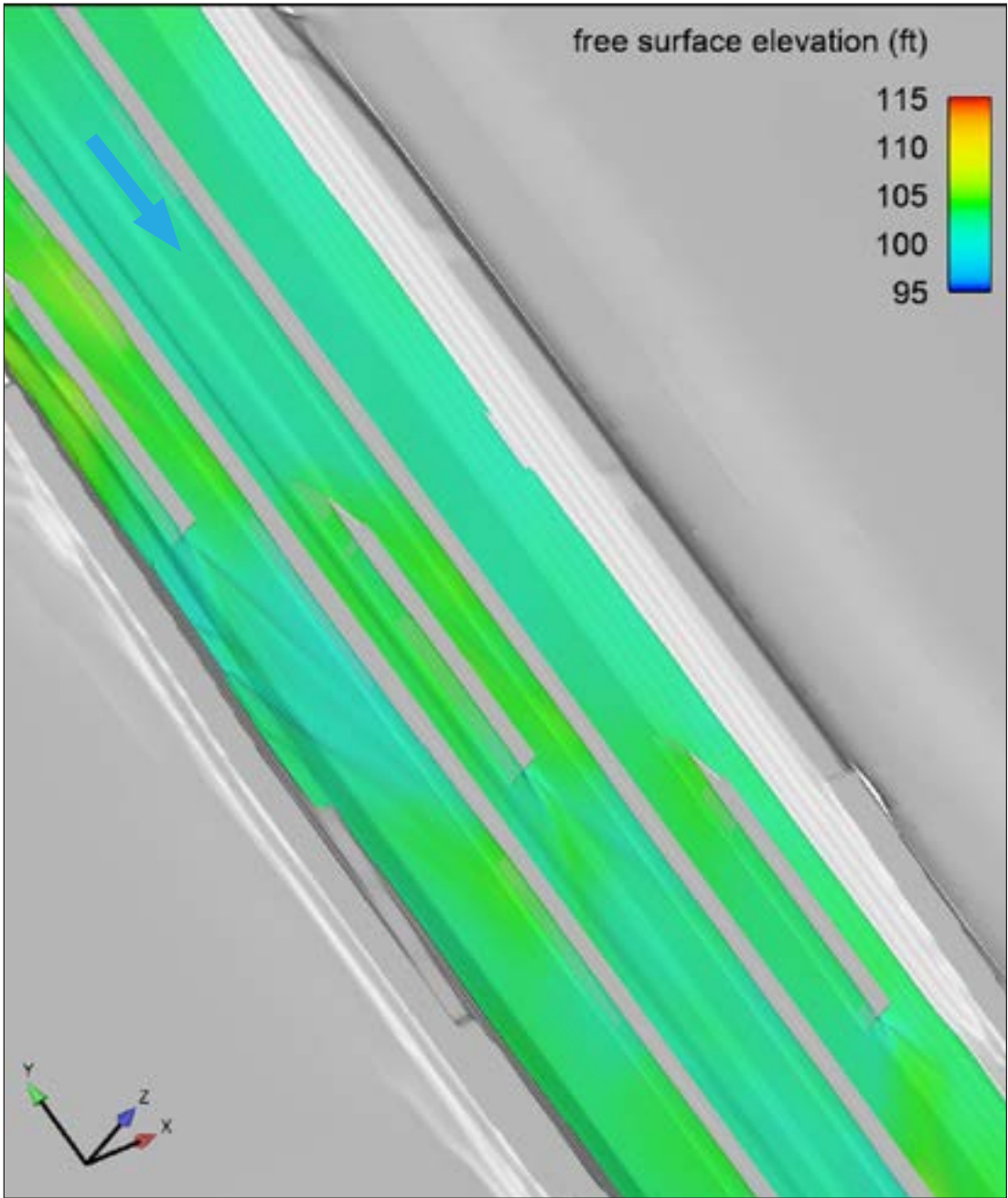
HYDRAULICS

Option A provides the opportunity to improve the hydraulics through removal and rebuilding the UPRR/WSAB Crossing.

Modeled free surface elevation for baseline (left) and LAR Platform Park support walls (right) for the LA River design peak flow conditions (~0.2% event). Model results indicate similar free surface elevations for both conditions with the flow being contained in the channel. The position of the platform walls were designed and optimized to achieve relatively equal free surface elevations within each of the three bays.



Baseline Model: Free Surface Elevation



Platform Model: Free Surface Elevation

LA RIVER PLATFORM PARK

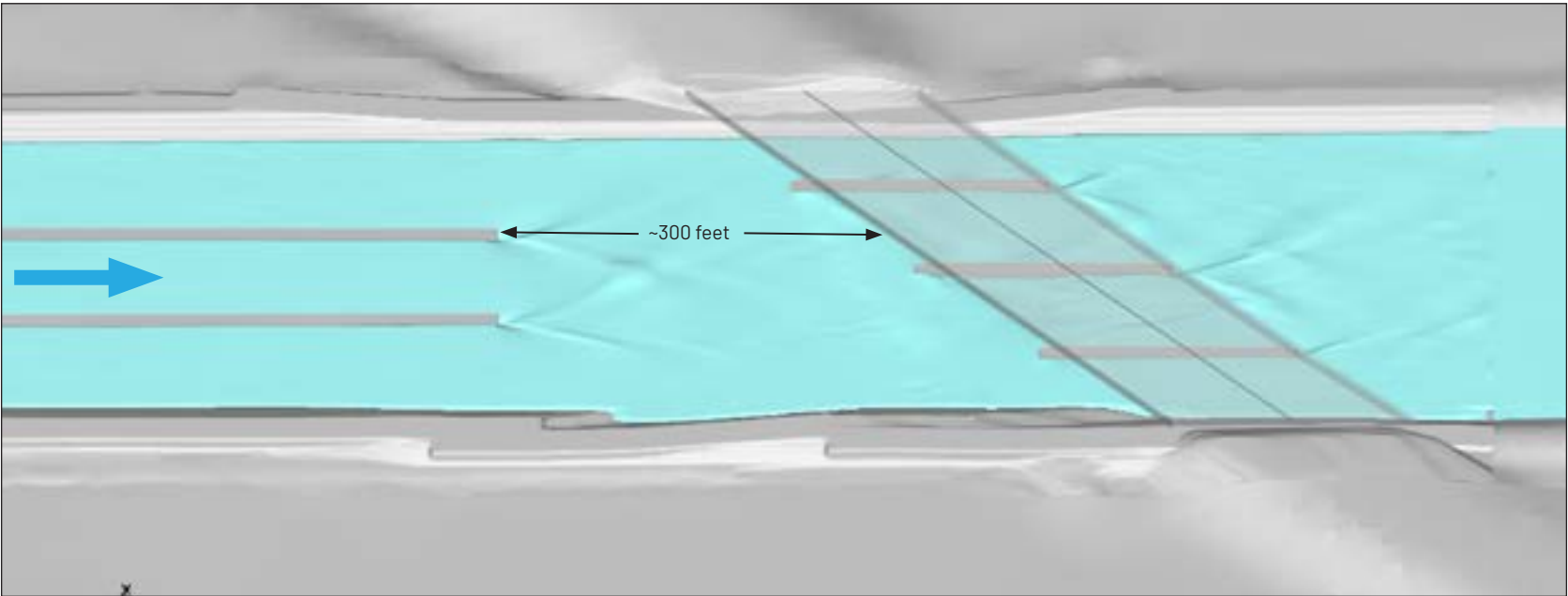
HYDRAULICS

KEY FINDINGS

- Upstream of the UPRR bridge, the existing channel contracts and is steeper. Within this “chute” the support walls will need to contract to match the channel contraction (i.e., so flow areas within the three bays get narrower at approximately the same rate).
- The downstream end of the platform will terminate a safe distance away from the I-710 freeway bridge to reduce impacts to the flow upstream of the existing bridge. Computational Fluid Dynamics (CFD) modeling indicated that about 300 feet between the I-710 bridge deck and the nearest platform support wall is sufficient

distance.

- The existing UPRR bridge deck sits within the floodway below the elevation of the parapet walls and USACE noted it would be impacted during high flow flood events. This provides a substantial hydraulic constraint. Ideally, this bridge will be re-built as the additional Metro WSAB lines are added (Option A), but it is possible that the existing bridge will be retained (Option B).
- The channel side slopes may require modification from grouted stone to smooth concrete throughout the platform extent to offset the slight reduction in capacity caused by the support walls. This smoothing was included in the CFD model.



Platform Model: Free Surface Rendering

LA RIVER PLATFORM PARK

HYDRAULICS

OPTION B: If the UPRR bridge remains in place, the hydraulics become more complex. This option was not modeled using CFD in this phase, but CFD modeling should be done if this option is evaluated in future phases. The following interim hydraulic considerations are provided:

- It will likely be necessary to hydraulically merge the platform support walls to the existing two central bridge piers (while maintaining a seismic gap for structural purposes). This will require gradual transition from ~3' wall thickness to the ~9.5' pier thickness.
- The bridge piers are not perfectly aligned with the channel, and this results in a slight 'kink' as the support walls pass under the UPRR bridge. This may be able to be mitigated by aligning the walls with the centroid of the bridge piers (rather than the center of the ends of the piers), but this would require additional thickening of the walls around the piers that would cause additional constriction of the flow.
- The two outer bridge piers will have hydraulic impacts on flow in the outer channels that may have to be mitigated (e.g., by increasing the center spacing of the walls upstream to force more water into the central bay).
- Gaps between select platform girders above the parapet wall will need to be left open near the UPRR bridge in order to allow for intermittent wave runup and prevent pressurization of the platform during the design storm event.

PROJECTS

LA RIVER PLATFORM PARK

STRUCTURE



LA RIVER WEST BANK LOOKING SOUTH TOWARDS UPRR BRIDGE

Source: OLIN

LA RIVER PLATFORM PARK

STRUCTURE

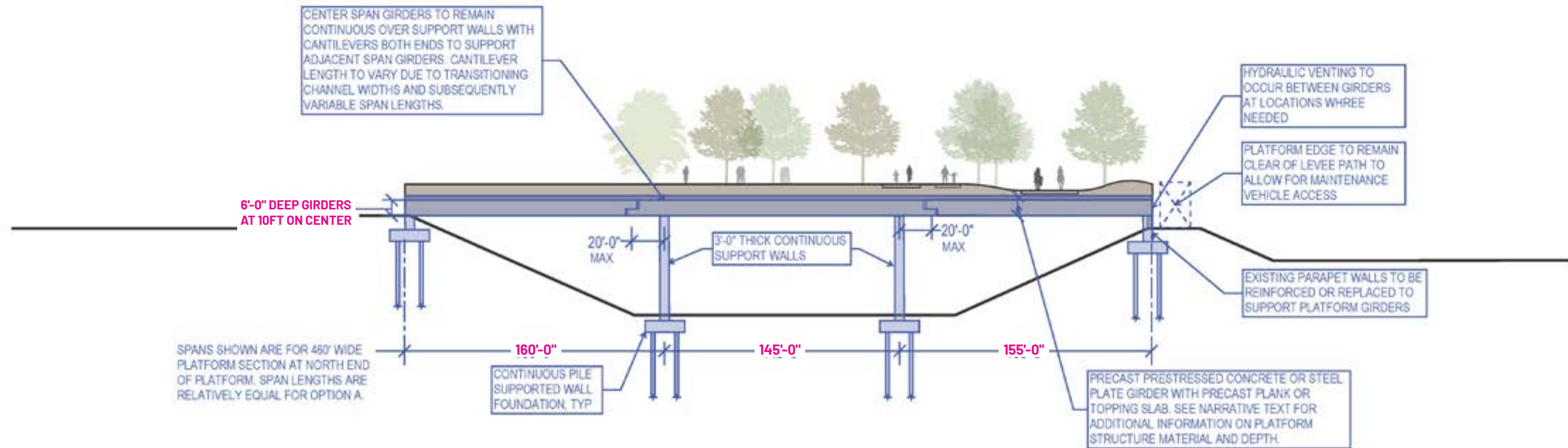
Conceptual design for the structure of the LA River Platform Park is summarized below.

KEY FINDINGS

- Throughout the concept design phase, various structural systems to support the platform park have been considered. These systems include the following:
 - › Precast pre-stressed concrete Deck Bulb Tee girders with top flange of girder forming slab, connected with a topping slab
 - › Precast pre-stressed concrete I-shaped girders supporting precast plank slab
 - › Built up steel plate girders supporting precast plank slab
- Selection of the structural framing system depends on future studies on the cost effectiveness and constructibility of each one, but the approximate girder depths studied for this report applies to all three systems. Note that in addition to the girder depth, a precast plank slab would account for ~8"-12" of added structural depth and the topping slab would account for 4" of added structural depth.
- Long-span girders to be supported by two continuous walls within the channel and reinforced parapet walls along the levee at each side of the channel.
- For three-span conditions, center span may remain continuous over wall supports and extend up to 20 feet past support as cantilevers. Exterior spans to be supported at end of cantilevers with bearing splice connections. This alternative to three simply-supported spans reduces support complexities, results in more efficient girder design, and may allow for more repetition in girder lengths as support walls.

LA RIVER PLATFORM PARK

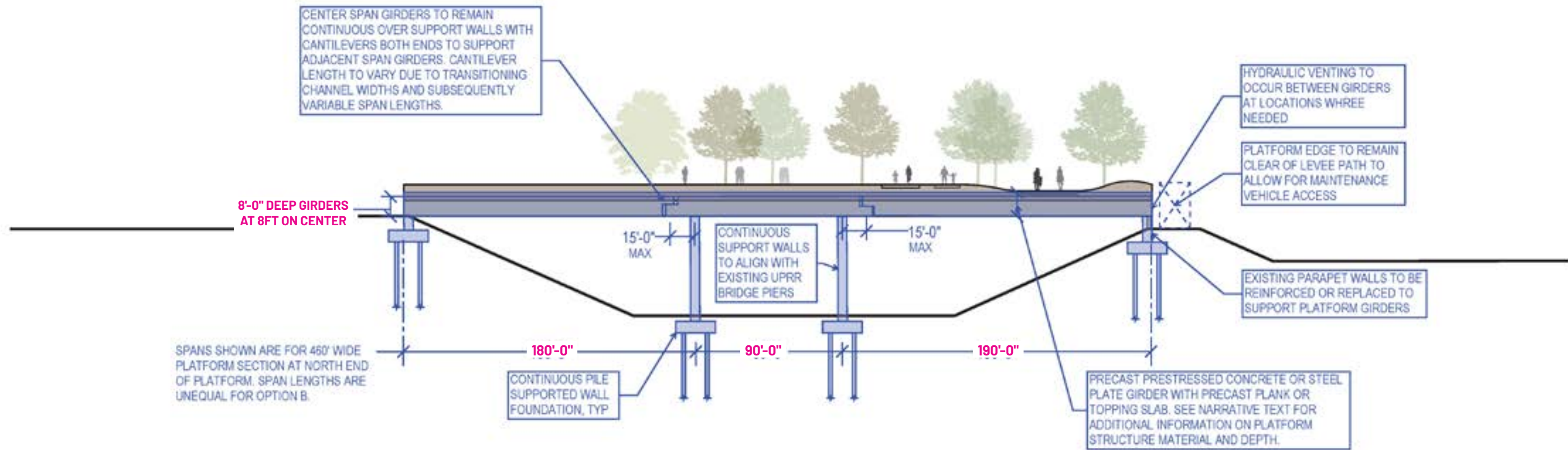
STRUCTURE



OPTION A: FULL UPRR REPLACEMENT

LA RIVER PLATFORM PARK

STRUCTURE



OPTION B: EXISTING UPRR TO REMAIN

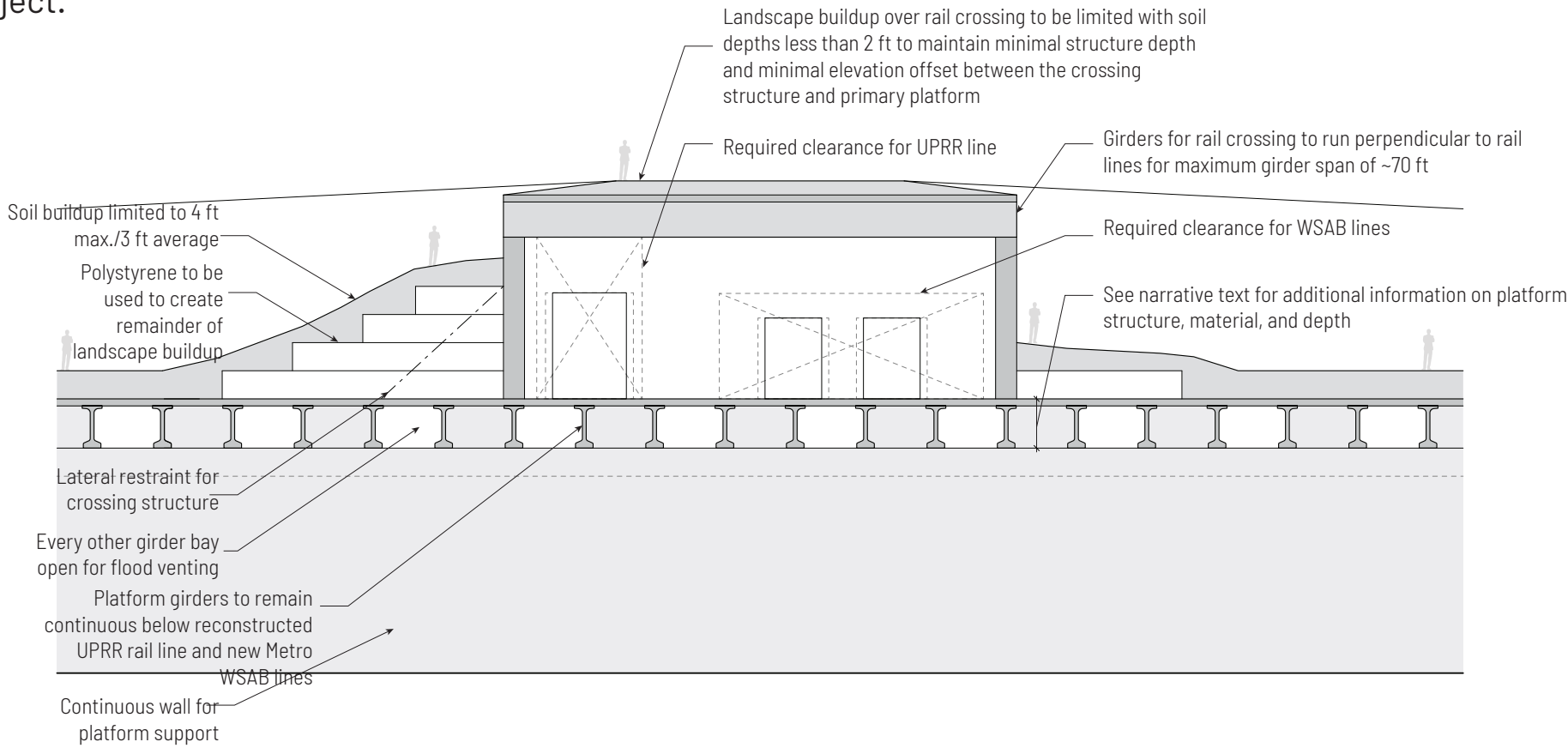
LA RIVER PLATFORM PARK

STRUCTURE

- OPTION A: For the primary condition where the existing UPRR bridge is to be removed with new lines for the UPRR and Metro WSAB to be constructed on the new platform, the structure of the platform would also need to consider the following:
 - › With the existing UPRR bridge to be replaced, the two platform support walls can be more equally spaced to create efficient hydraulic flows and more equal platform girder spans. With girder spans within the range of 110 feet to 160 feet, girder depths are anticipated to be approximately 6 feet with girder spacing at 10 feet on center.
 - › Design parameters for required platform behavior at the UPRR and Metro WSAB crossings is currently undefined. Depending on strength, deflection, and vibration requirements for rail line support structures, there is potentially the need for thickened walls or additional piers below the new rail lines.
 - › Elevated pedestrian crossing to run perpendicular to rail lines to limit structural span. Landscaping at crossing to be minimal to limit structural depth of pedestrian crossing.

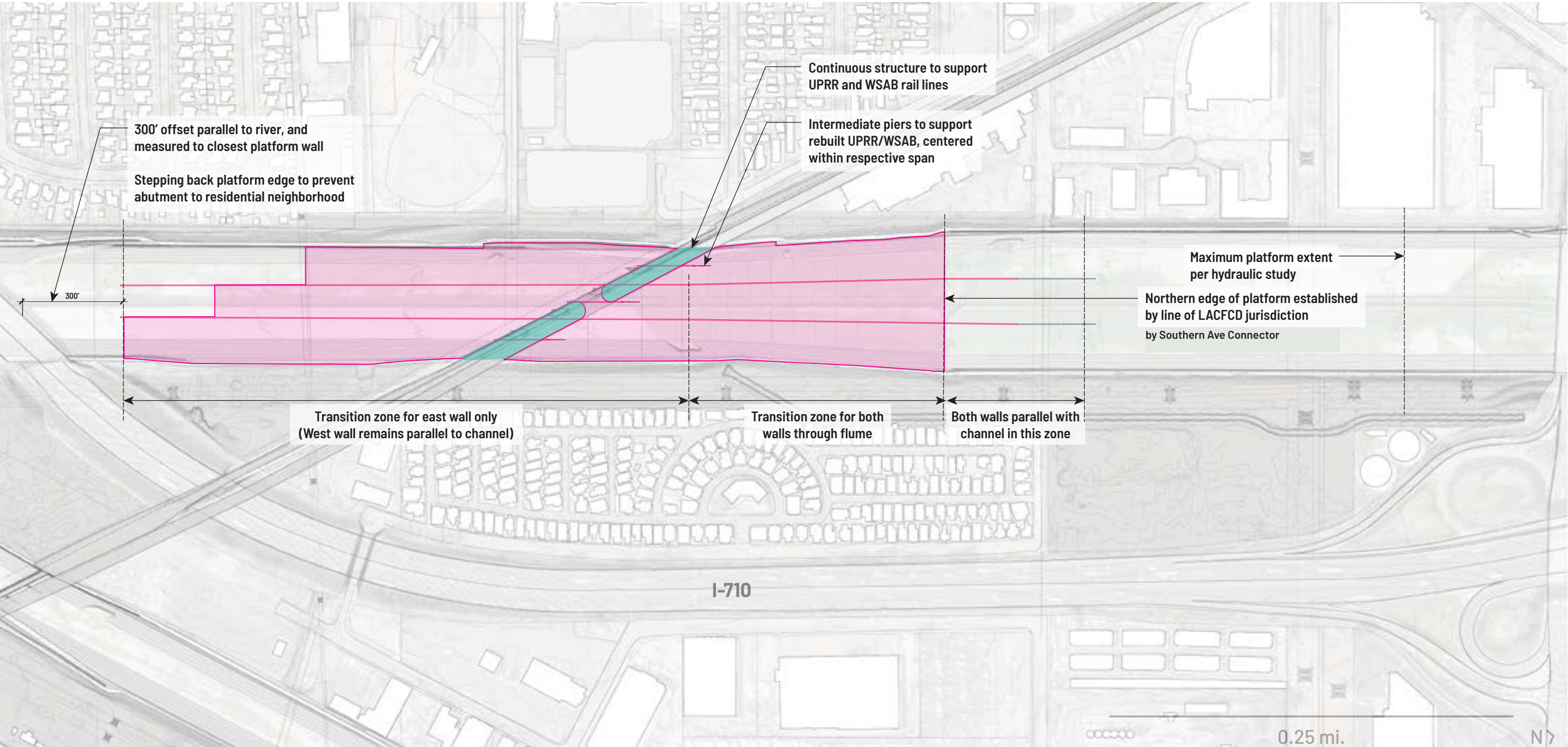
ADDITIONAL CONSIDERATIONS

- One of the primary factors influencing the extent of the platform park as well as structural framing requirements is the platform interface with the existing UPRR bridge and bridges for future Metro WSAB lines. As an alternative, Option B below notes considerations to take into account in order to work around the rail lines in situ versus removing and replacing the lines as part of the platform project.



LA RIVER PLATFORM PARK

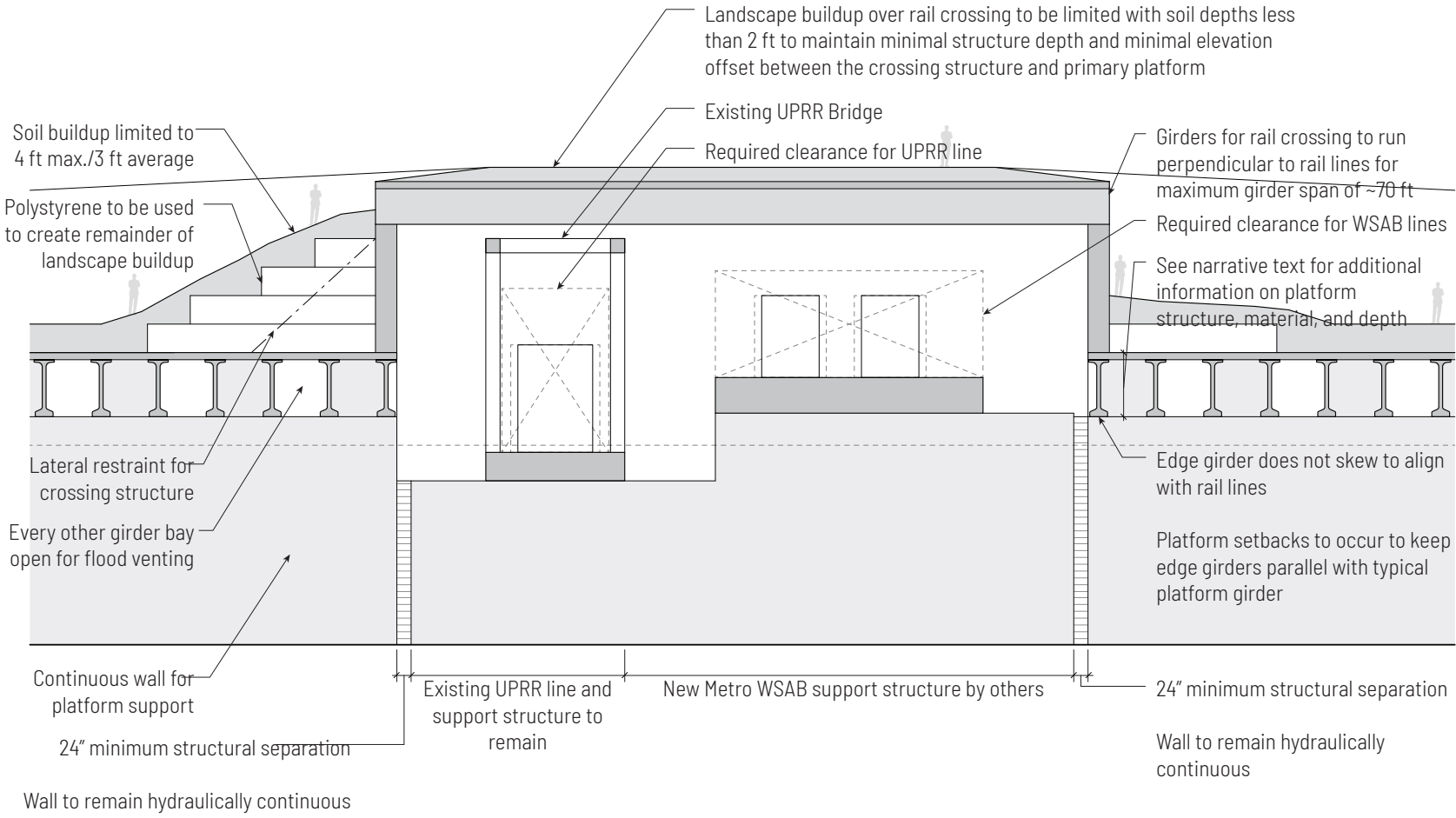
OPTION A: FULL UPRR REPLACEMENT



LA RIVER PLATFORM PARK

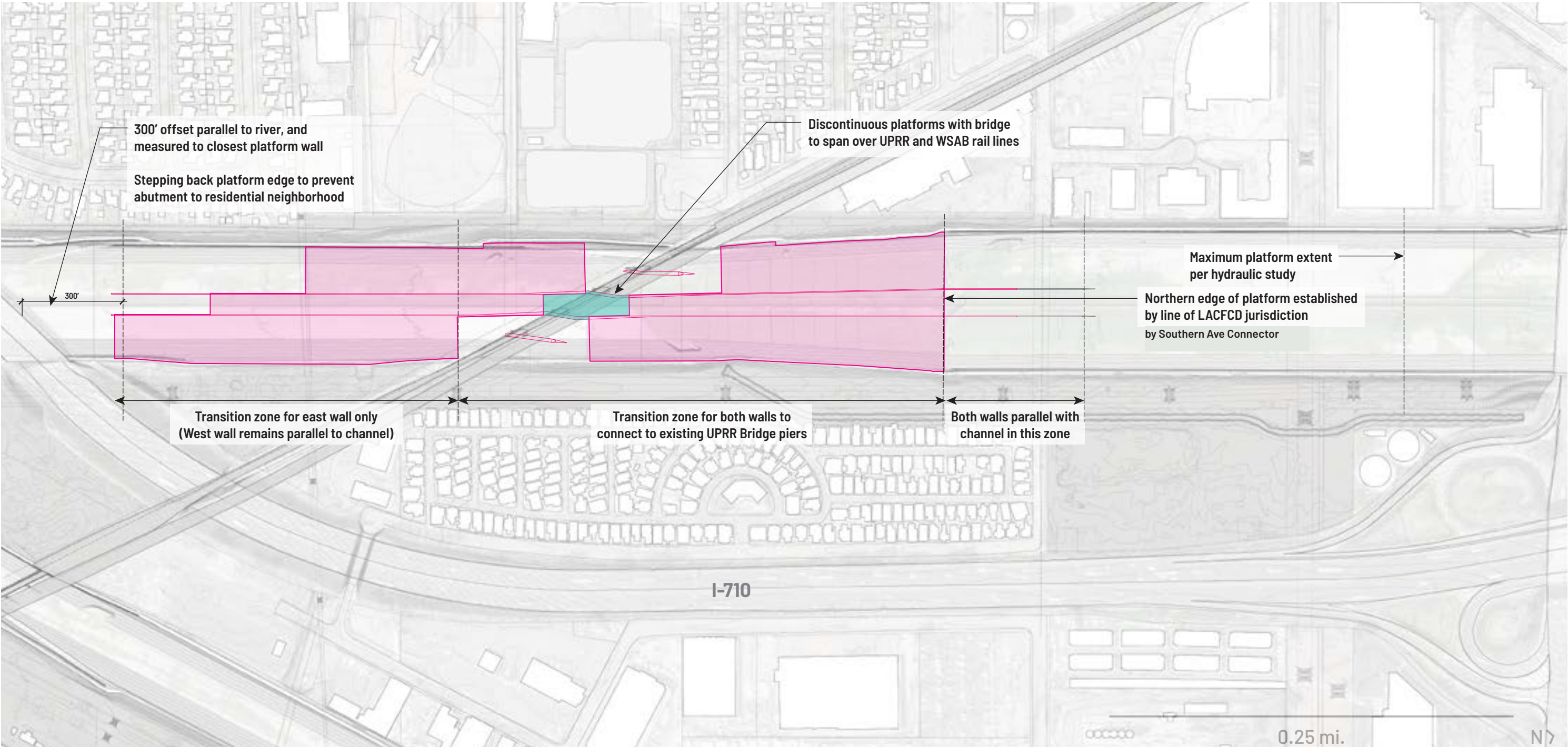
STRUCTURE

- OPTION B: For the condition where the existing UPRR bridge is to remain, the structure of the platform would need to consider the following:
 - › Due to hydraulic concerns, the configuration of the two platform support walls within the channel must be hydraulically continuous with the two inner piers of the existing UPRR crossing. This would necessitate large spans of up to 185 feet for portions of the platform. To support landscape loads over spans of that length, girder depth is anticipated to be approximately 8 feet with girder spacing at 8 feet on center.
 - › Where the platform crosses the existing UPRR bridge and future Metro WSAB bridge, the platform is cut at a steep diagonal angle. For an efficient structural system, the platform stops short of the existing UPRR bridge on either side.
 - › Structural separations must be taken into account between existing infrastructure and the platform park. There must be a structural separation of ~24 inches between the UPRR/Metro WSAB bridge piers and the platform walls; there must be a ~24 inches structural separation between the outer edge of the existing crossings and the platform park structure.
- › Pedestrian bridge to be provided to span the 75 foot to 150 foot horizontal and 27 feet vertical gap between platforms over the existing UPRR and new Metro WSAB bridges. Due to the geometric constraints of the diagonal crossing, a light framed pedestrian bridge over the UPRR/Metro WSAB lines rather than a precast concrete system capping the crossing is preferred.



LA RIVER PLATFORM PARK

OPTION B: EXISTING UPRR TO REMAIN



PROJECTS

LA RIVER PLATFORM PARK

DESIGN

The LA River Platform Park creates approximately 20.5 acres of new opportunities for recreation at the LA River. As the largest piece of the Rio Hondo Confluence Area Project, the LA River Platform Park serves as a destination for communities on both sides of the river, as well as a means of fostering an unprecedented degree of connectivity across the river. Visitors can access the park from the north from neighboring South Gate Park, the Urban Orchard Project, the Southern Avenue Connector, or nearby transit stops along Atlantic Ave and Firestone Blvd. At the southern end, the park leads visitors to the Confluence Point Park and out towards the constellation of other projects in the Rio Hondo Confluence Area. Atop the platform park, visitors encounter a wide array of programming, including active recreation such as sports fields and playgrounds, passive recreation such as planted groves and nature trails, water features such as rills and ponds, and shade structures for cultural activities and social gatherings. Towards the center of the platform, a high vantage point gives visitors the opportunity to enjoy sweeping views of the LA River, South Gate, and neighboring communities.



WILDLIFE HABITAT

PROJECTS

NATURE TRAIL

MULTIUSE PATHS

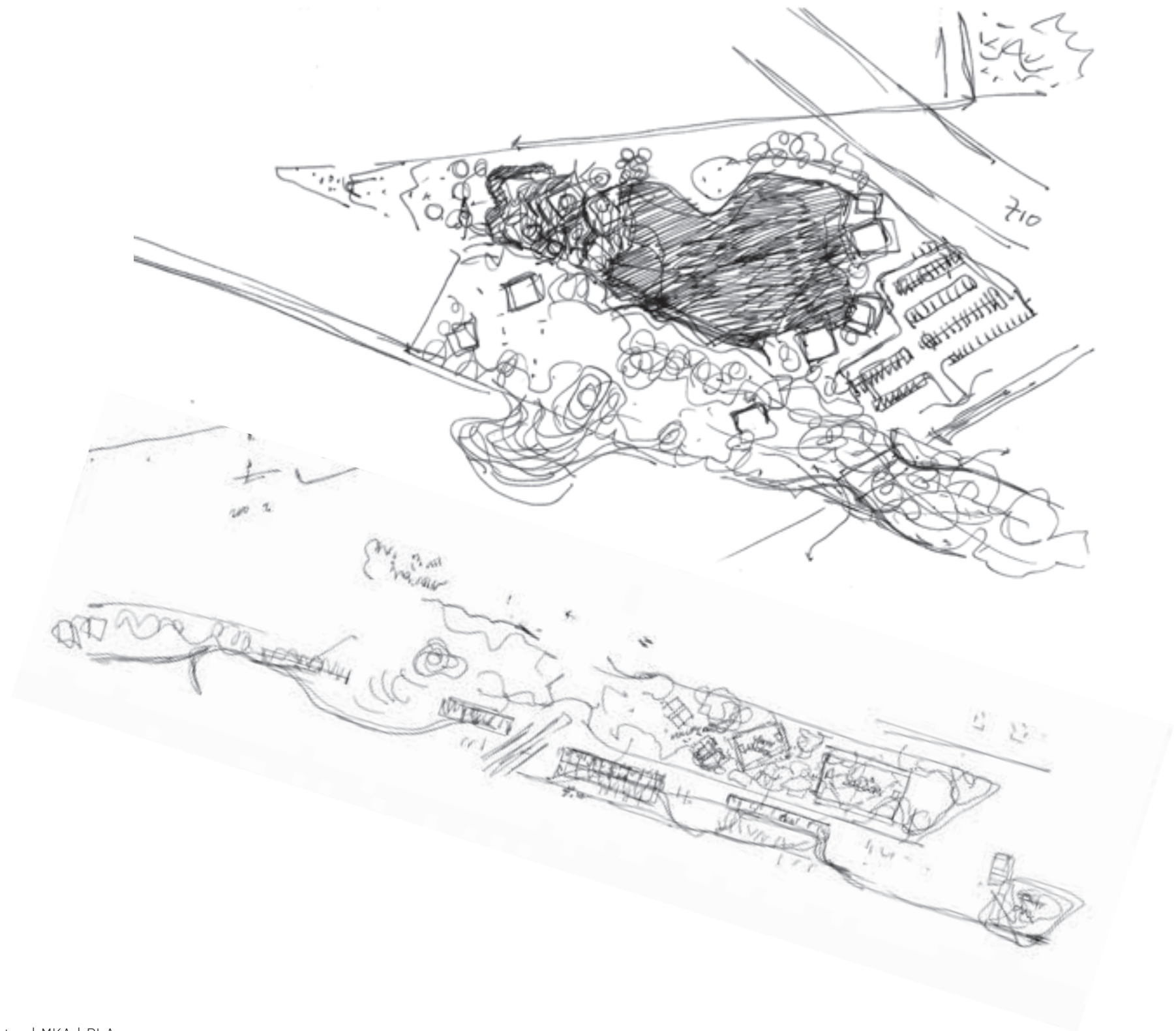


PROJECTS

RIO HONDO PLATFORM PARK

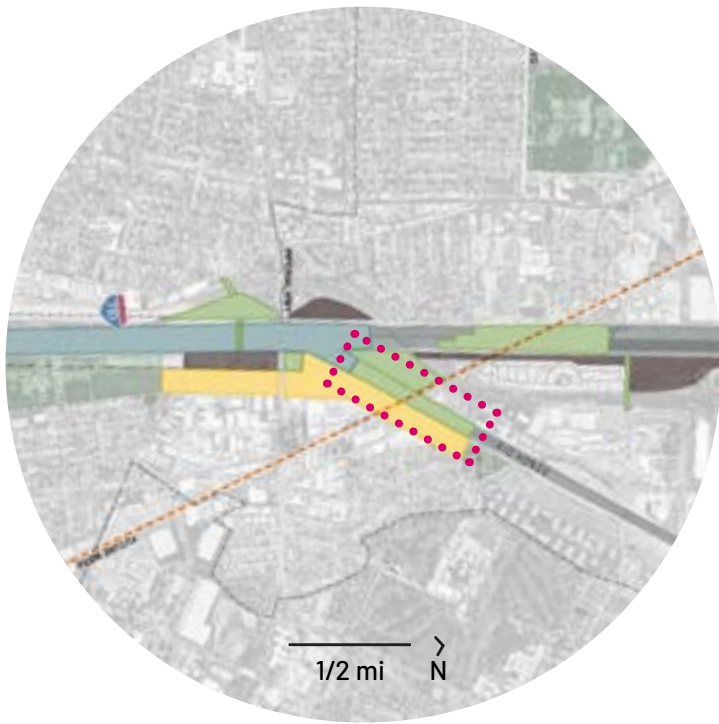
SITE INTRODUCTION

The Rio Hondo Platform Park is situated over an approximately 2,400-foot stretch over the Rio Hondo. The platform park site is bounded to the north by a 500-foot offset south from Garfield Avenue parallel to the channel, and bounded to the south by a 500-foot offset north from the LA River / Rio Hondo confluence point, measured from top of levee. The eastern and western edges of the platform park are bounded by the extents of the flood channel. To the east, this is defined by the existing parapet walls; to the west, this is defined by the inner edge of the levee.



PROJECTS

KEY PLAN



PROJECTS

RIO HONDO PLATFORM PARK

CHALLENGES

A major challenge of the Rio Hondo Platform Park is the coordination of the existing UPRR and future Metro WSAB line, which will have significant implications on the hydraulics, structure, and pedestrian access. The Design team has developed two distinct options for how the platform park will coordinate with these rail crossings. Option A, assumes full replacement of the UPRR bridge and Metro WSAB addition. Option B, assumes the Metro WSAB crossing will be an extension of the existing UPRR bridge crossing.

DESIGN

The Rio Hondo Platform Park creates approximately 12 acres of new opportunities for recreation at the Rio Hondo. Situated immediately adjacent to the Rio Hondo Station along the Metro WSAB, the Rio Hondo Platform Park represents an important gateway to the Rio Hondo Confluence Area Project from the greater LA region. Upon arriving at the WSAB Rio Hondo station, visitors will be drawn up to the platform destination, where they can enjoy sweeping views of the surrounding lands and other confluence area projects, while enjoying a host of new programming such as an urban forest, planted groves, and an extensive outdoor sculpture park. From the Rio Hondo Platform Park, visitors can easily access the adjacent future Confluence Point Park to the west, and the future South Garfield and North Imperial Transmission Right-of-Way Parks to the east.



IN CHANNEL AT CONFLUENCE LOOKING NORTH TOWARDS RIO HONDO

Source: OLIN

PROJECTS

RIO HONDO PLATFORM PARK

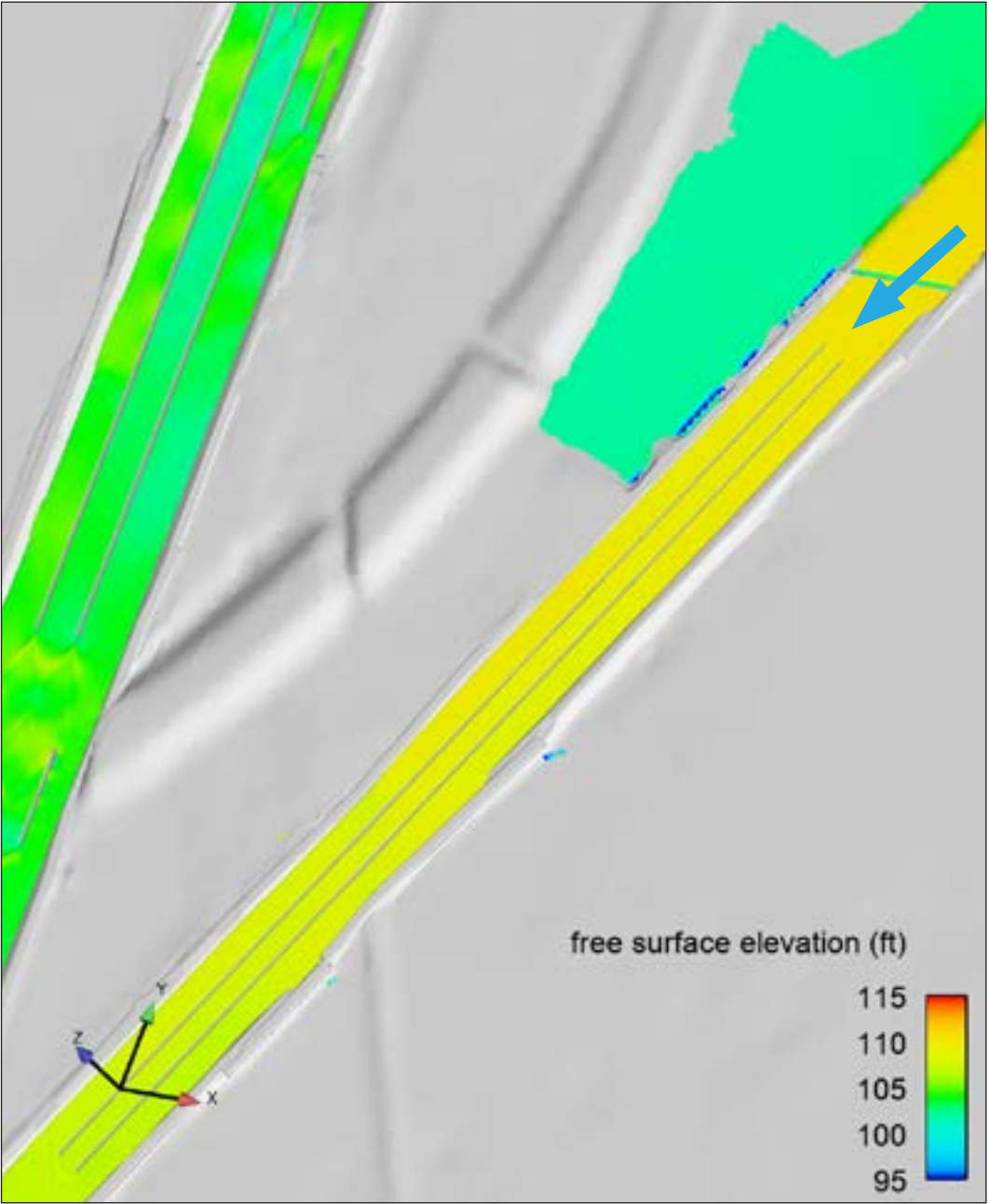
HYDRAULICS

Feasibility and conceptual design of project elements summarized below are based upon 3D hydraulic modeling analyses. An emphasis was placed on minimizing impacts to the design water surface elevation, and coordination with USACE will be required during future design phases. Channel overtopping occurred in the baseline model and the addition of the platform walls did not induce additional overtopping.

Rebuilding the UPRR bridge (Option A) will enable the existing rail crossing and the Metro WSAB to be raised above the design flow event and built into the platform, thereby minimizing hydraulic impacts. This would enable a continuous platform and relatively equally spaced support walls.

The support walls may have to be locally thickened (i.e., greater than ~3') to support the rail load. This was included in the hydraulic model.

Modeled free surface elevation for baseline Rio Hondo Platform Park support walls for the Rio Hondo design event peak flow conditions (~0.2% event). The position of the platform walls were aligned with the existing UPRR bridge piers. Overtopping upstream of the platform walls is similar to the baseline condition.



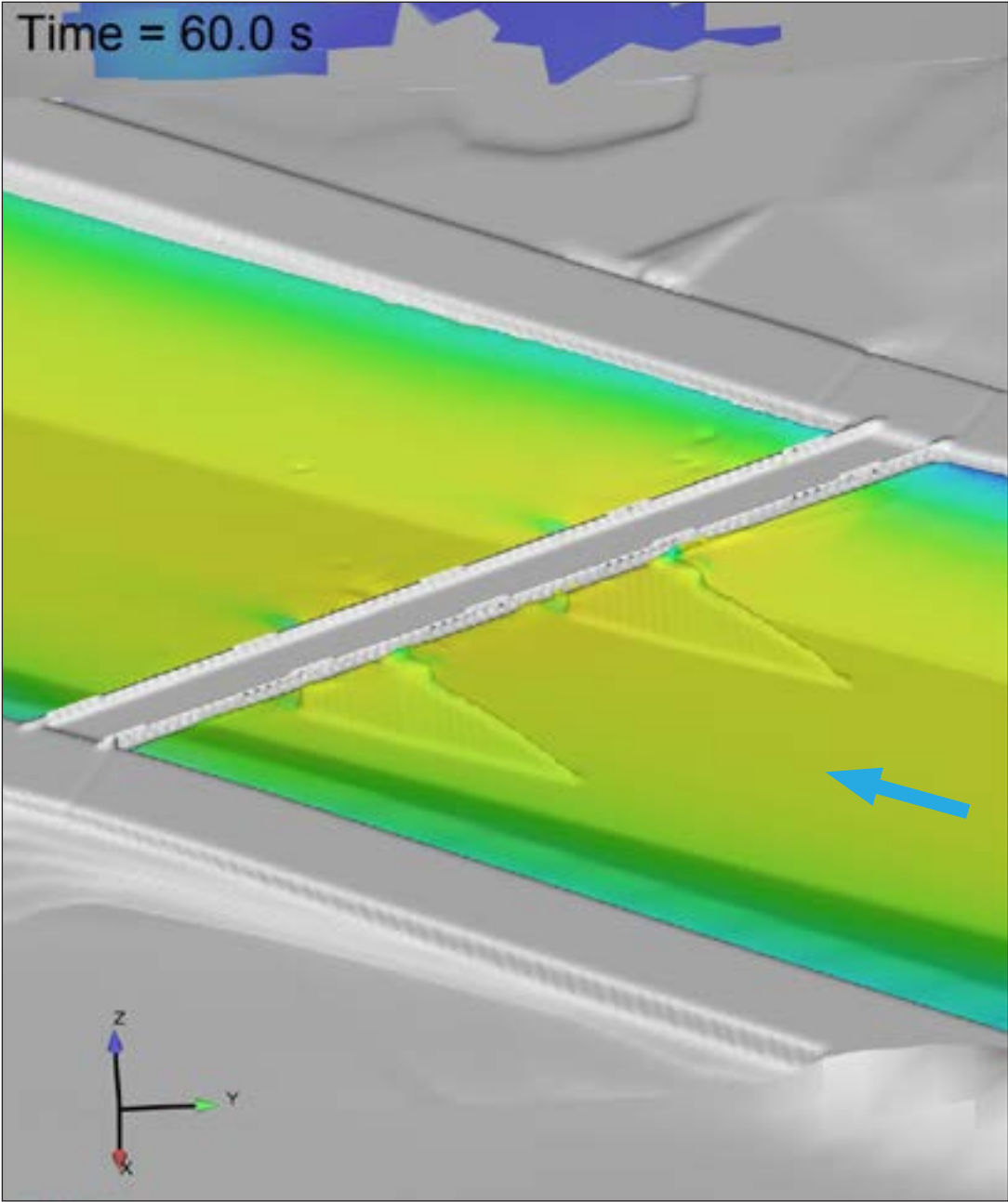
Platform Model: Free Surface Elevation

RIO HONDO PLATFORM PARK

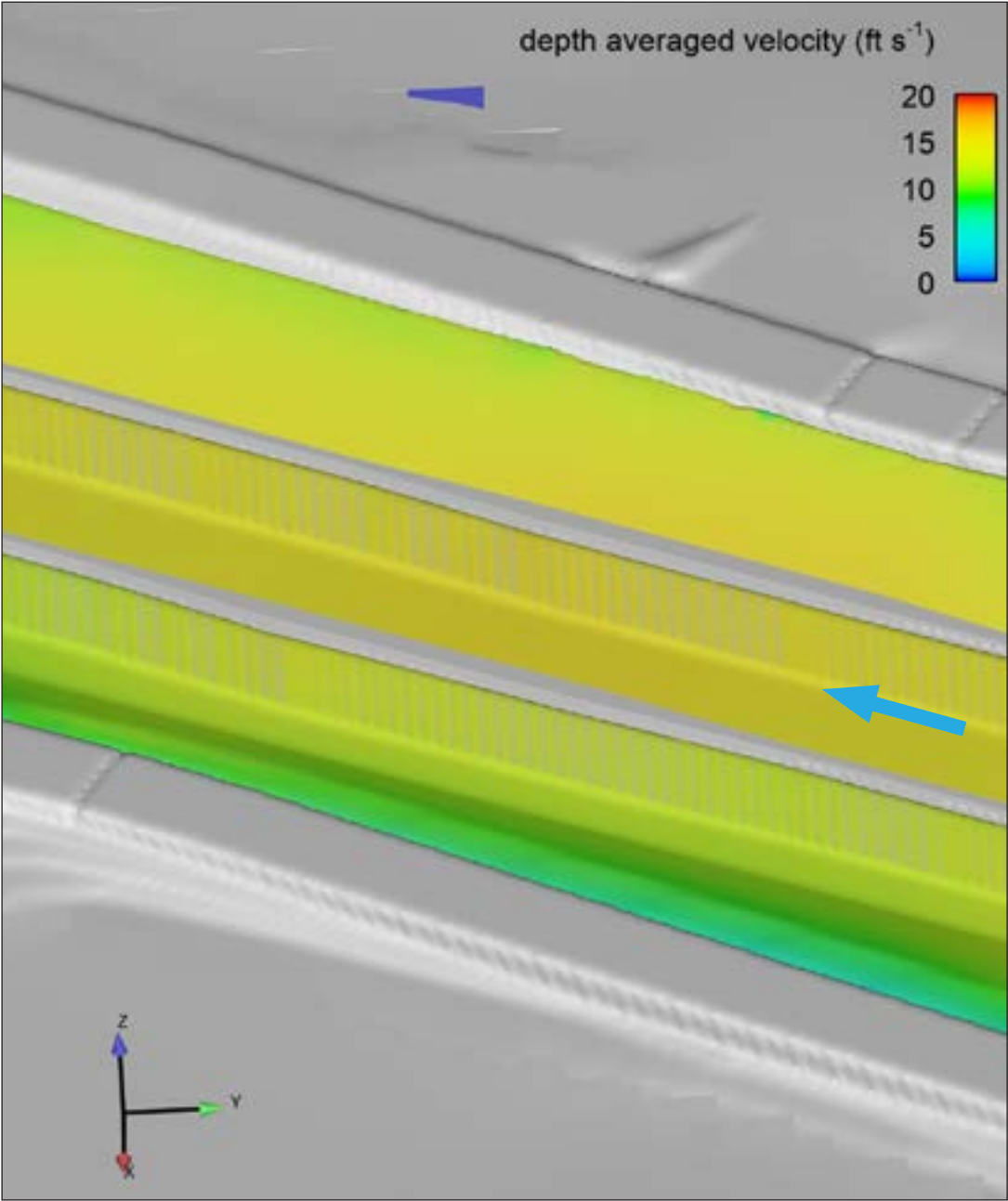
HYDRAULICS

Rebuilding the UPRR/WSAB Crossing provides the opportunity to improve the hydraulics through removal and rebuilding the UPRR/WSAB Crossing.

Modeled free surface elevation for baseline (left) and Rio Hondo Platform Park support walls (right) for the Rio Hondo design peak flow conditions (~0.2% event). Model results indicate similar free surface elevations for both conditions with the flow being contained in the channel. Rebuilding and elevating the UPRR/WSAB Crossing will prevent flow from impinging on the bridge deck during the Rio Hondo design peak flow event.



Baseline Model: Free Surface Elevation



Platform Model: Free Surface Elevation

RIO HONDO PLATFORM PARK

HYDRAULICS

KEY FINDINGS

- The upstream end of the platform will start a safe distance away from the Garfield Avenue bridge to reduce impacts to the flow under the existing bridge. Garfield Avenue bridge piers were not included in the CFD model.
- The downstream end of the platform will terminate a safe distance away from the confluence with the LA River to avoid impacts to the complex flow in that region. CFD modeling indicated that about 500 feet is sufficient distance.
- The existing UPRR bridge deck sits below the elevation of the parapet walls and USACE noted it to be impacted during high flow flood events. This provides substantial hydraulic constraints. Ideally, this bridge will be re-built as the additional Metro WSAB lines are added (Option A), but it is possible that the existing bridge will be retained (Option B).
- The channel side slopes may require modification from grouted stone to smooth concrete throughout the platform extent to offset the slight reduction in capacity caused by the support walls. This smoothing was included in the CFD model. Additional small parapet walls may also be required to maintain sufficient freeboard.
- If the UPRR bridge remains (Option B), the hydraulics become more complex. This option was not modeled using CFD in this phase, but CFD modeling should be done if this option is evaluated in future phases. The following interim hydraulic considerations are provided:
 - › It will likely be necessary to hydraulically merge the platform support walls to the existing two bridge piers (while maintaining a seismic gap for structural purposes). This will require gradual transition from ~3' wall thickness to the ~5' pier thickness.
 - › This alignment creates relatively equal spans.
 - › Gaps between select platform girders above the parapet wall will need to be left open near the UPRR bridge in order to allow for intermittent wave runup and prevent pressurization of the platform during the design flood event.

RIO HONDO PLATFORM PARK

STRUCTURE

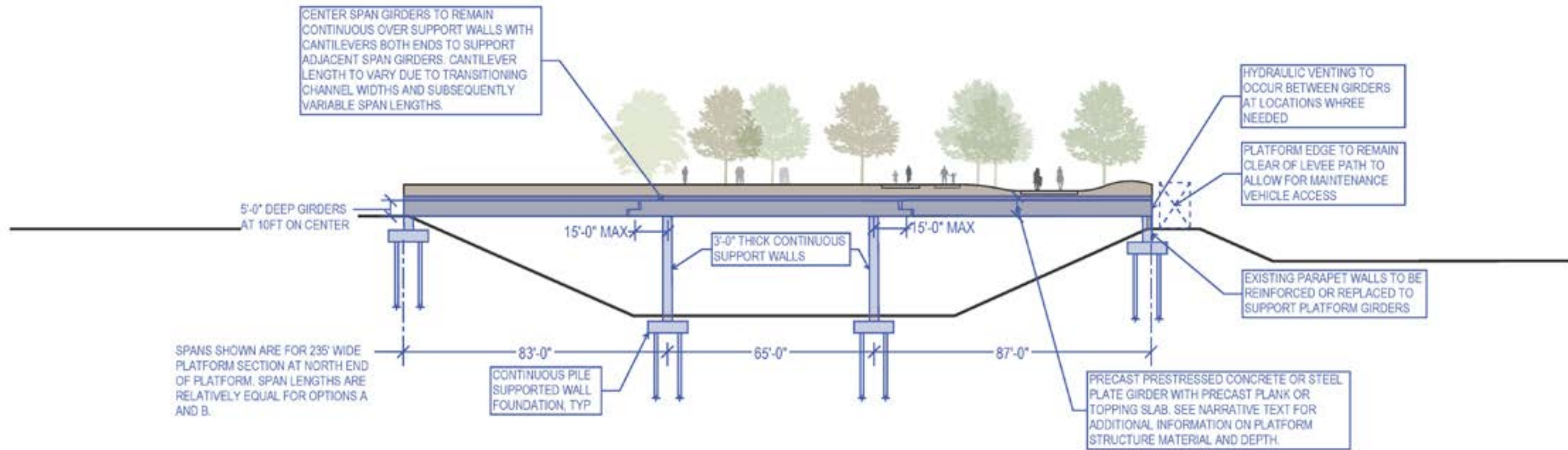
Conceptual design for the structure of the Rio Hondo Platform Park is summarized below.

KEY FINDINGS

- Throughout the concept design phase, various structural systems to support the platform park have been considered. These systems include the following:
 - › Precast pre-stressed concrete Deck Bulb Tee girders with top flange of girder forming slab, connected with a topping slab
 - › Precast pre-stressed concrete I-shaped girders supporting precast plank slab
 - › Built up steel plate girders supporting precast plank slab
- Selection of the structural framing system depends on future studies on the cost effectiveness and constructibility of each one, but the approximate girder depths studied for this report applies to all three systems. Note that in addition to the girder depth, a precast plank slab would account for ~8"-12" of added structural depth and the topping slab would account for 4" of added structural depth.
- Long-span girders to be supported by two continuous walls within the channel and reinforced parapet walls at levee each side of the channel.
- For three-span conditions, center span may remain continuous over wall supports and extend up to 15 feet past support as cantilevers. Exterior spans to be supported at end of cantilevers with bearing splice connections. This alternative to three simply-supported spans reduces support complexities, results in more efficient girder design, and may allow for more repetition in girder lengths as support walls.

RIO HONDO PLATFORM PARK

STRUCTURE

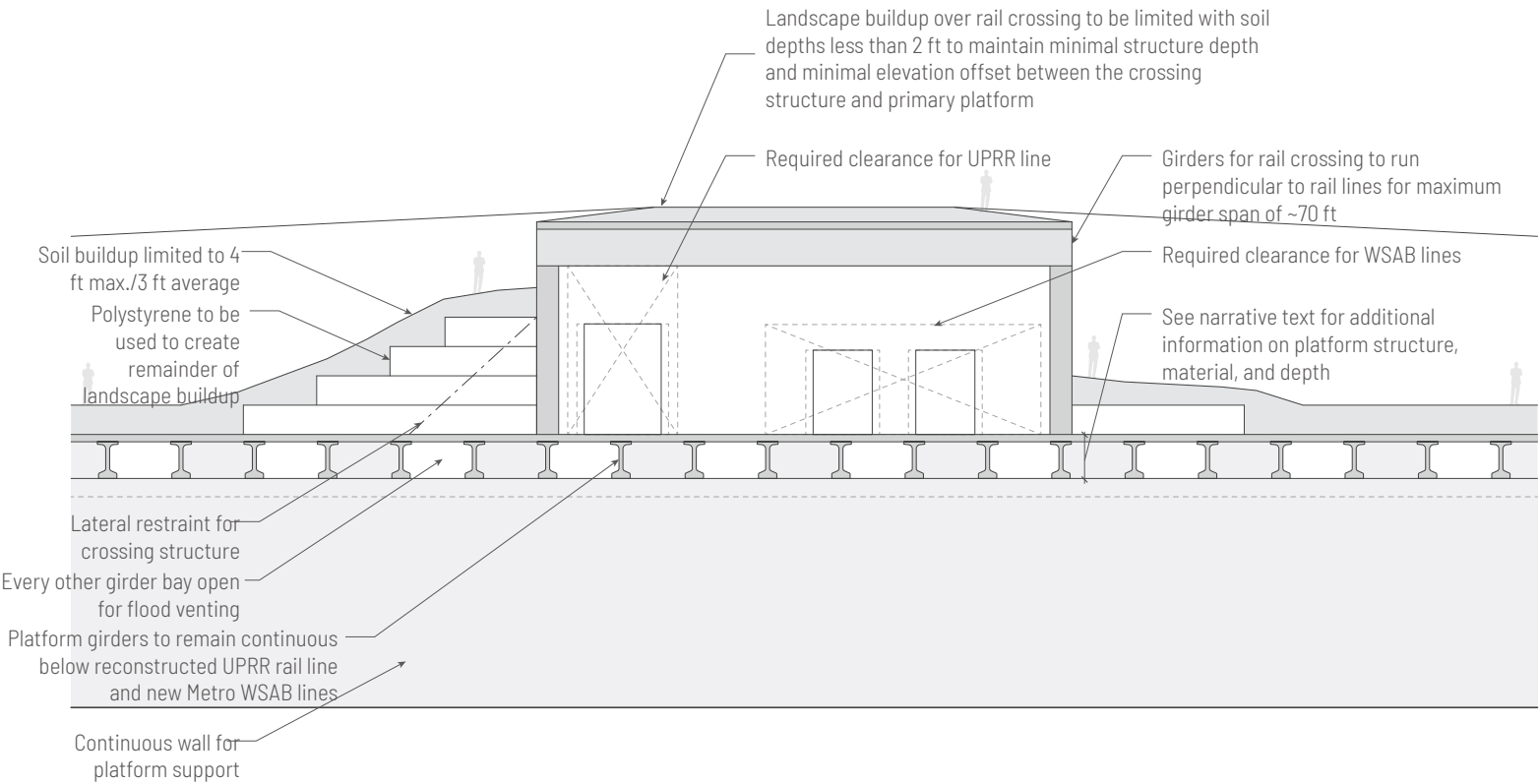


OPTIONS A + B: SIMILAR SECTION FOR FULL REPLACEMENT AND EXISTING UPRR TO REMAIN

RIO HONDO PLATFORM PARK

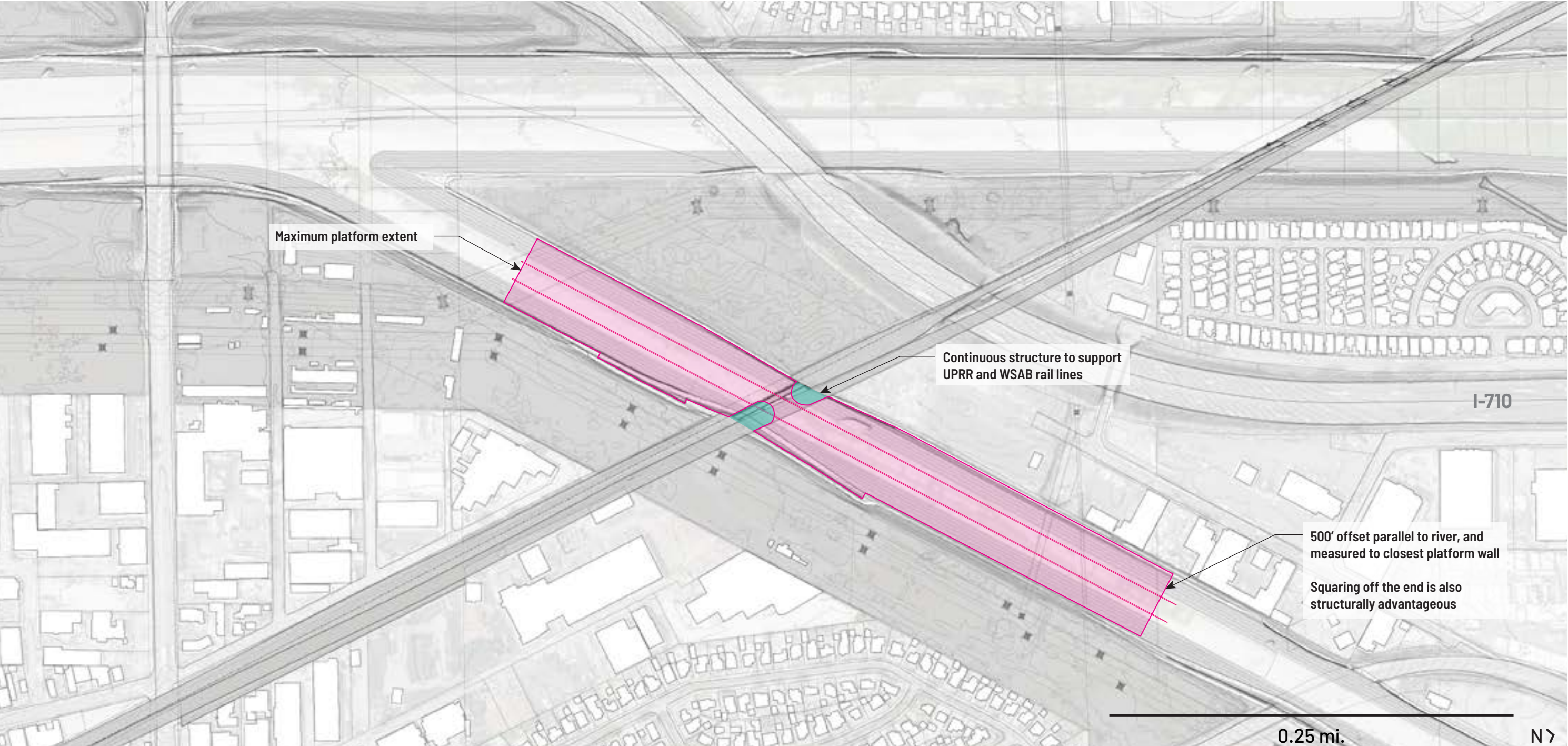
STRUCTURE

- OPTION A: For the primary condition where the existing UPRR bridge is to be removed with new lines for the UPRR and Metro WSAB to be constructed on the new platform, the structure of the platform would also need to consider the following:
 - › With the existing UPRR bridge to be replaced, the two platform support walls can be more equally spaced to create efficient hydraulic flows and more equal platform girder spans. With girder spans within the range of 65' to 105', girder depths are anticipated to be approximately 5 feet with girder spacing at 10 feet on center.
 - › Design parameters for required platform behavior at the UPRR and Metro WSAB crossings is currently undefined. Depending on strength, deflection, and vibration requirements for rail line support structures, there is potentially the need for thickened walls to support the new rail lines.



RIO HONDO PLATFORM PARK

OPTION A: FULL UPRR REPLACEMENT



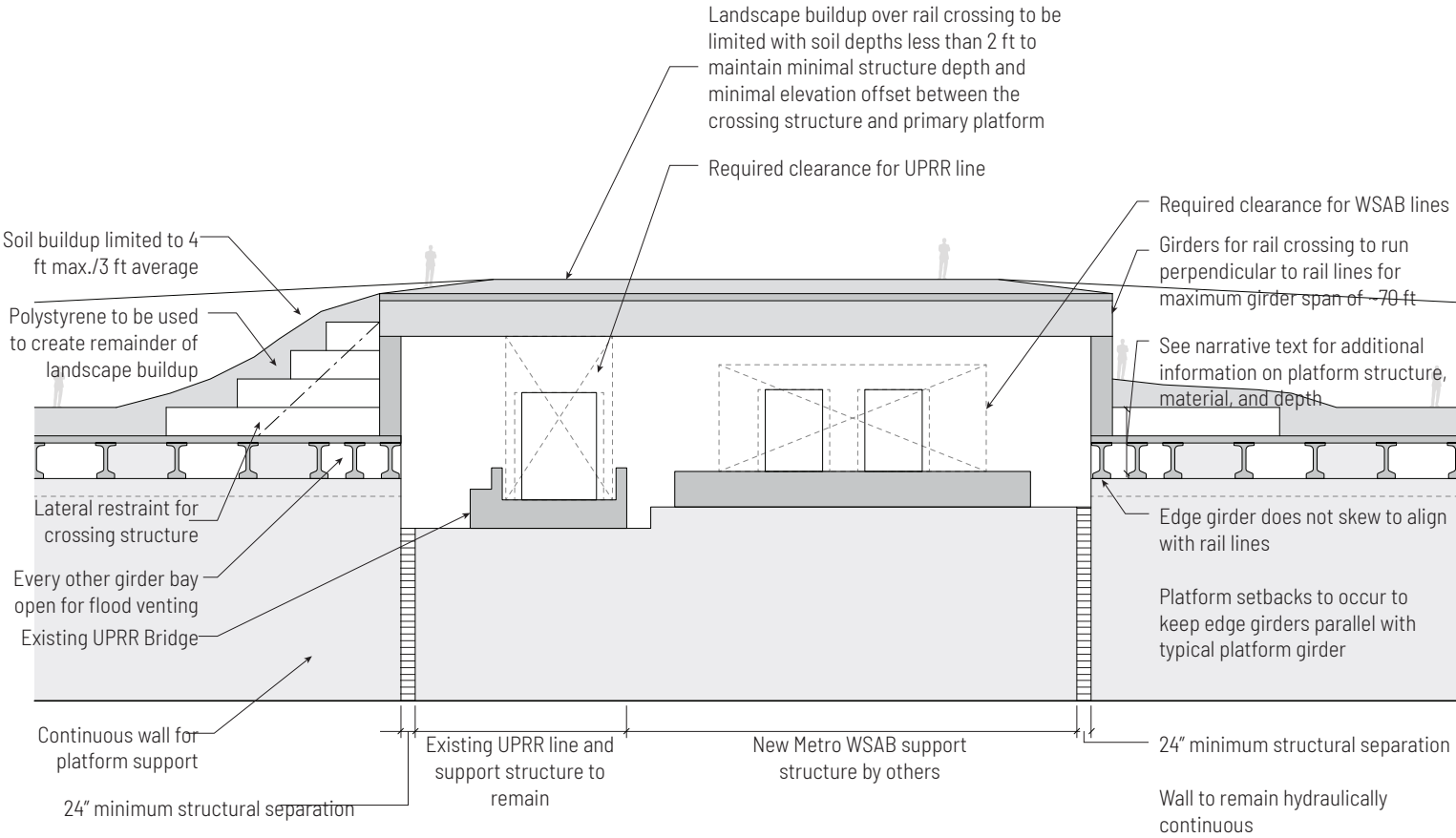
RIO HONDO PLATFORM PARK

STRUCTURE

ADDITIONAL CONSIDERATIONS

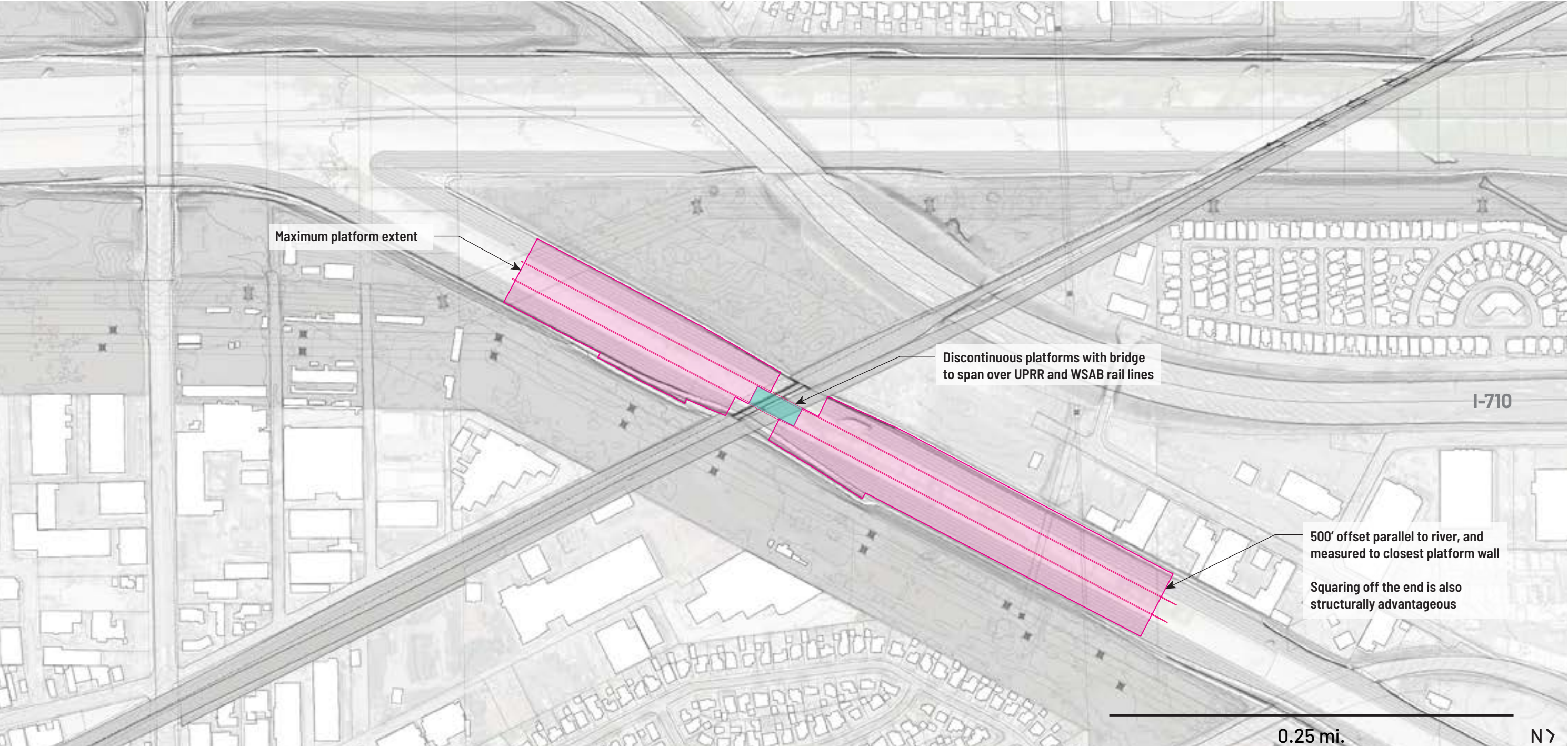
- One of the primary factors influencing the structural framing requirements is the platform interface with the existing UPRR bridge and bridges for future Metro WSAB lines. As an alternative, Option B below notes considerations to take into account in order to work around the rail lines in situ versus removing and replacing the lines as part of the platform project.
- OPTION B: For the condition where the existing UPRR bridge is to remain, the structure of the platform would need to consider the following:
 - › Platform walls aligning with existing UPRR bridge piers result in fairly equally spaced spans. For 65 to 90 foot span lengths, girder depth is anticipated to be approximately 5 feet with girder spacing at 10 feet on center.
 - › Structural separations must be taken into account between existing infrastructure and the platform park. There must be a structural separation of ~24" between the UPRR/Metro WSAB bridge piers and the platform walls; there must be a ~24" structural separation between the outer edge of the existing crossings and the platform park structure.

- › Elevated pedestrian crossing to run perpendicular to rail lines to limit structural span. Landscaping at crossing to be minimal to limit structural depth of pedestrian crossing.



RIO HONDO PLATFORM PARK

OPTION B: EXISTING UPRR TO REMAIN



PROJECTS

SOUTH GARFIELD TRANSMISSION RIGHT-OF-WAY PARK

SITE INTRODUCTION

The site of the South Garfield Transmission Right-of-Way Park is currently owned by Southern California Edison (SCE) and occupied with their transmission lines. The 13.5 acre park, approximately 350 foot wide, serves as a connector between Circle Park to its north and the future Metro WSAB Rio Hondo Station to its south

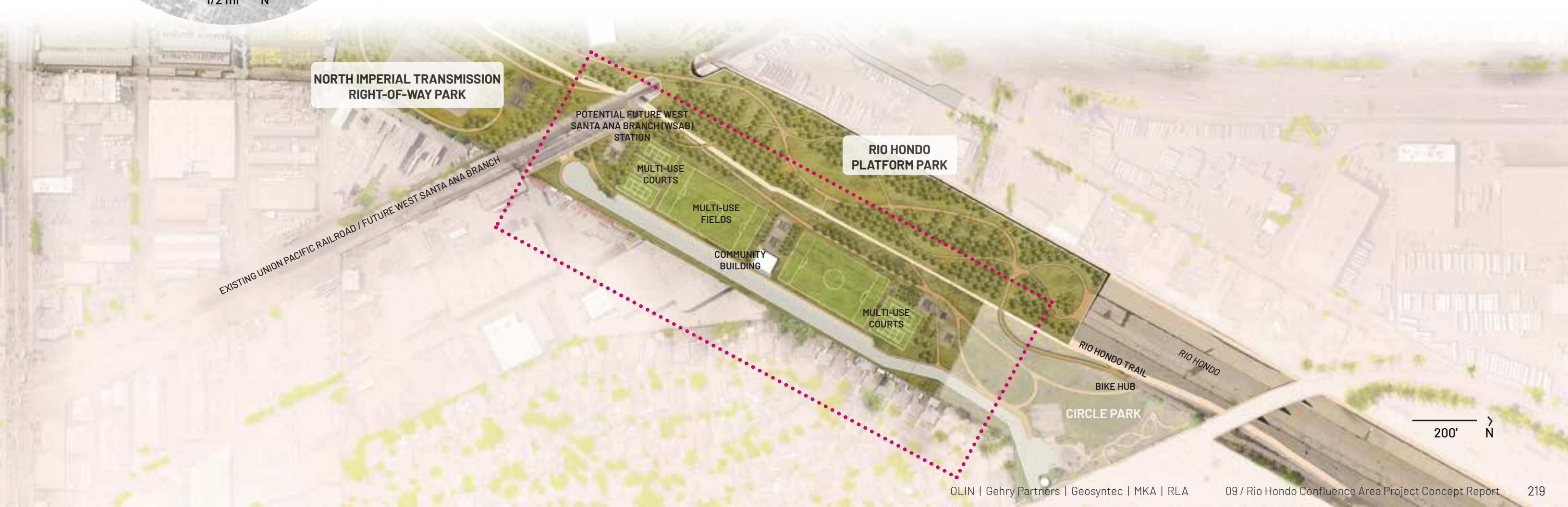
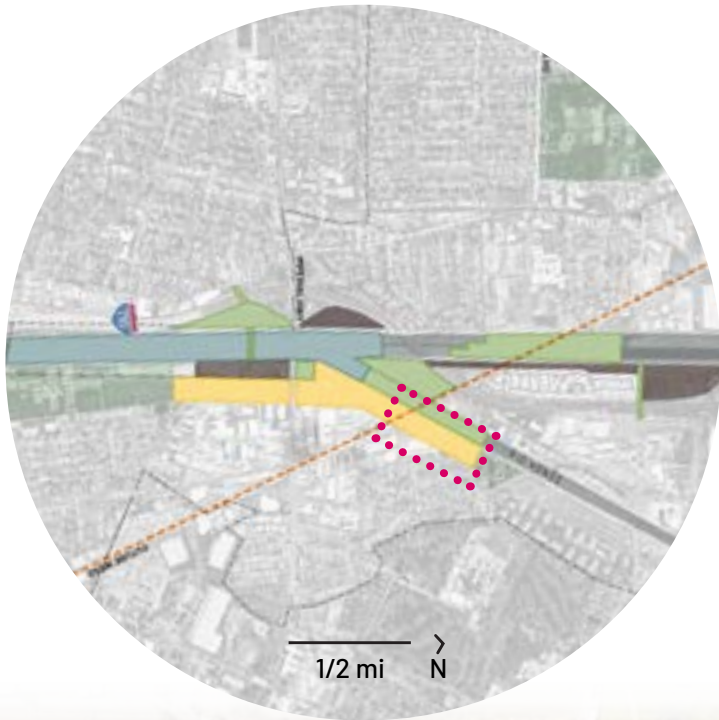


RIO HONDO EAST BANK LOOKING NORTH

Source: OLIN

PROJECTS

KEY PLAN



SOUTH GARFIELD TRANSMISSION RIGHT-OF-WAY PARK

CHALLENGES

The land is currently occupied by a plant nursery operation at grade and the SCE transmission lines above. The four western pairs of transmission lines are 220kV suspended from steel truss pylons and the 2 pairs to the east are 66vK lines from wood pylons. The lines require the following vertical clearances: 18 feet for structures, 30 feet for vehicle access, and 25 feet for pedestrian access. Any future development would be vertically constrained by the lowest wires, sag elevation and its required vertical clearance. In addition to vertical clearances there are also horizontal clearances required of 50 feet for the steel suspension towers and 25 feet for the wood pylons. Lastly, a 14 foot wide access road must be maintained along the length of the Transmission Right-of-Way to preserve vehicular access for future maintenance of the power lines.

Further, the South Garfield Transmission Right-of-Way Park lacks connectivity to the existing street grid. Garfield Avenue is the largest arterial road in its proximity, and there is potential to formally connect an existing access driveway through Circle Park to the

street. This is imperative in establishing adequate vehicular, pedestrian, and bicycle access to the future Metro WSAB Rio Hondo station, that will require vehicular drop off, bus access, and parking for both the station and park. There are other proximate surface roads, Karmont Avenue and Sessler Street that could provide secondary access, but it would necessitate the acquisition or easement of privately owned land and the possible demolition of existing structures.

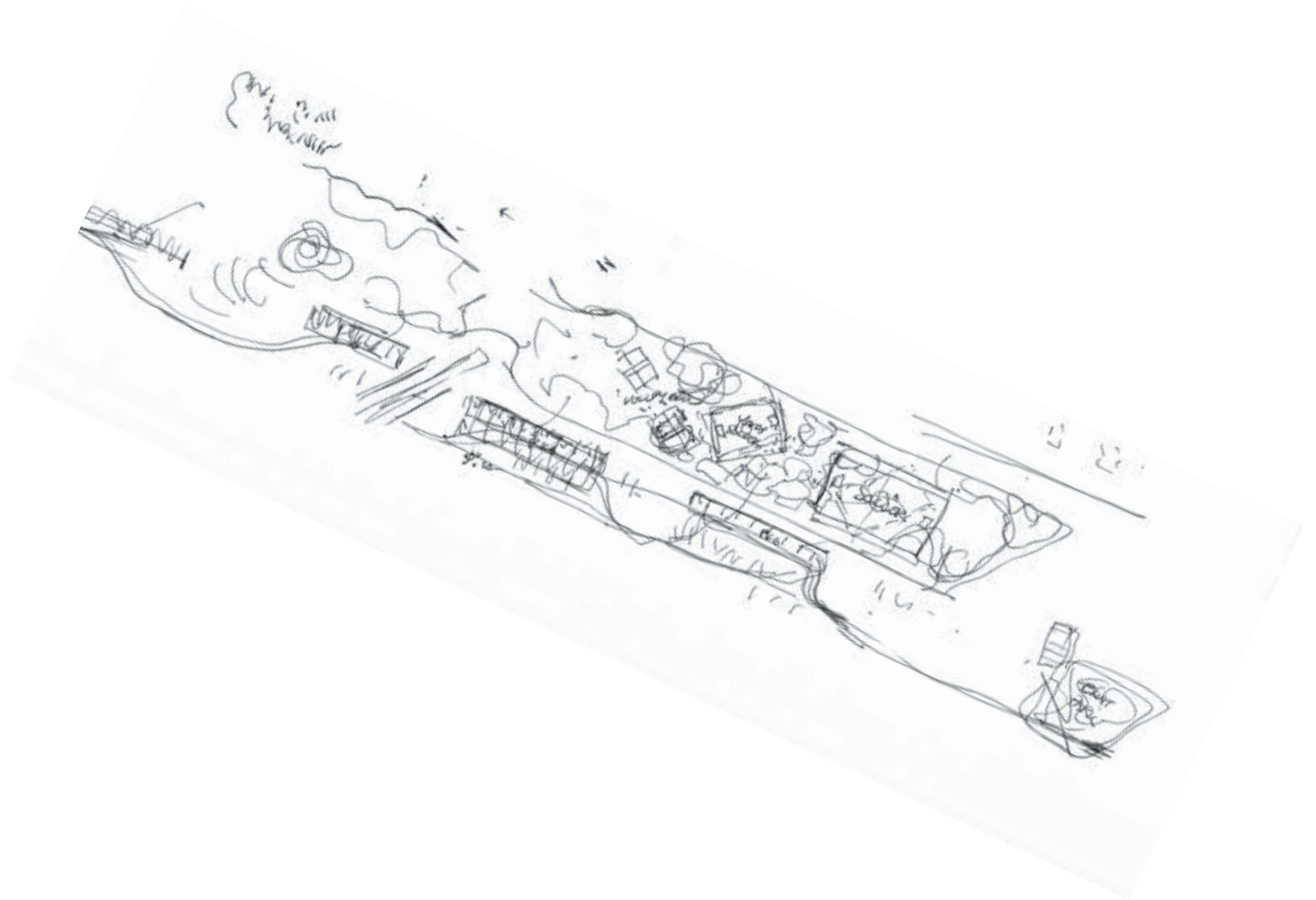
An additional challenge in the design of the future South Garfield Transmission Right-of-Way Park is the relocation of the existing plant nursery operation. The nursery is a commercial asset to the neighborhood, but can exist in other underutilized transmission line rights-of-way. If necessary, the park does not need to occupy all 13.5 acres and could instead utilize a much narrower strip of the transmission right-of-way while preserving existing, yet reduced nursery function. With such, it would be imperative to maintain the park along the eastern bank of the Rio Hondo to promote river accessibility.

PROJECTS

SOUTH GARFIELD TRANSMISSION RIGHT-OF-WAY PARK

DESIGN

The design of this South Garfield Transmission Right-of-Way Park compliments its neighboring Circle Park, the future Rio Hondo Platform Park, and future North Imperial Transmission Right-of-Way Park. It will also enhance access to the Metro WSAB Rio Hondo Station to its south. Further, the park will provide continuous access along the river supplemented by shade structures, native vegetation, and spaces for activity and rest including: soccer pitches; tennis courts; and a pavilion.



PROJECTS

NORTH IMPERIAL TRANSMISSION RIGHT-OF-WAY PARK

SITE INTRODUCTION

The North Imperial Transmission Right-of-Way Park is situated to the east of the LA River, Rio Hondo, and the future Water Education Center. The Right-of-Way is currently owned by Southern California Edison (SCE) and LADWP and occupied with their transmission lines. The 13 acre site serves to connect Imperial Highway, the future SELA Cultural Center, the South Imperial Transmission Right-of-Way Park, the potential future Metro WSAB Rio Hondo Station, and the future South Garfield Transmission Right-of-Way Park. The site aligns with the existing Imperial Equestrian Center, which will continue to serve as a community asset and resource for the local equestrian community.

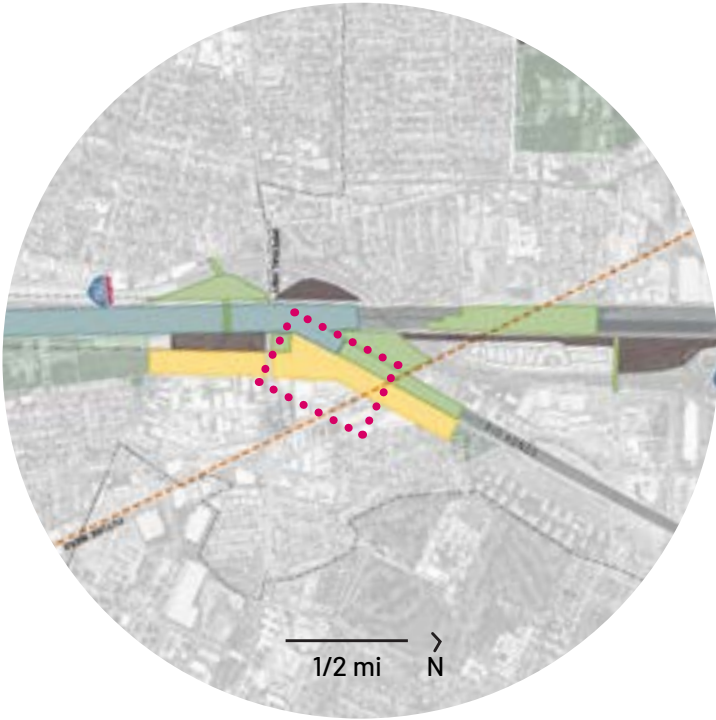


Source: OLIN

RIO HONDO EAST BANK LEVEE LANDSIDE LOOKING NORTH

PROJECTS

KEY PLAN



PROJECTS

NORTH IMPERIAL TRANSMISSION RIGHT-OF-WAY PARK

CHALLENGES

The land is currently occupied by two nursery businesses along with the Imperial Equestrian Center at grade and both LADWP and SCE transmission lines above. The transmission lines place various constraints on vertical clearances and permitted programs and vegetation as well as requiring service road access to each of the towers.

Further, despite sitting directly adjacent to Imperial Highway, the North Imperial Transmission Right-of-Way Park lacks pedestrian connectivity along its eastern edge due to the boundary for cars and pedestrians placed by the UPRR as well as the lack of sidewalk connectivity along Meadow Rd and Leeds St, whose primary functions serve the industrial manufacturing on the blocks adjacent to the site.

Additionally, the current processing and treatment of EPA rated hazardous materials at a manufacturing plant and the potential environmental hazards at an aluminum foundry pose possible limitations to safe programming for the public as well as vegetation and habitat.



TRANSMISSION RIGHT-OF-WAY TOWARDS UPRR BRIDGE



TRANSMISSION RIGHT-OF-WAY TOWARDS LEVEE

Source: OLIN

PROJECTS

NORTH IMPERIAL TRANSMISSION RIGHT-OF-WAY PARK

DESIGN

The design of the North Imperial Transmission Right-of-Way Park will leverage the existing recreational program anchored at Imperial Equestrian Center along with the future program and connectivity available at the future Water Education Center and potential Metro WSAB Rio Hondo station. Furthermore, the visual and physical connectivity to the existing multiuse Rio Hondo trail along most of the eastern edge of the site offers many design opportunities to engage the Rio Hondo channel and increase multi-modal connectivity to the South Garfield Transmission Right-of-Way Park, Circle Park, and Imperial Equestrian Center.



Source: OLIN

PROJECTS

SOUTH IMPERIAL TRANSMISSION RIGHT-OF-WAY PARK

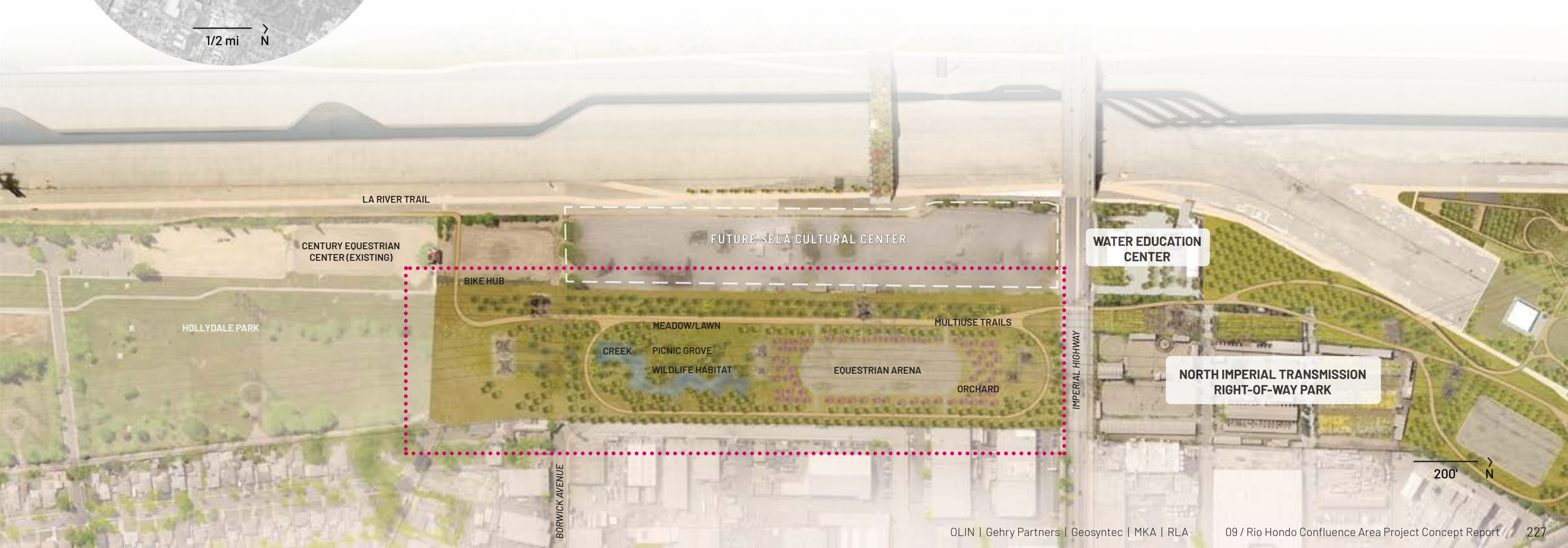
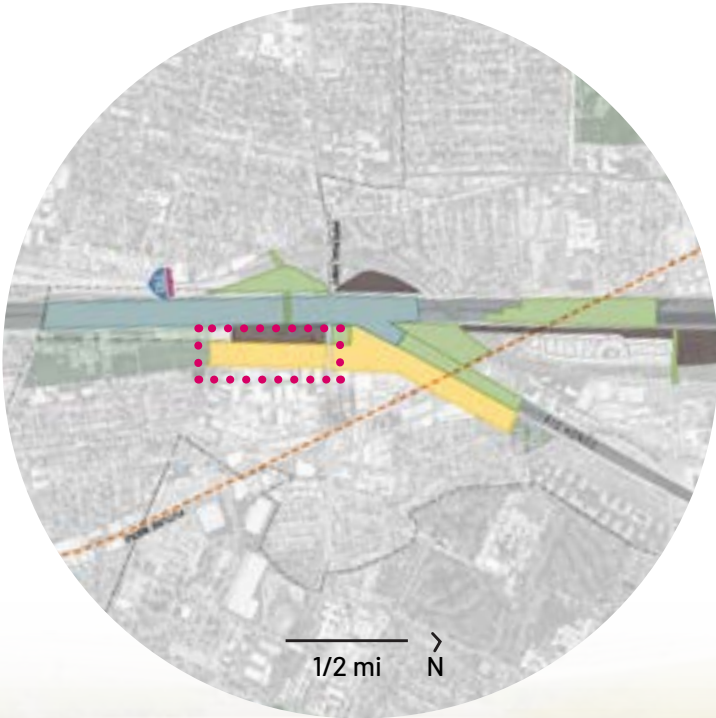
SITE INTRODUCTION

The South Imperial Transmission Right-of-Way Park is situated to the east of the future SELA Cultural Center and connects to Hollydale Regional Park to the south and a medium density residential neighborhood in South Gate to the east. The right-of-way is currently owned by Southern California Edison (SCE) and LADWP and occupied with their transmission lines. A plant nursery previously occupied the entire site on grade. However, currently, most of the site is fenced off with chain link and barbed wire and unoccupied. The future 15.75 acre South Imperial Transmission Right-of-Way Park will serve as a significant linkage of open space, native vegetation, and habitat connecting the residential neighborhood to its east to the LA River.



PROJECTS

KEY PLAN



PROJECTS

SOUTH IMPERIAL TRANSMISSION RIGHT-OF-WAY PARK

CHALLENGES

The South Imperial Transmission Right-of-Way Park is challenging due to LADWP and SCE transmission lines that have varying constraints as the power lines have varying voltages and regulations as per those voltages. The transmission lines place various constraints on vertical clearances and permitted programs and vegetation as well as requiring service road access to each of the towers.

Additionally, an existing petroleum line running along the LADWP transmission lines along the western edge of the site may pose structural and design limitations for what can be developed above the pipeline.



TRANSMISSION RIGHT-OF-WAY TOWARDS CENTURY EQUESTRIAN CENTER

Source: OLIN

PROJECTS

SOUTH IMPERIAL TRANSMISSION RIGHT-OF-WAY PARK

DESIGN

The South Imperial Transmission Right-of-Way Park will extend the programs and amenities of the Hollydale Regional Park. Leveraging visual connectivity, trails and pathways through the site will increase access to the SELA Cultural Center’s program as well as the LA River Trail and connections to the north and south.



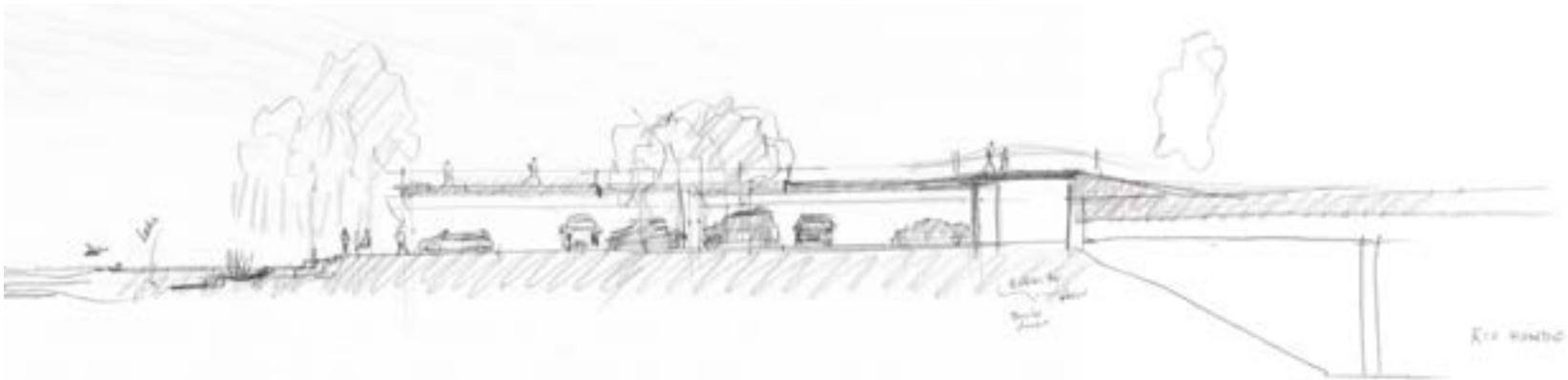
LA RIVER EAST BANK LOOKING SOUTH ALONG HOLLYDALE REGIONAL PARK

Source: OLIN

CONFLUENCE POINT PARK

SITE INTRODUCTION

The triangle of land formed by the confluence of the LA River and the Rio Hondo is currently owned by the City of South Gate and the LADWP. The site is bordered by the I-710 to the north, the UPRR railroad to the east, the Rio Hondo to the southeast, and the LA River to the West. This site is currently leased for use as a commercial nursery and soil supplier operation. Historically the site was used as a landfill. Unfortunately, organic waste within the landfill has made the site unstable and subject to uneven settling.



BASELINE OPTION

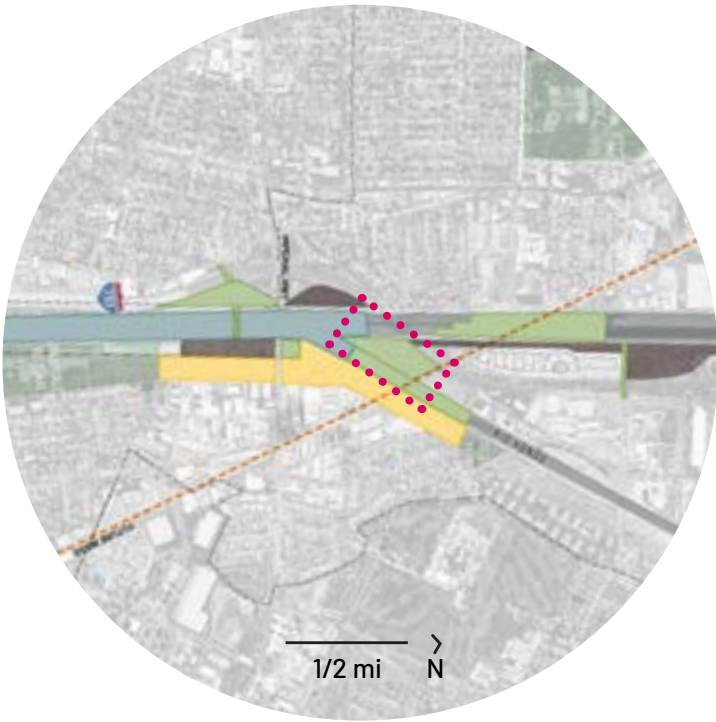


ALTERNATE OPTION

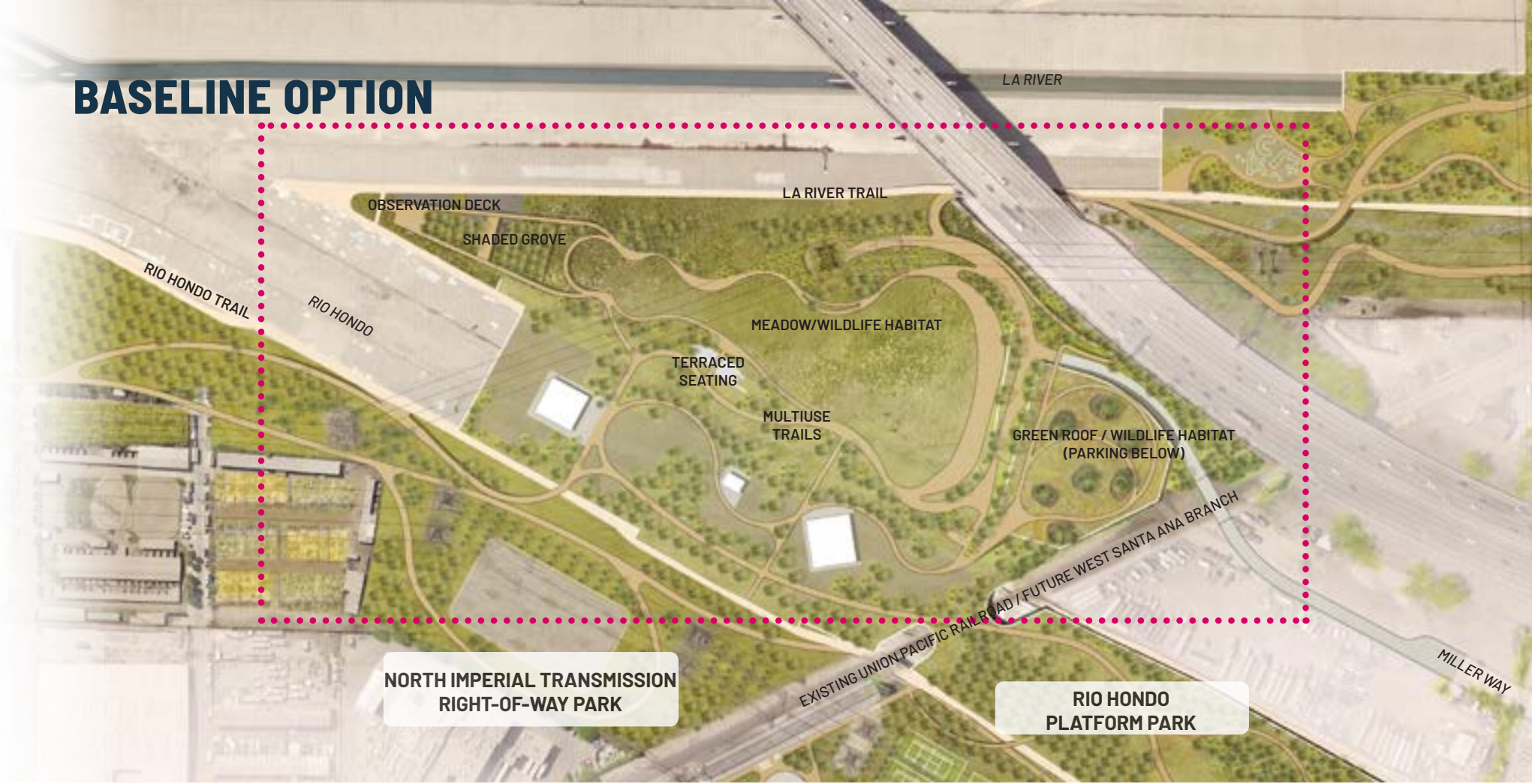


PROJECTS

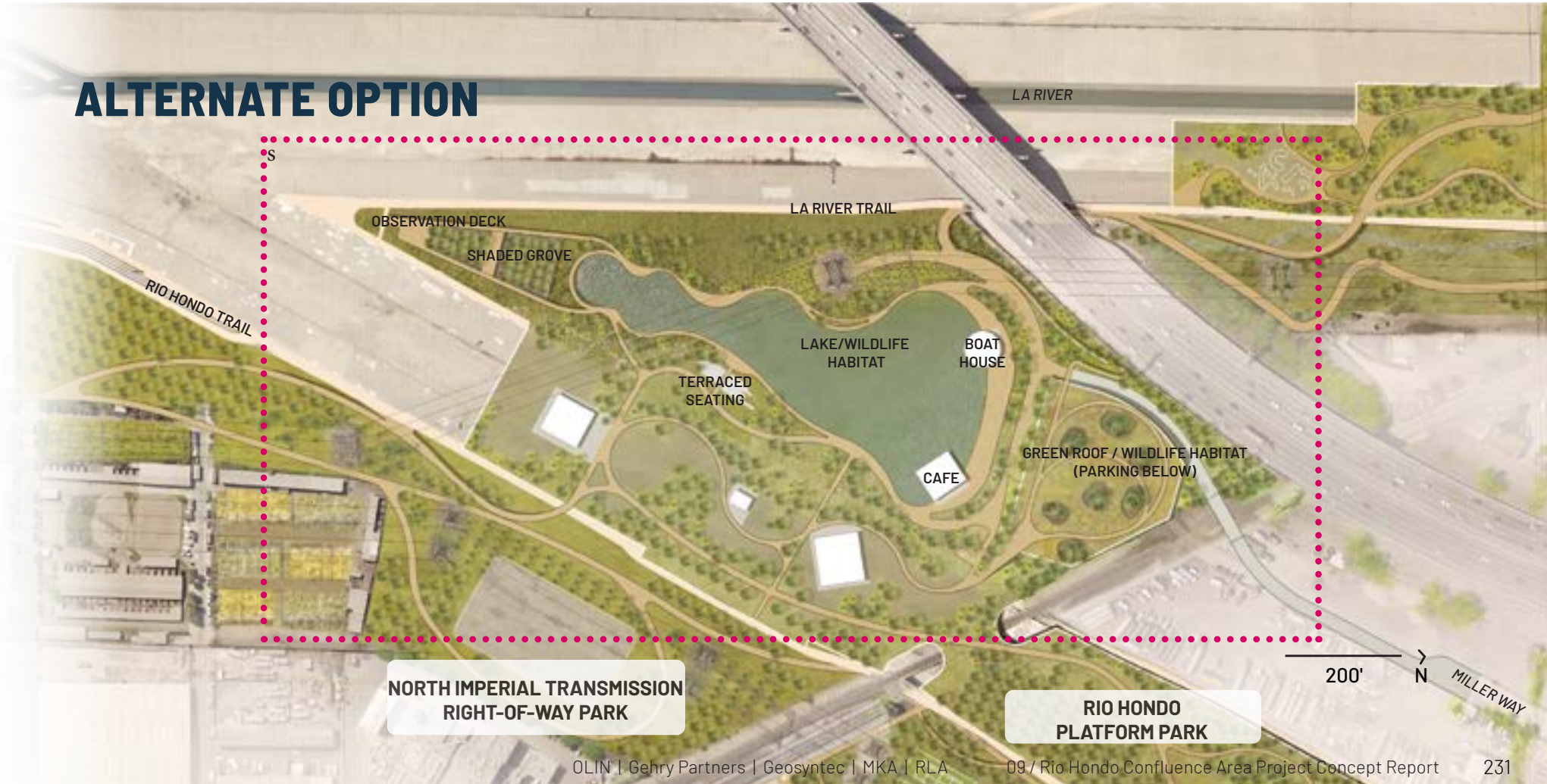
KEY PLAN



BASELINE OPTION



ALTERNATE OPTION

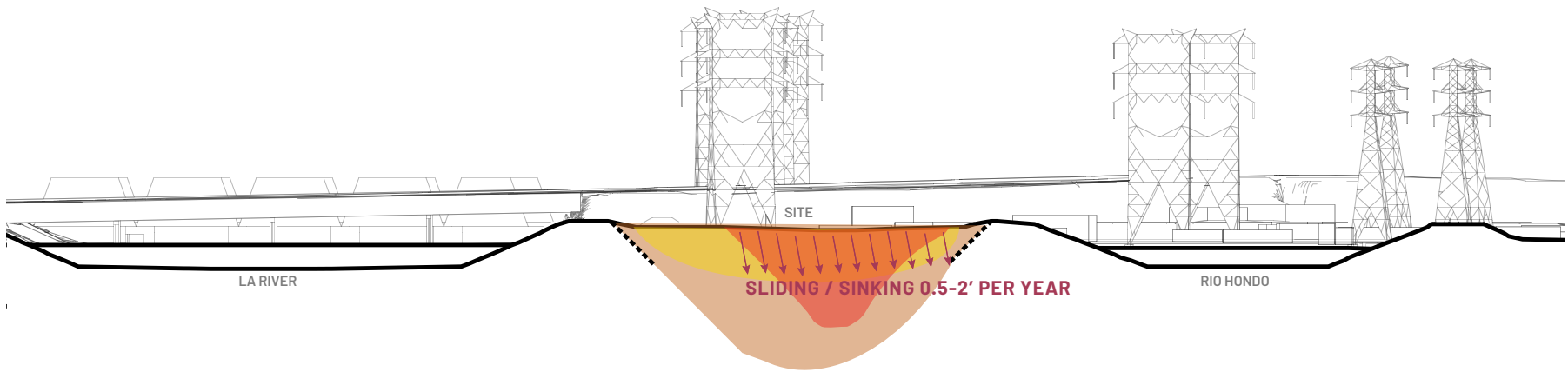


CONFLUENCE POINT PARK

CHALLENGES

Given the history of the site as a former landfill based on information provided by the current tenant of the site, there is still methane being generated by the waste, and as much as two feet of soil has been required to bring the site back to grade every year. This indicates that there is a significant amount of organic waste disposed of at the site that is continuing to decay, settle, and generate methane. There are several potential options for mitigating these challenging conditions, and further investigations should be conducted to better understand the existing site. However, during the development of Confluence Point Park excavation and removal of the waste will likely be required.

Additionally, the LADWP high voltage transmission lines that run along the southern and southwestern edges of the site place various constraints on horizontal and vertical clearances and permitted programming. Site planning for structures, vegetation, and site activities will require careful consideration to not impact the transmission lines nor the ability to maintain the lines and towers.



EXISTING

LEGEND

- Clean Fill
- Contaminated Fill (Potential)
- Former Landfill
- Sandy Alluvial Soil

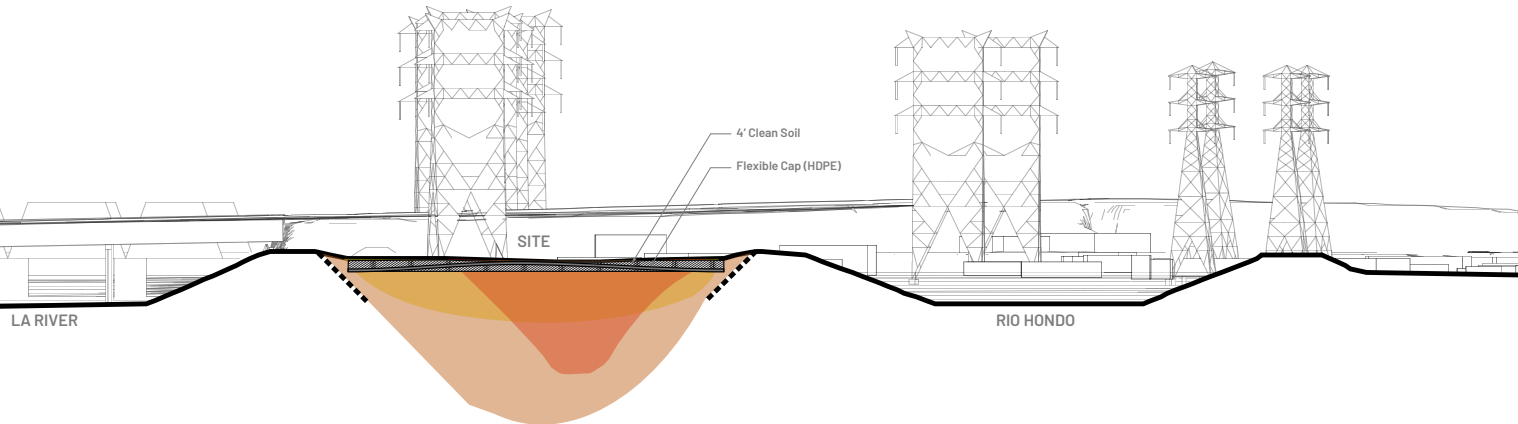
KEY PLAN



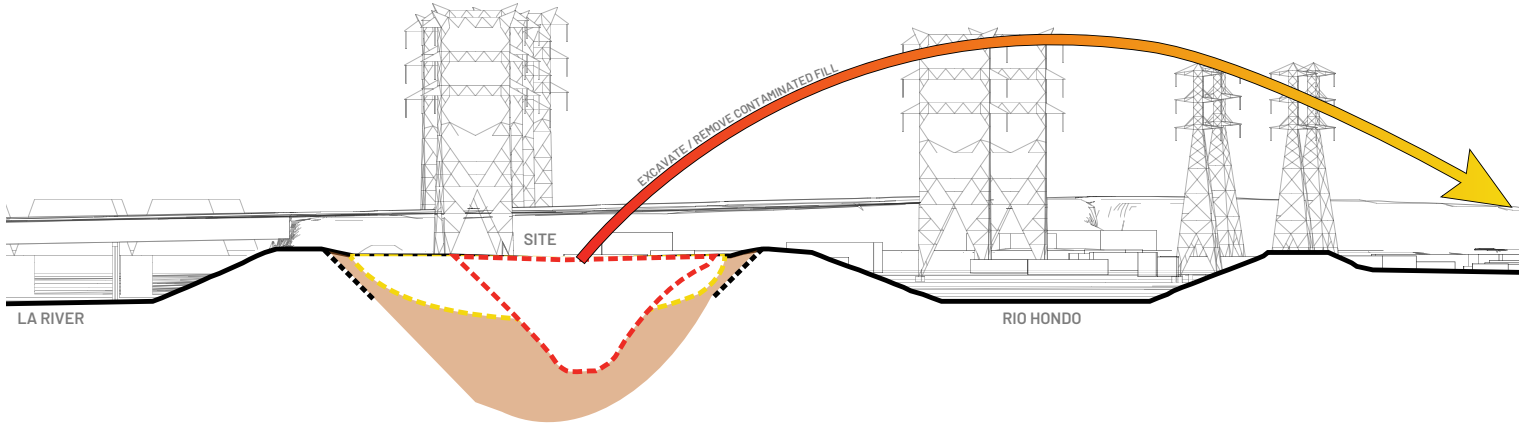
NOTE: Extent and depth of contaminated fill and of landfill are unknown and assumed for graphical purposes

CONFLUENCE POINT PARK

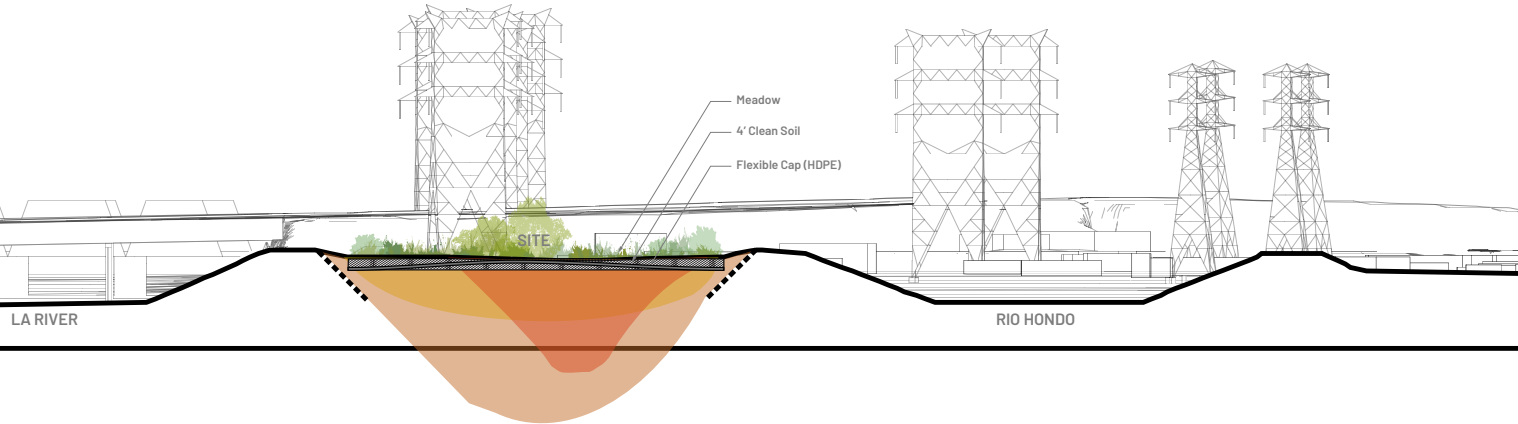
CHALLENGES



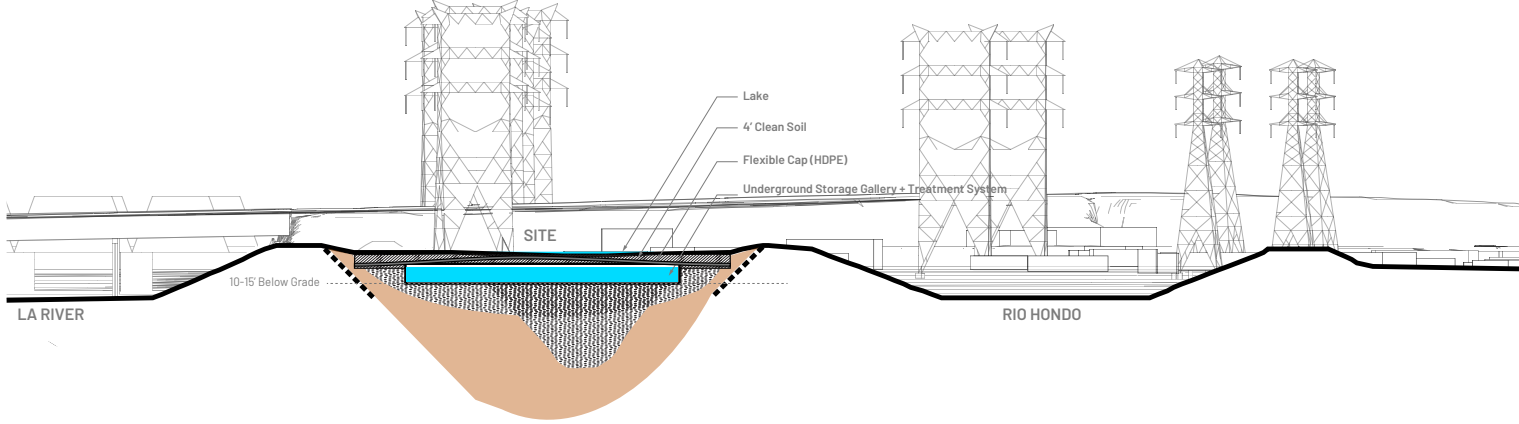
PROPOSED BASELINE OPTION: CAP PHASE



PROPOSED ALTERNATE OPTION: EXCAVATION PHASE



PROPOSED BASELINE OPTION: VEGETATION PHASE



PROPOSED ALTERNATE OPTION: LAKE + SUBSURFACE WATER STORAGE PHASE

NOTE: Extent and depth of contaminated fill and of landfill are unknown and assumed for illustrative purposes

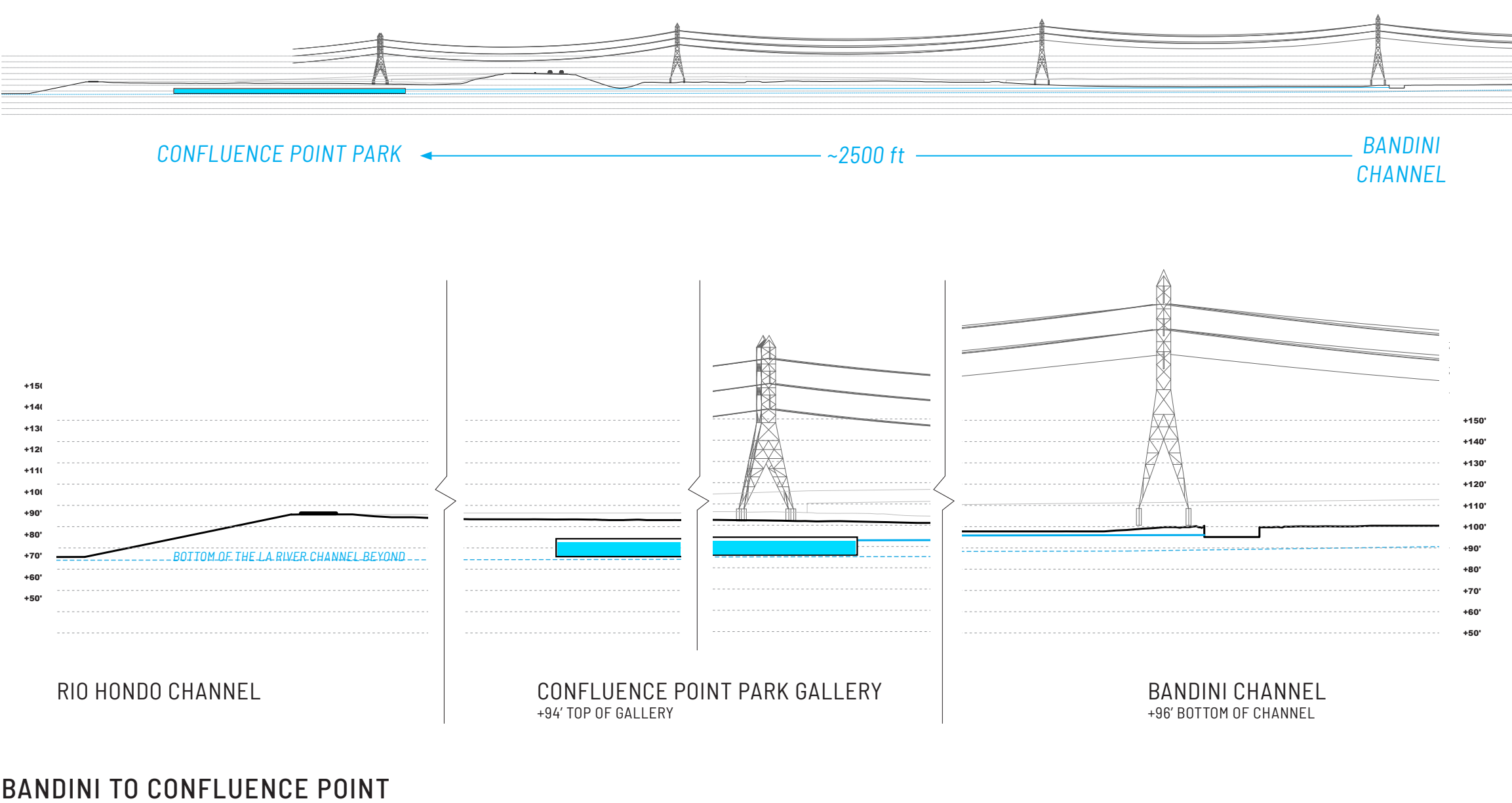
PROJECTS

CONFLUENCE POINT PARK

WATER QUALITY AND WATER SUPPLY OPPORTUNITY

The confluence site represents a large parcel of land that could be used to contribute to large scale water quality and supply improvements. Since it is likely that the current fill will need to be excavated, this will result in a significant depth of excavated space that could be used as an underground water storage facility. The best opportunity to treat stormwater and dry weather flows at the site is to capture flows out of the Bandini Channel, approximately 2,000 feet north, upstream on the east bank of the LA River.

Dry weather and low flow wet weather flows could be diverted out of the Bandini channel and conveyed to an underground storage facility at the confluence. This water would be stored, treated, and beneficially used to offset irrigation demands.



CONFLUENCE POINT PARK

DESIGN

Confluence Point Park has the potential to become a landmark park destination in Southeast Los Angeles. Perched above the confluence park-goers will have breathtaking views of the LA and Rio Hondo Rivers. The project could serve as a model for transforming underutilized industrial landscapes into valuable community amenities. The baseline native meadow alternate recreational lake could provide such opportunities as paddle boating, bird habitat, and passive recreation. Visitors to the site arrive via an access road under the UPRR line and can park under or walk above a green roof parking structure. Providing both shade and elevated views, the structure conceals the parking lot as well as buffering the elevated I-710 freeway and future Metro WSAB light rail. A network of ramps and stairs will provide additional access from the future Rio Hondo Platform Park to the lake.

The recreational lake, situated among a series of shade and rest pavilions, and seating along the lake's edge will encourage many species of migratory birds as well as visitors to the park to rest near this calm body of water. Sweeping vistas across the lake reveal a series of "bluffs" along the future adjacent Rio Hondo Platform Park as well as a glimpse of the confluence of the two rivers.

Should the soils and geotechnical conditions at this location require a lighter intervention, an alternative

site strategy to introduce meadow plantings and wildlife habitat may prove to be more feasible or cost-effective.

The green roof parking structure will allow for sunlight, wind, and native vegetation to enter into the parking lot and allow for additional recreation areas above while still providing around 150 parking spaces on site. Views from the green roof towards the northeast will allow for views of the San Gabriel Mountains on a clear day, which is rare in the relatively flat landscape of industrial warehouses and medium density residential neighborhoods characteristic of much of SELA. Views south towards the confluence will allow visitors to appreciate the unique prospect and the terraced slope up to the Rio Hondo Platform Park on the east.

A grove of trees creates a dramatic approach to the confluence point itself, with terraced rooms stepping up toward an overlook. The promontory at the confluence point offers a unique open view of the confluence and the LA River to the south as well as the Parque Dos Rios and future Imperial Wetlands. In one expansive view, visitors to the park can appreciate these new habitat opportunities as well as the awe-inspiring scale of the infrastructure of the LA River channel.

CONFLUENCE POINT PARK

BASELINE OPTION



CONFLUENCE POINT PARK

ALTERNATE OPTION

