

# BACK ON TRACK



RECLAIMING THE  
SACRAMENTO  
RAILYARDS  
RIVERFRONT

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LANDSCAPE ARCHITECTURE

UNIVERSITY OF CALIFORNIA, DAVIS

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# BACK ON TRACK

## RECLAIMING THE SACRAMENTO RAILYARDS RIVERFRONT



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# ABSTRACT

As each ever-expanding city extends at the periphery, the relevancy of the urban core is threatened. What is the city built around? Location is vital to the establishment and continuous development of our urban landscapes. As for the city of Sacramento, CA, a number of influences have contributed to its steady expansion. The city is situated at the confluence of two major rivers – the Sacramento and American River, which are both resourceful attractions. The Gold Rush, a prominent historical event, contributed to the city's growth and helped establish Sacramento as a destination; however, people needed a means to travel to the city. As the railroad industry arose and grew, the city followed. Years passed and the city sprawled outward while the railroad operations at the city core declined.

The Sacramento Railyards property in downtown is presently an unused, post-industrial brownfield site. In addition to the railyards property, the intersecting highway overpass disconnects the iconic Sacramento River with the rest of downtown. Working in conjunction with the city plans for the site, this project focuses on the reclamation of the Sacramento railyards riverfront. Strategies to transform the empty brownfield into a contemporary park are explored. The design aims to formally connect people to the river while existing materials and areas within boundaries of the riverfront are repurposed to allude to the past history of the site.

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# INTRODUCTION

General insight into the identity of cities, including the relationship to context is discussed in the following section. The issue of the brownfields is then highlighted. Landscape architecture theories associated with the reclamation of post-industrial sites are also covered. The issues are then related to the city of Sacramento.

## THE ESSENCE

Our innate desire to construct the perception of ourselves and surroundings is a lifelong endeavor. After its discovery, we shape, refine, and even change it entirely – we seek an identity. Physiologically, humans function very similarly, yet we count on identity as a means to differentiate us from those around us. Like us, the city breathes, exhales carbon, consumes energy, relies on water, and even grows. The city is very much alive; like people, it also possesses an identity. There are endless nuances that may determine the uniqueness of an urban landscape.

FIG. 1.1 An aerial of downtown Chicago



One prominent influence for the identity of a city is the environments in which people gather and interact with one another. Outdoor spaces are capable of fulfilling the urban population’s desire to connect to the city that they accept as their home. On describing his belief for the importance of a public park, landscape architect Michael Van Valkenburgh (2005) commented, “City dwellers don’t just want parks; they need them so they can be connected to time and place.”

“ACROSS AMERICA, AS  
INDUSTRY RECEDES FROM  
ONCE ACTIVE WATER  
EDGES..., A LIFELESS  
DIVIDE HAS DEVELOPED  
BETWEEN CITIES AND  
THEIR WATERFRONTS.”

(MOFFAT, 2002)

## CITY + WATER

Oftentimes, the determinant for a city's identity is based on the existing conditions in the region. Whether it is surrounding topography, harsh weather patterns, abundance of resources, or natural water systems, the connotation behind a city may rely primarily on location. Logically, many cities are situated along freshwater rivers which can support large populations. Cities established along rivers become associated with water, especially from the constant visibility of bridges, docks, and boats. Rivers are vital to the identity of the respective cities that they flow through. Water also attracts industry. Many cities contain industrial areas along riverfronts where ports enable convenient transportation from roads, rails, and water. The driving force for city growth can be attributed to riverfront industry.

**FIG. 1.2** Opening day of the East River Waterfront Esplanade in New York



## DECLINE

What happens when industry becomes obsolete? Over time, industrial sites may face abandonment, and all that is left is a contaminated tract of land absent of any activity; these site characteristics may classify a property of land as a brownfield. The U.S. Environmental Protection Agency (EPA) defines brownfields as “real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant” (EPA, 2013). According to the EPA, contamination isn't a necessary requirement for brownfield classification – more emphasis is put on the complications preventing development. In the United States, there are an estimated 425,000 brownfield sites occupying 5 millions acres of industrial land (U.S. Dept. of Housing, n.d.). The Center for Creative Land Recycling, estimates that there are between 150,000 and 200,000 perceived brownfields in the state of California alone (Brodsky, 2007). There are a remarkable number of abandoned and unused spaces that have altered the perception of our urban landscapes.

## INEVITABLE WASTE

Can the accumulation of these unused voids in our cities be prevented? Alan Berger (2006) argues that the increased numbers of these waste landscapes, or “drosscapes” as he defines them, are inevitable. These sites are leaving behind harmful waste and are also wasteful in the sense that the spaces are not being used. He attributes the occurrence

**FIG. 1.3** Large brownfield outside of San Francisco



of brownfields and other abandoned sites to sprawl and the decline in production of economically important areas. Sprawl is closely proportional to the growth of cities. As urban edges develop and spread, areas at the city core, which once behaved as a catalyst for growth, become “deindustrialized.” While this trend is responsible for many abandoned sites, it is a key indicator for the healthy growth of a city. As cities experience significant growth, former industrial sites must be addressed to reclaim the wasted landscape (Berger, 2006).

## RECLAMATION

Only in the last couple of decades, the theory of landscape urbanism has arisen as a design language associated with contemporary urbanism. The theory declares that landscape architecture is a major force for the composition of urban environments. Charles Waldheim (2006), author of the *Landscape Urbanism Reader*, is a major proponent of the theory and suggests that the design of our urban areas should rely on the landscape as the “building block” of our urban spaces as opposed to buildings. Landscape is seen as a determinant of urban form based on “organization of

horizontal surfaces” which can strongly influence sprawl. Landscape urbanism emphasizes a broader approach to the design of our cities rather than the dependence of buildings and infrastructure to mold the environment.

The presence and rethinking of infrastructure is an important aspect of reclaiming sites. Landscape architects have been able to work in urban areas that have had a growing demand of attention – post-industrial sites. Waldheim stresses landscape architecture as a “remediating practice” for sites that previously engaged in heavy industrial activity. Also, Waldheim includes a description from Richard Weller, an Australian landscape architect about the potential of post-industrial sites and the field of landscape architecture:

“Postmodern landscape architecture has done a boom trade in cleaning up after modern infrastructure as societies – in the first world at least – shift from primary industry to post industrial, information societies. In common landscape practice, work is more often than not conducted in the shadow of the infrastructural object, which is given priority over the field in which it is to be

inserted. However, as any landscape architect knows, the landscape itself is a medium through which all ecological transactions must pass: it is the infrastructure of the future.”

Weller asserts that the design of a post-industrial site should focus on the landscape and its function to the environment, possibly as infrastructure, rather than being centered on the built piece of infrastructure present in a space. The concept opens up possibilities to re-imagine structures to provide new uses that benefit the surroundings by using the landscape as a medium (Waldheim, 2006).

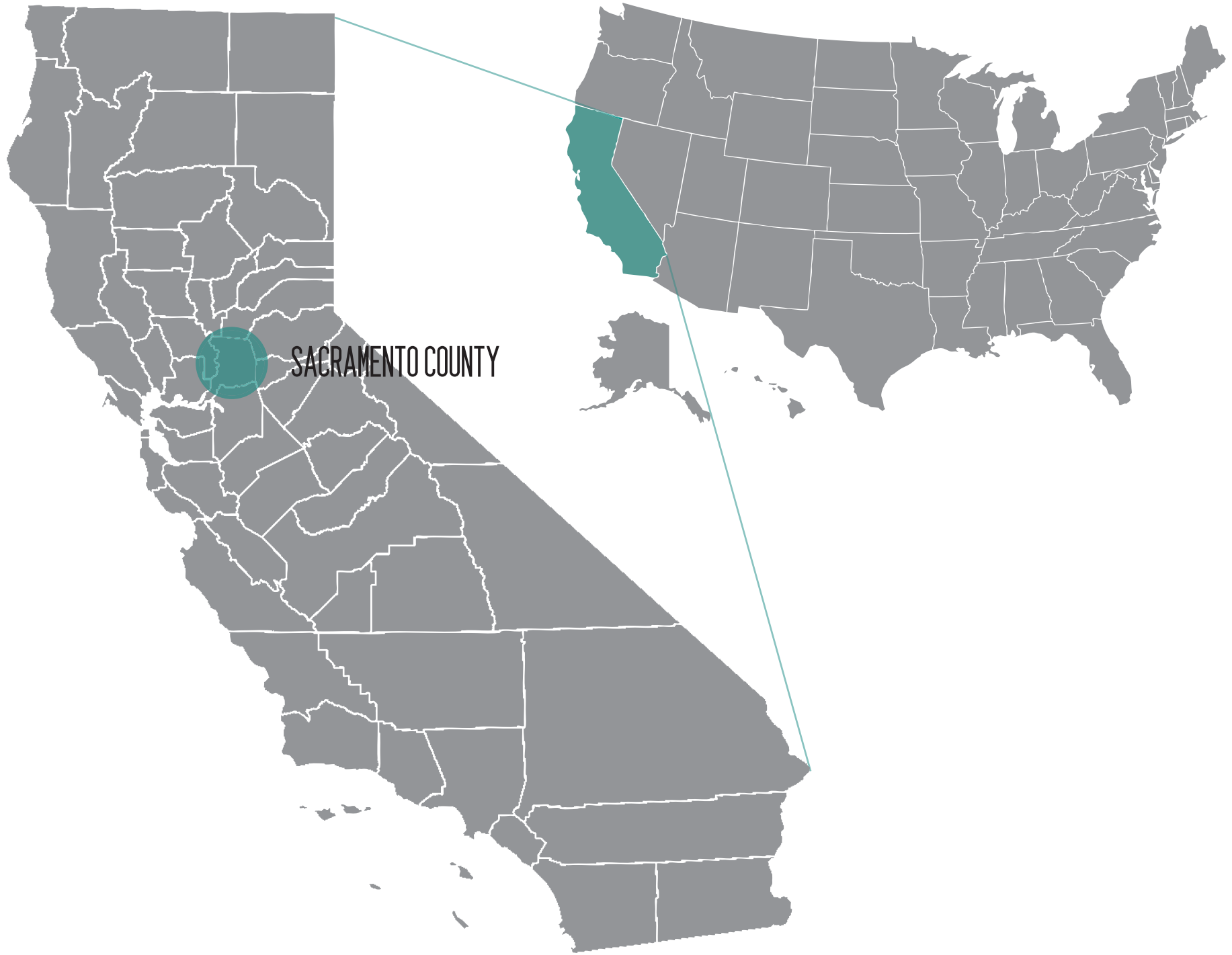


**FIG. 1.4** Green infrastructure and ecology proposal for Milan

An aerial, sepia-toned photograph of Sacramento, California. The Sacramento River flows through the center of the city. To the left, the California State Capitol building is visible, characterized by its large, tiered steps. A multi-lane highway runs parallel to the river on the right side. The city is densely packed with various buildings, including residential houses and larger commercial structures. The overall scene captures the urban landscape and its relationship with the river.

# SACRAMENTO, CA

Serving as the capital of California, the city of Sacramento has had a prominent political and economic presence across the nation. Through the means of the river and railroad, Sacramento has retained importance to the rest of the country over time, yet the city's industrial past has caused the physical landscape to undergo many changes. Concerns pertaining to the city-water relationship and growing number of abandoned sites are very much present.



# BROWNFIELDS

## NOTABLE SITES IN THE CITY

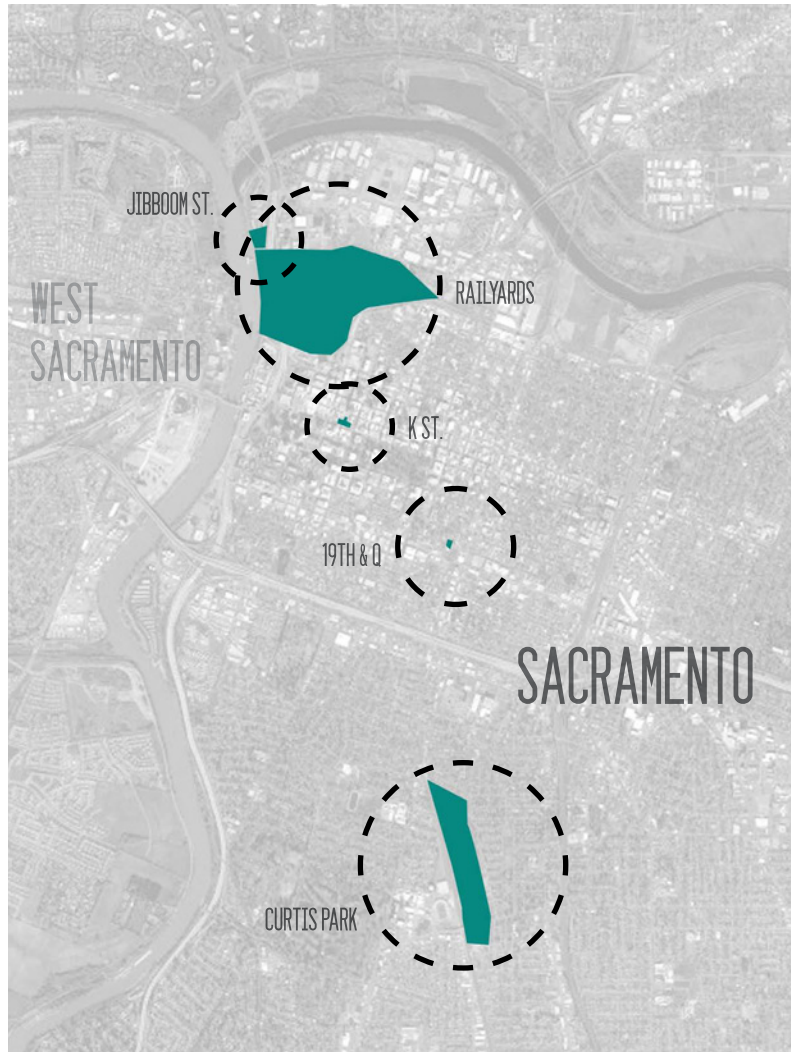


FIG. 1.6

Common to most cities throughout the nation, Sacramento is scattered with unused sites – many of them brownfields. At some point in the future, these brownfields will be cleaned and redeveloped. In 2009, the city received \$400,000 from the U.S. Environmental Protection Agency (EPA) for the assessment, cleanup, and development of brownfields. Sacramento features a Brownfields Program that assists the redevelopment of contaminated areas.

Brownfields are often situated near urban areas where there was previous industrial activity. As seen in Figure 1.6, the largest brownfield is located in the northwest corner of downtown in an area known as the Sacramento railyards, which is now a post-industrial site. Other sites are receiving partial funding for remediating brownfields from the city's Revolving Loans Funds (RLF) program. These funded sites include: Curtis Park, Jibboom Street, K Street, and 19th and Q (Brownfields Program, n.d.).



# FLOODING

Located on floodplains along two rivers, areas of Sacramento are at risk of flooding. Displayed at the city-wide scale, Figure 1.7 shows the aftermath of a 100-year flood event. Flooding is much more apparent for areas alongside the American River. Development on areas prone to potentially hazardous flooding events has been ongoing. The northern portion of the city, commonly known as the Natomas area, faces the possibility of disastrous inundation. Through the aid of levees, depicted as red lines in Figure 1.8, downtown Sacramento is able to withstand flooding from a 100-year event. The Sacramento railyards property, contained within the dashed borders on each map, is the area of focus for this project. Due to levees and grading from sedimentation, the railyards does not face a severe threat of flooding – there may be an opportunity to showcase the natural fluctuations of the river to the public.

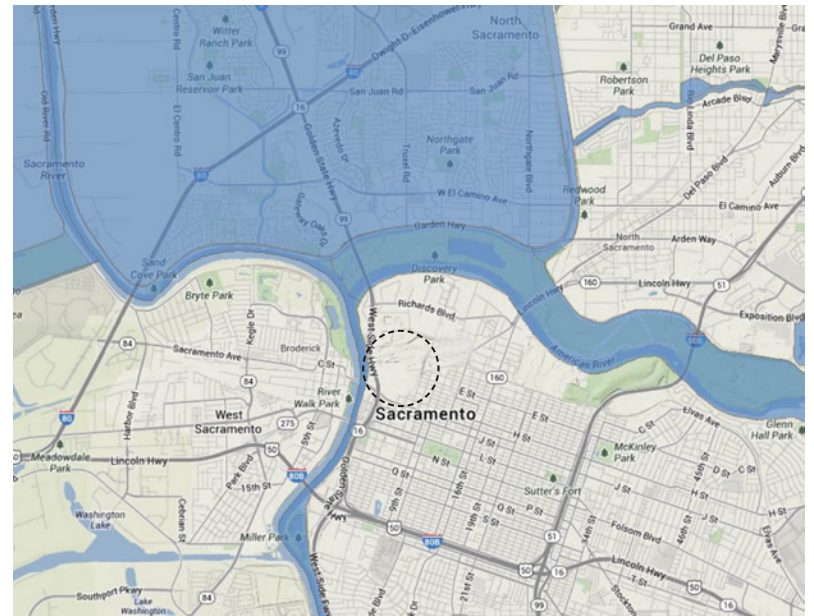


FIG. 1.7 100-year flood in Sacramento

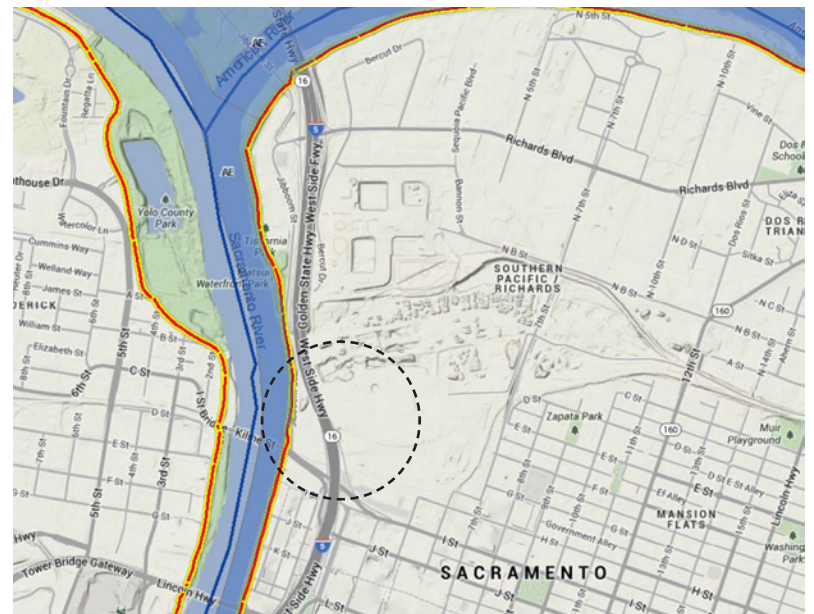
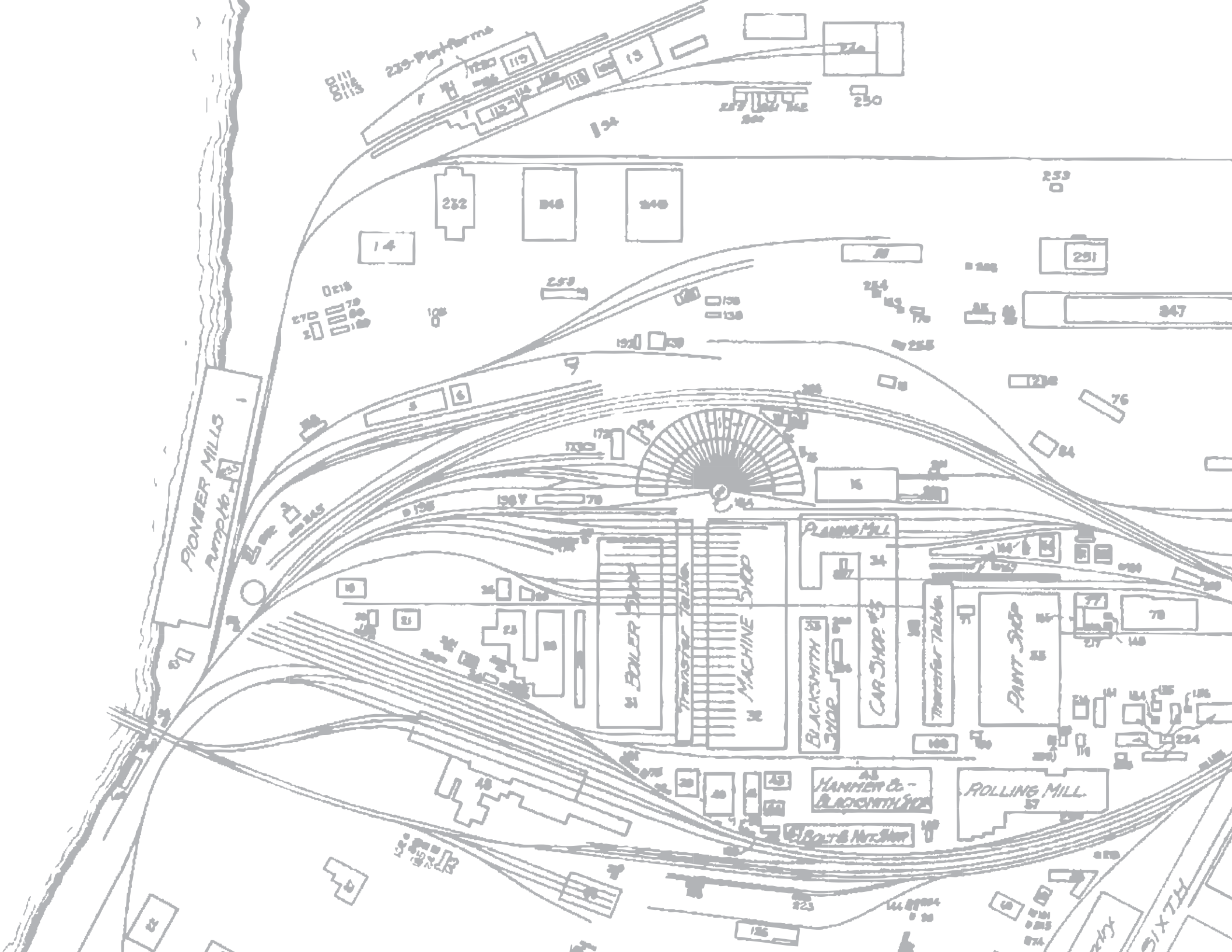


FIG. 1.8 100-year flood and levee center lines in Sacramento



PIONEER MILLS  
RAMP No. 3

239-Platforms

BOILER SHOP

TRANSFER TABLE

MACHINE SHOP

BLACKSMITH SHOP

CAR SHOP

TRANSFER TABLE

PAINT SHOP

HANNON & BLACKSMITH SHOP

ROLLING MILL

BOLT & NUT SHOP

0218  
270 79  
2 100

259

158  
138

255

238

76

24

198  
197

172

174

29

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251

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134

232

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248

14

22

228

223

220

22

22

22

SIXTY

# RAILYARDS

The past history and current state of the Sacramento railyards property is examined in this section. A brief summary of the different proposed districts from the city plan is also included. The site is then narrowed down to a single district.

# TRACKING HISTORY

## THE PAST

The historical significance of the railyards is not only tied to the city of Sacramento – the site is influential for the entire western United States. The site was first used as maintenance yards for the Central Pacific Railroad before joining the Union Pacific Railroad that continued to expand towards the eastern United States. The steady construction of railroads, largely attributed to the local Chinese population at the time, led to the completion of the First Transcontinental Railroad in 1869 – the Sacramento railyards served as the terminus. The railway was the primary transportation linkage between the east and west coasts. Eventually, the rail industry thrived in the city as the Southern Pacific shops on the railyards property manufactured and maintained locomotives (Sacramento Downtown Development, 2008).

The progression of the rail industry brought about changes within the site and surrounding landscape. Levees were constructed along the adjacent Sacramento

River while the American River was rerouted in the north to help prevent flooding on the property. What started as only a 20 acre site became 237 acres by the 1930s. While the extent of the railyards has expanded considerably over its existence, the general building layout in the Central Shops area have remained fixed (Sacramento Downtown Development, 2008).

During the 20th century, railroad transportation started to become less relevant. Other forms of transportation such as personal vehicles and air travel were available

**FIG. 2.1** Southern pacific railroads shops



to the public in the 1940s which caused the railyards to function solely for maintenance and repairs. Several years later, the nearby port eventually relocated down the river to West Sacramento during a period of time where most operations on the railyards decreased. As noted in the city of Sacramento's specific plan for the property, the Interstate-5 overpass, which was constructed in the 1970s, "cut off direct access to the river and reflected the national emphasis on interstate highway construction over other transportation modes (The City of Sacramento 2007)." On a site that was once based on connectivity, it now acts as a barrier instead.

## CURRENT CONDITIONS

Currently, the railyards remains as an expansive, vacant brownfield that fails to provide the city with any purpose. The entire 244-acre site features no perceivable change in topography and is bordered by the Sacramento River, downtown's business district, and the Alkali Flat residential neighborhood. The area is accessible by many modes of transportation. Although maintenance and repair operations for locomotives were finally moved to Roseville,

CA in the early 1990s, there are railroad tracks dissecting the site that are still in use. A set of tracks running east and west through the site accommodates passenger and freight trains; today, the Amtrak station makes use of this railroad. Also, existing light rail and bus routes are in close proximity. A frequently-used bike trail runs along the western edge, beside the river, and connects to the American River Parkway to the north. The total amount of green space in downtown Sacramento surrounding the railyards amounts to 60 acres; while adequate, there are still opportunities to decrease hardscape throughout the city (The City of Sacramento 2007).

# THE CITY PLAN

## DISTRICTS

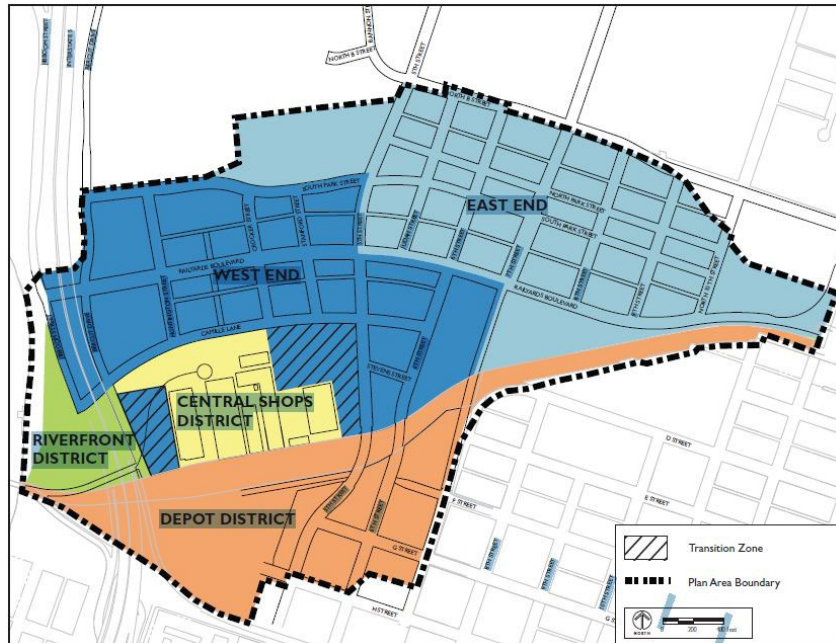
Due to the site's location and context, the railyards offers spaces that may provide various uses for the city of Sacramento in the future. The specific plan divides the area into five distinct districts. The Depot District is designated as a hub that connects to downtown Sacramento. The Sacramento Intermodal Transportation Facility will be located in the district. The Central Shops District, located

in the center of the site, features retail, museums, a theater, restaurants, galleries, a farmer’s market, and other attractions. Pedestrian-friendly streetscapes along a mix of residential, office, and entertainment spaces compose the West End district. The East End is planned as primarily a residential neighborhood that is scaled for an urban setting; a linear park will be a prominent aspect of the district. The greatest potential to connect the city to the river resides with the district located right in between the river and the rest of the railyards property -- the Riverfront district; this district is the site for the park design.

## THE RIVERFRONT DISTRICT

The riverfront area offers a prime location for a park that not only invites the public to the Sacramento River but also showcases the significant history of the railyards. The district is nestled between the Interstate 5 highway to the east, the Sacramento River to the west, and a set of railroad tracks that divide the site from Old Sacramento to the south. The specific plan proposes a hotel, housing, restaurants, and open space for the plot of land; however, the design will focus on open space. While Jibboom St., an elevated roadway, currently intersects the space, it will likely be removed to enhance connectivity to the waterfront. The levee currently barricades the area from the river; altering the levee may be necessary to improve interaction with the river. An existing bicycle trail is also located along the levee. Incorporating bicycle trails into the park design for the site will promote recreation and sustainable transportation (“Sacramento railyards specific,” 2007).

**FIG. 2.2** Railyards districts plan

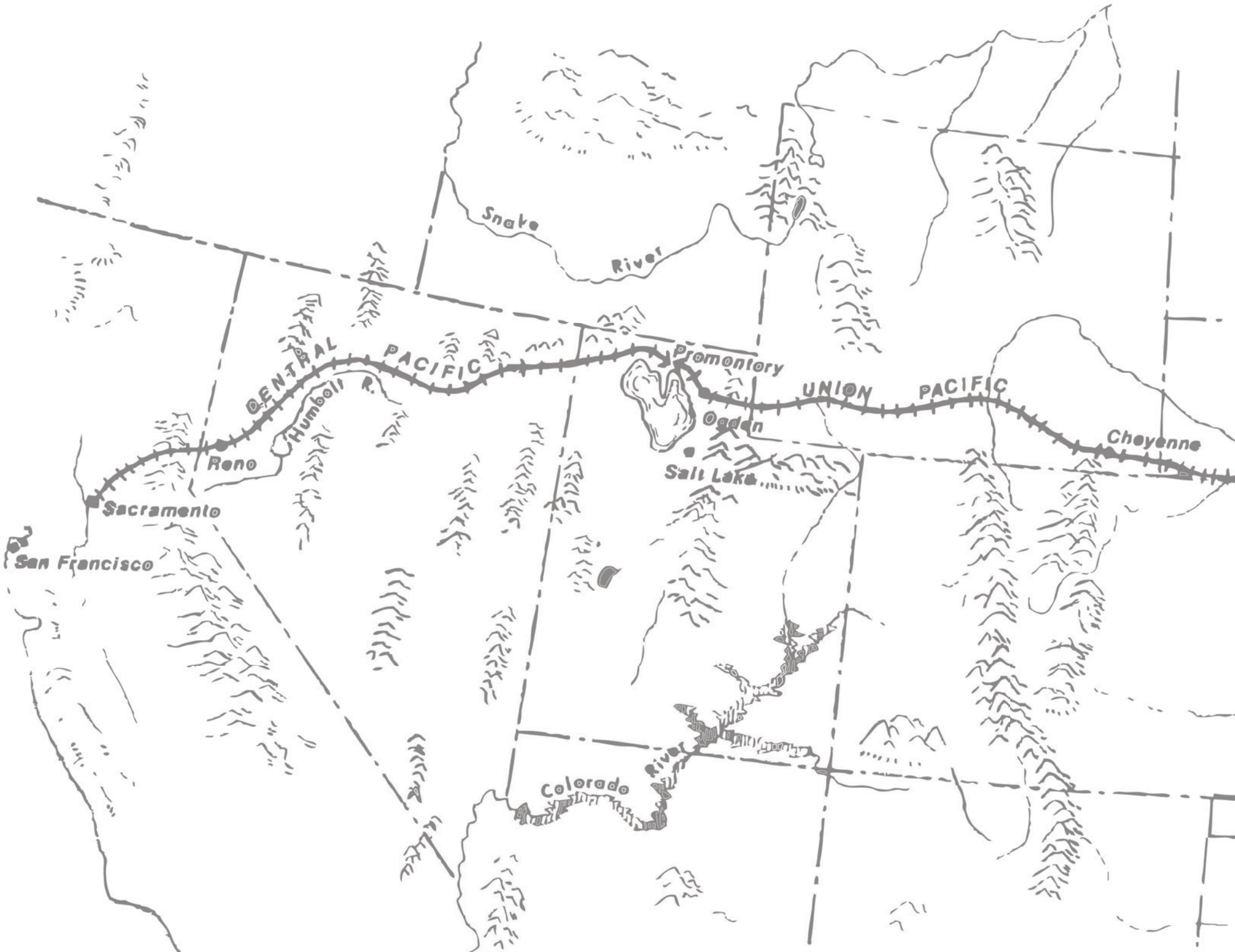


# OBJECTIVES

There are two main goals for this project. The first question focuses on how areas and elements from the existing site can be re-imagined and repurposed to highlight the transformation of the Sacramento railyards riverfront site. The second goal is associated with investigating strategies to bring people to the waterfront to experience the river in new ways.

01 HOW CAN THE DESIGN OF A BROWNFIELD SITE REFLECT A TRANSFORMATION FROM AN INDUSTRIAL LANDSCAPE TO A PUBLIC PARK SPACE?

02 ARE THERE STRATEGIES TO DESIGN SACRAMENTO'S WATERFRONT ON THE RAILYARDS SITE TO RECONNECT THE CITY TO THE RIVER?





# PRECEDENT

Design strategies from a number of sites are explored in this section. Projects are organized into three categories: the riverfront design, effective use of repurposing materials, and the transformation of underpasses. The different highlighted projects offer a variety of effective practices.

# RIVERFRONT

## ALLEGHENY RIVERFRONT PARK - PITTSBURGH, PA

One notable park that links the city of Pittsburgh to its river, which is known to fluctuate in depth, is the Allegheny Riverfront Park. Michael Van Valkenburgh Associates, the firm responsible for the design, aimed to enhance the pedestrian connection to the river while considering vehicle traffic from an expressway in the lower portion of the fourteen-block-long site. While it may be perceived as a major limiting factor, the highway coexists with the designed park rather than simply being covered or removed. The riverfront park is realized in the narrow edge of the river and embraces neighboring spaces rather than displaces them (Moffat, 2002).

The design focuses on vertical movement through the site to address each distinct area and level. These areas are defined as the highway, upper civic area, and river. A series of ramps weave together the spaces to create a unified presence along the Allegheny River. The forking paths allow pedestrians, whether on foot or bicycle, to



**FIG. 3.1** Allegheny Riverfront Park Aerial showing circulation

**FIG. 3.2** Aerial of Allegheny Riverfront Park

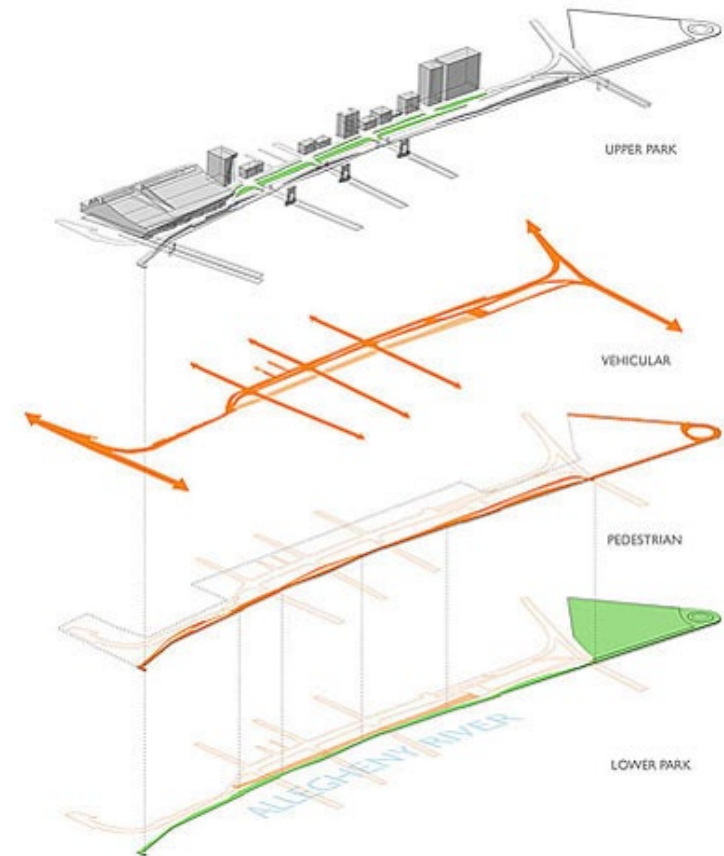


experience the park in unique ways. Another added benefit of the ramps, all of which are ADA compliant, is that they act as sound buffers between the park and noisy expressway (Van Valkenburgh, 2005). A major aspect of the park design is flooding; the river is capable of rising five to ten feet over time. The lower level of the site invites the fluctuating river to merge the two areas. While the ascending ramps ensure that pedestrians have access to higher elevations to avoid rising water levels, the interaction between Pittsburgh's population and the Allegheny River is effectively strengthened. Even the ecology of the site is designed to respond the natural fluctuations of the river; riparian vegetation is planted along areas prone to inundation (Moffat, 2002).

## LOUISVILLE WATERFRONT PARK - LOUISVILLE, KY

One similar precedent for brownfield waterfront development is the design of Louisville Waterfront Park in Louisville, Kentucky. Hargreaves Associates developed a master plan for the site in 1990 and also completed the design for Phase II of the park in 2011. While the design for parts of the park has been undertaken in phases, the

**FIG. 3.3** Layers of Allegheny Riverfront Park



total size of the site is over 100 acres. The park aims to reconnect the city of Louisville with the Ohio River, and finds success through various programmatic elements throughout the waterfront. A standout feature is the "Great Lawn" which spreads over 12 acres. Although turf grass is a high-maintenance groundcover, the lawn serves multiple



**FIG. 3.4** View of open space and water feature

purposes such as providing concert space, playing fields, and picnic areas. Appealing to groups of all ages, the park contains numerous attractions such as fairs, festivals, water features, docking for large riverboats, art gardens, wetlands, and walking paths (ASLA: louisville waterfront park, n.d.). A dynamic park which offers various uses like Louisville Waterfront Park may assure frequent attendance from the public.

Before construction of the park, the obstacle of contamination had to be addressed. Historically, the land was associated with heavy industrial use and transportation for over 100 years. Scrap yards, railroads, an interstate highway, sand/gravel operations, and



**FIG. 3.5** Aerial of Louisville Waterfront Park

asphalt terminals contributed to many forms of soil and groundwater contamination on the site (Walker, n.d.). Highly contaminated soils were removed from the site; however, areas with less contamination were retained or remediated using a pump-and-treat process that involves long-term monitoring (Environmental Protection Agency, n.d.). Depending on the availability of resources for long-term monitoring after the completion of a park design, the pump-and-treat remediation method, if proven effective, may offer one potential solution to clean contaminants on a site.

# REPURPOSE

## LANDSCAPE PARK DUISBURG NORD - GERMANY

In the early 1990s, an old industrial brownfield in the Ruhr district of Germany began its transformation into a popular green space. After overcoming the accumulation of contaminants over the years, the site, which is over 500 acres in size, has been reinterpreted as a dynamic park environment known as Landscape Park Duisburg Nord. The International Building Exhibition Emscher Park (IBA), an overseeing body for planning the area's future, aimed to drastically change the image of the unused, post-industrial space. A landscape architecture firm, Latz + Partner, were selected by the IBA in a competition for master planning the uninhabited plot of land (Kirkwood, 2001).

The park excels in repurposing existing materials on the site. Arguably the most symbolic part of the park, referred to as the Piazza Metallica, a grid-like arrangement of massive cast iron plates, is centered in an enclosed space within a blast furnace plant. The impact of nature can be observed upon each plate as they erode and rust over time.

FIG. 3.6 Blast furnace park: Plaza Metallica



Embracing the interaction of the existing materials, such as the plates, with the environment may enhance the identity of the park; the plates allude to the site's history while serving as an attractive feature for the park. Additionally, the towering walls of the blast furnace are reused as climbing walls to draw visitors. Old building and structures throughout the site encourage adventure. Underground lakes formed by groundwater are used as diving areas. While the activities in the park may attract thrill-seeking visitors, the same forms of recreation probably wouldn't be possible in the United States due to health and safety concerns (Kirkwood, 2001).

Distinct areas of the park connect and overlap at several points. The railway park system occupies upper levels of the site while the water park is located at the lowest elevation. Elevated railways function as promenades and even displays of art. Runoff is collected into basins and "enriched with oxygen" in the water park – clean water now flows through the park following cleaning of the infrastructure. Due to a high concentration of contaminants, the area for the sintering tower was replaced by a wind power plant (Kirkwood, 2001). There seems to be a threshold for areas

**FIG. 3.7** Water feature in the Duisburg Nord waterpark



**FIG. 3.8** View of park showing reuse of existing infrastructure



before they are demolished or removed at a site based on contamination.

Bioremediation is apparent throughout the park as vegetation grows on contaminated surfaces. An area with existing birches, which suffered a build-up of waste material that was brought about from coal-washing, provided a dilemma that offered a couple of solutions. The space could be capped with clay, which would trap all contaminants (poly-aromatic hydrocarbons resulting from burning fuel), or have gas diffusion over a period of time that would reduce contamination in the long-term while providing very limited access; the second solution was chosen. Clay-capping would provide the least initial cost. If a space could remain inaccessible and distant from pedestrians, the second option may possibly be feasible. Vegetation successfully grows on recycled soil that was acquired by grinding down uncontaminated rocks left over on the site; these ground-down rocks also were used as smaller stones and surfaces (Kirkwood, 2001)

The efforts to retain the majority of contamination on site and use the landscape as a method of treatment

allow Landscape Park Duisburg Nord to be a model for regeneration. The industrial history preserved by the soils and structures along with the variety of activities available, such as climbing and diving, are likely the main attraction for visitors. Remediation processes are ideally achieved prior to construction on a site. Methods to separate users from contaminated areas can allow for displays of remediation processes – possibly related to bioremediation through the use of vegetation. The park succeeds in maintaining the character of the site's industrial past by reusing existing infrastructure and allowing the remnants to coincide with nature and can serve as a valuable reference for related developments in the field of landscape architecture.

## URBAN DRY DOCK NO. 1 - PITTSBURGH, PA

Like the architecture of the Urban Outfitters Headquarters located on the same site in Philadelphia, the Urban Dry Dock No. 1 design by D.I.R.T. studio emphasizes a concept of reuse. Previously a United States Navy Yard, landscape architects found ways to repurpose the remaining buildings, materials, and infrastructure for the new campus design. The former rail tracks are retained and embedded into paved surfaces as a method to direct circulation outside



**FIG. 3.9** Closeup view of reused rail tracks



**FIG. 3.10** Aerial of rails incorporated into concrete pathways

of the campus walls. In addition to attracting pedestrians passing through, the crossing rails contribute to preserving the identity of the former naval yard. Leftover rubble on the property is recycled and filled into rain gardens as a filter layer (Saffron 2007). Rather than relying primarily on technology for a sustainable design, sustainability is achieved through the reuse of existing materials on the historic site.

## THE HIGHLINE - NEW YORK CITY, NY

Once used frequently for transportation, the one and a half mile long elevated railroad, also known as the Highline, in Manhattan became obsolete as other methods of transport such as trucking were introduced. The decaying site eventually featured a natural growth of vegetation along the remnant rail tracks. The environment's overtaking of the abandoned railway inspired the development of the current Highline promenade. Prior to the design of the elevated space, it was set to be transformed into a linear park that retained the concept of nature's reclamation of the site. James Corner's landscape architecture firm, Field Operations, and the multi-disciplinary firm Diller Scofidio +





**FIG. 3.11** Aerial of High Line walkway



**FIG. 3.12** Close-up of rails and planting bed

**FIG. 3.13** View of High Line elevated of street

Renfro were chosen for the design of the park. The concept of linearity is very apparent throughout. Pavement recedes in strips into planted areas, which receive the same level of conceptual thought as the rest of the park. The rail tracks are incorporated into planting beds; along with the strips of concrete walkways, the rail tracks promote movement through the space while also representing the history of the site (Rogers, 2010).



# UNDERPASS

## BUFFALO BAYOU PROMENADE - HOUSTON, TX

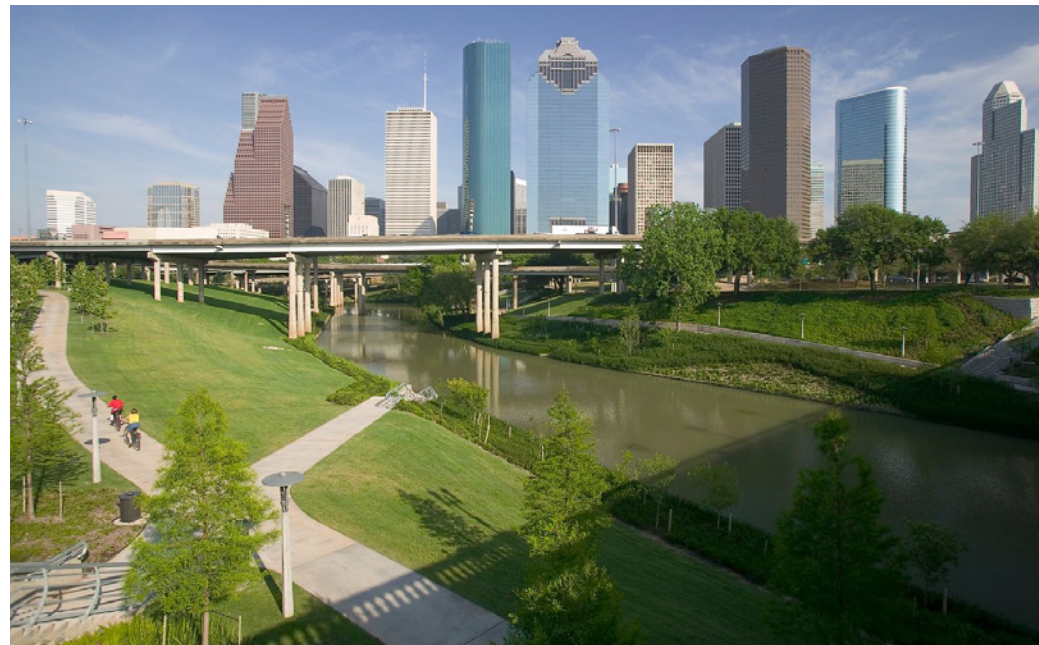
For the city of Houston, TX, the Buffalo Bayou is vital for drainage. Runoff entered from the interweaving freeway system while debris and trash deposited on site. Landscape architects from SWA worked to change the littered 23-acre waterway into an extensive park promenade – one that could serve as the gateway to the city. Pedestrian accessibility needed to be improved. Slopes were regraded to enhance views into the park while in turn



**FIG. 3.14** (Top) Underpass bicycle path

**FIG. 3.15** (Right) Aerial of Buffalo Bayou Promenade

**FIG. 3.16** (Bottom) Aerial of highway overpasses



reducing erosion along the banks of the bayou. Ramps and stairways were made available at several points along the surrounding roadways. Curvilinear pathways, imitating the flow of water, move through the site to improve the connection from the city to the bayou. Lighting throughout the park helps retain accessibility even when sunlight isn't available ("Buffalo bayou promenade," 2009).

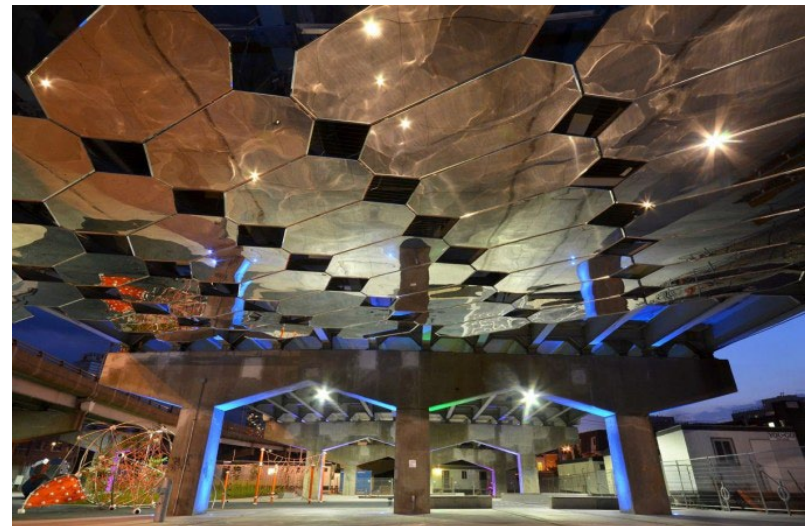
Prior to the park design, areas beneath the elevated freeways were unused and had limited accessibility. In order to seamlessly unify Houston and the bayou, the underpass would have to be re-imagined. The land and waterway under the mass of freeways were vegetated to improve aesthetics and biodiversity. As with the rest of the site, invasive monocultures are replaced with natives and plants resistant to flooding are located along nearby the water. The added vegetation also allows for a more inviting space that would otherwise deter pedestrians from entering the space. Sidewalks, wide enough to accommodate people on foot and bicycles, are designed to promote movement through the underpass. Even with the presence of dominating highways overhead and large concrete columns protruding from the earth,

the underpass is designed as an extension of the rest of the park as opposed to a different, isolated area ("Buffalo bayou promenade," 2009).

## UNDERPASS PARK - TORONTO, CANADA

The city of Toronto, Canada begins its effort to transform derelict highway underpasses into more inviting community spaces through the design of Underpass Park. Landscape architects of Phillips Farevaag Smallerberg designed the 2.5 acre site ("Waterfront Toronto unveils," 2010). Outdoor play and recreational spaces are clearly the main attraction. A playground, climbing structures, basketball courts, and

**FIG. 3.17** Mirage art display on the bottom of the overpass



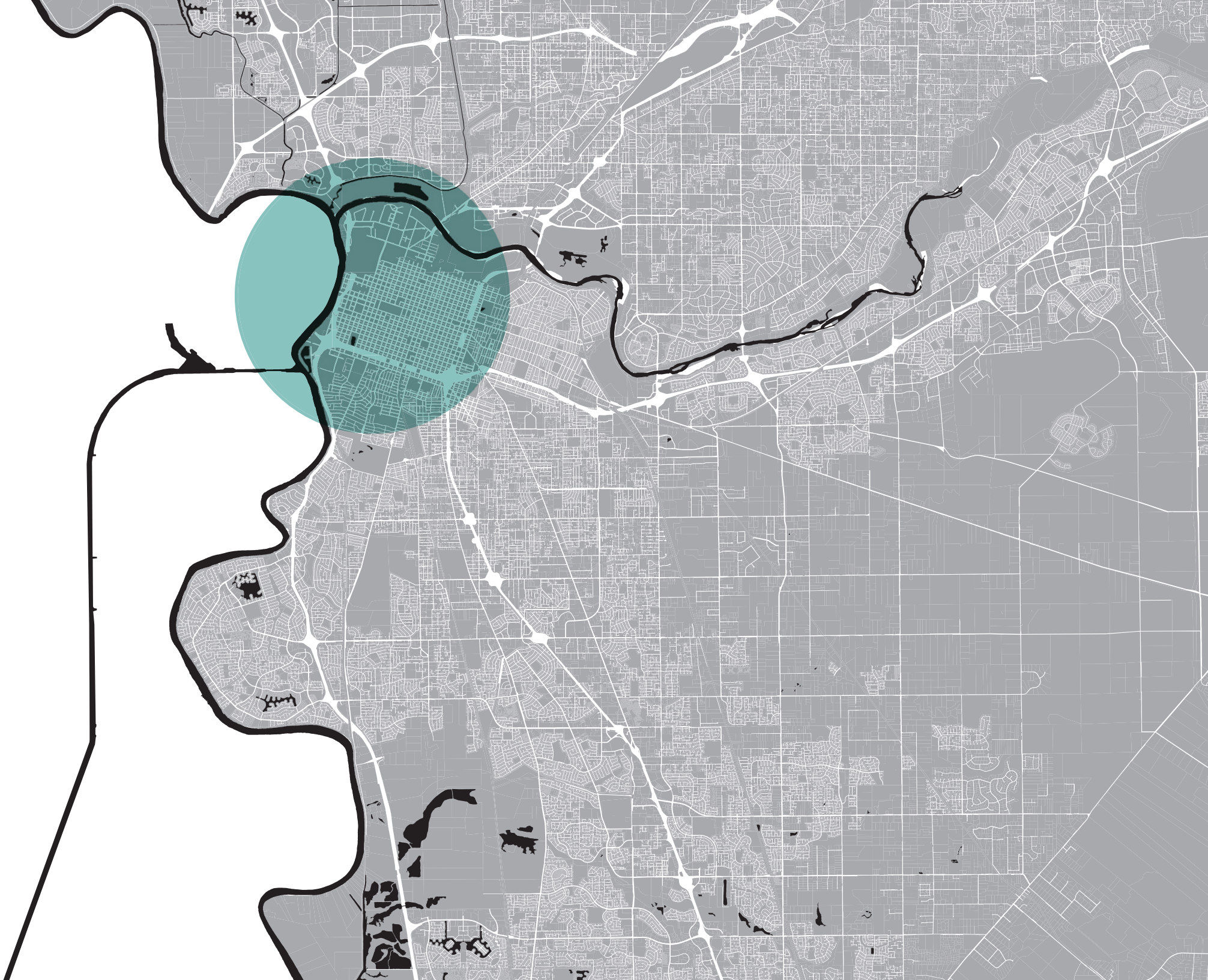
skate park are all designed underneath the highway to draw users seeking physical activity. Passive recreation is also encouraged through seating areas, open event space, and areas designated for festivals or markets (“Underpass park,” n.d.).

As with most underpass environments, safety is an important concern. One solution presented by the park is sufficient lighting. The park illuminates various colors from LED light fixtures after the sun sets. Public art creatively integrates with lighting using mirrors to reflect the numerous light sources. A second phase of the park design plans to add vegetation to soften the space and add shade to areas away from the underpass (“Underpass park,” n.d.).



**FIG. 3.18** Before and after of the park space adjacent to the underpass





# SITE ANALYSIS

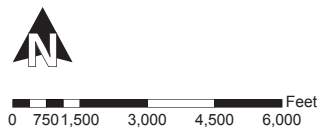
This section displays the relationship between the railyards riverfront site and the city. The surrounding context of the railyards is represented through a set of graphics depicting nearby parks, transportation, and zoning. Existing conditions and potential opportunities are then analyzed within the riverfront district.

# PARKS + OPEN SPACE

EXISTING

PROPOSED

RAILYARDS RIVERFRONT SITE








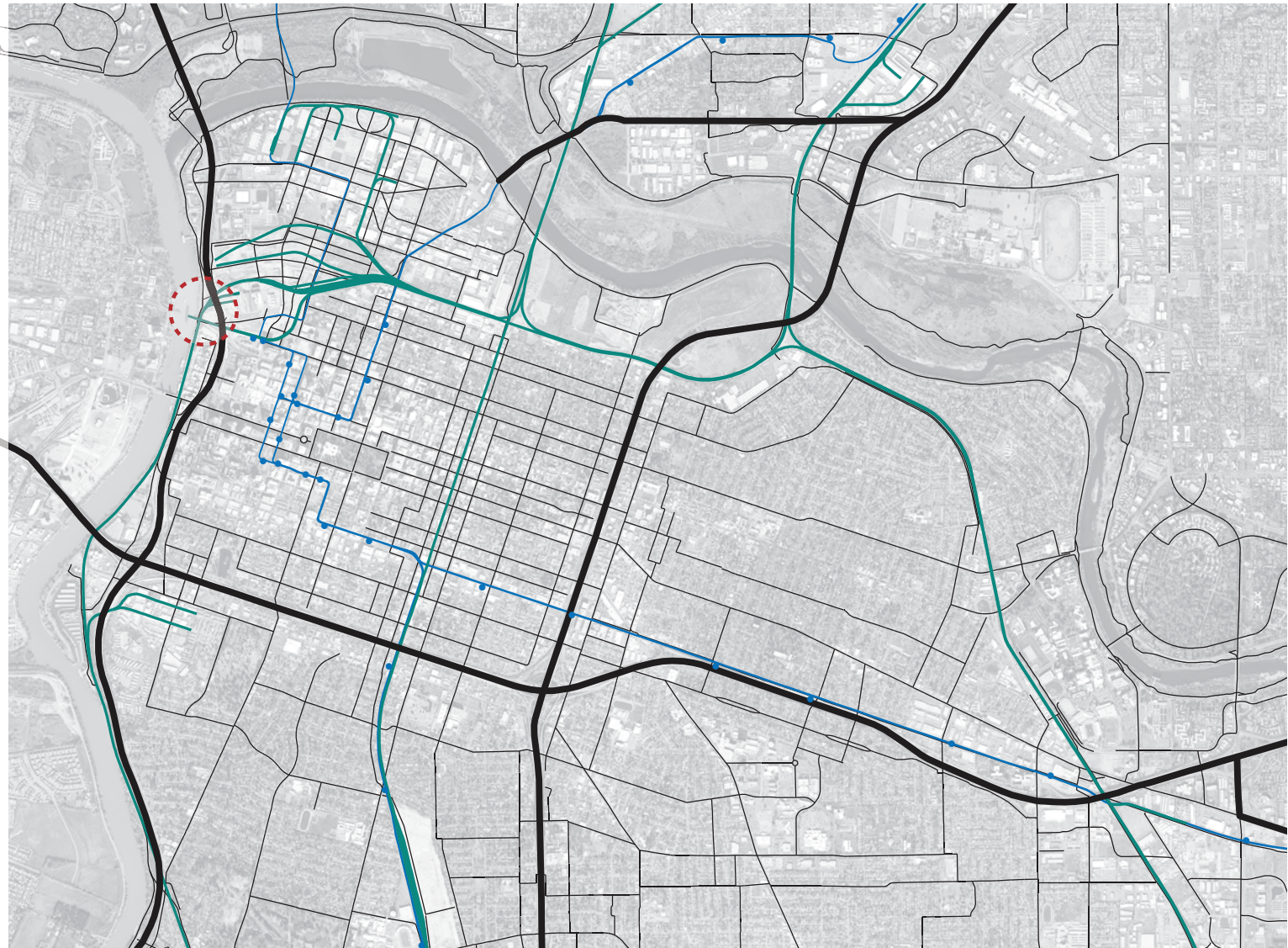
Proposed and existing parks for the city of Sacramento are displayed. Several pocket parks scatter throughout the urban landscape. The American River Parkway to the north tapers away as it reaches a small open space in Old Sacramento which is just south of the railyards riverfront. The Sacramento River lacks the

pedestrian exposure that is present along the American River. A park design on the railyards riverfront will enhance the connection between the Sacramento River, downtown, and also the American River Parkway.



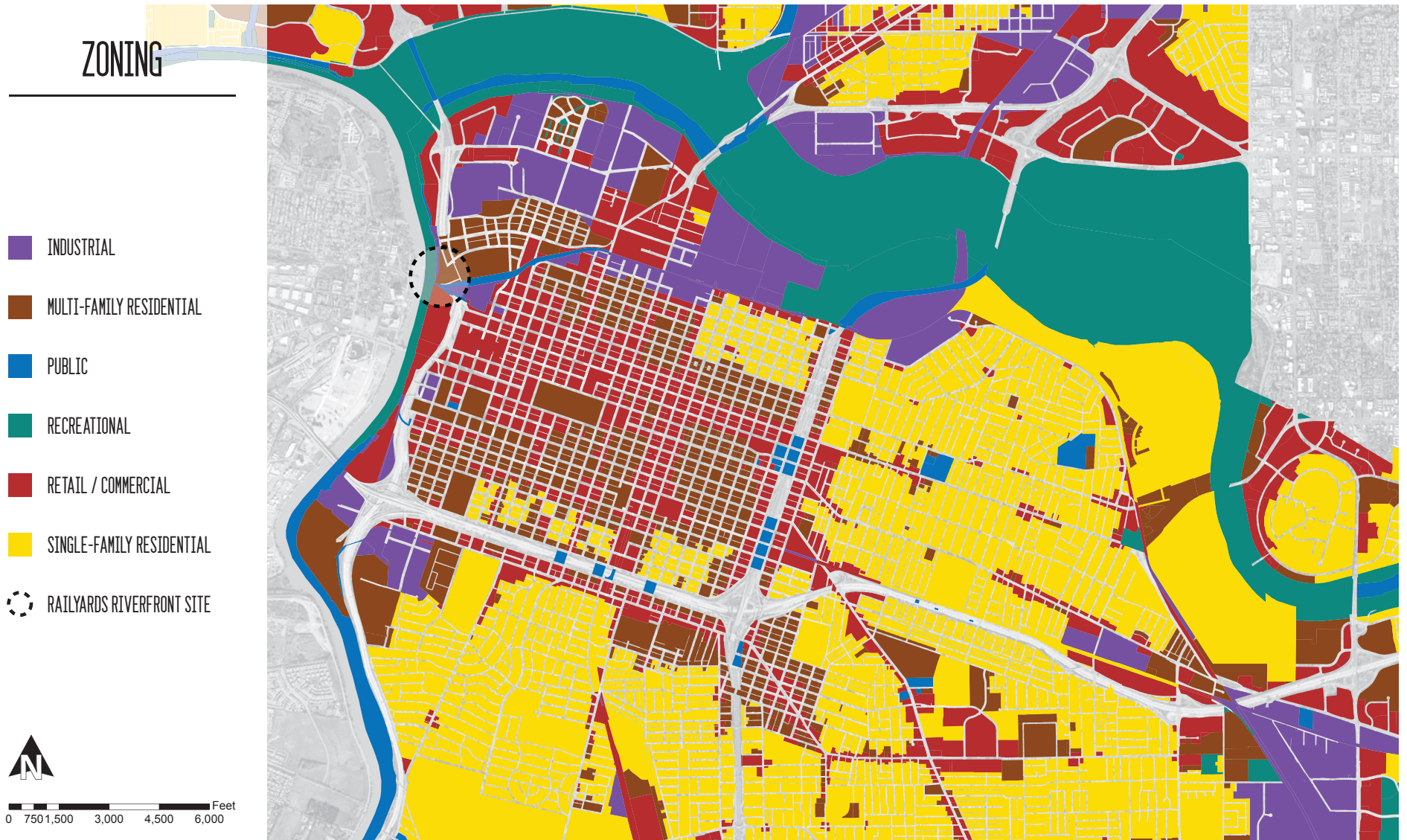
# TRANSPORTATION

-  RAILROAD
  -  HIGHWAY
  -  LIGHT RAIL
  -  BICYCLE
  -  RAILYARDS RIVERFRONT SITE
- 
- 



The railyards riverfront site can be accessed through various modes of transportation. An extensive network of bicycle routes spread around and through the site and even connect to the American River Parkway. While there have been ongoing adjustments to the railroads, there are tracks that are still in use.

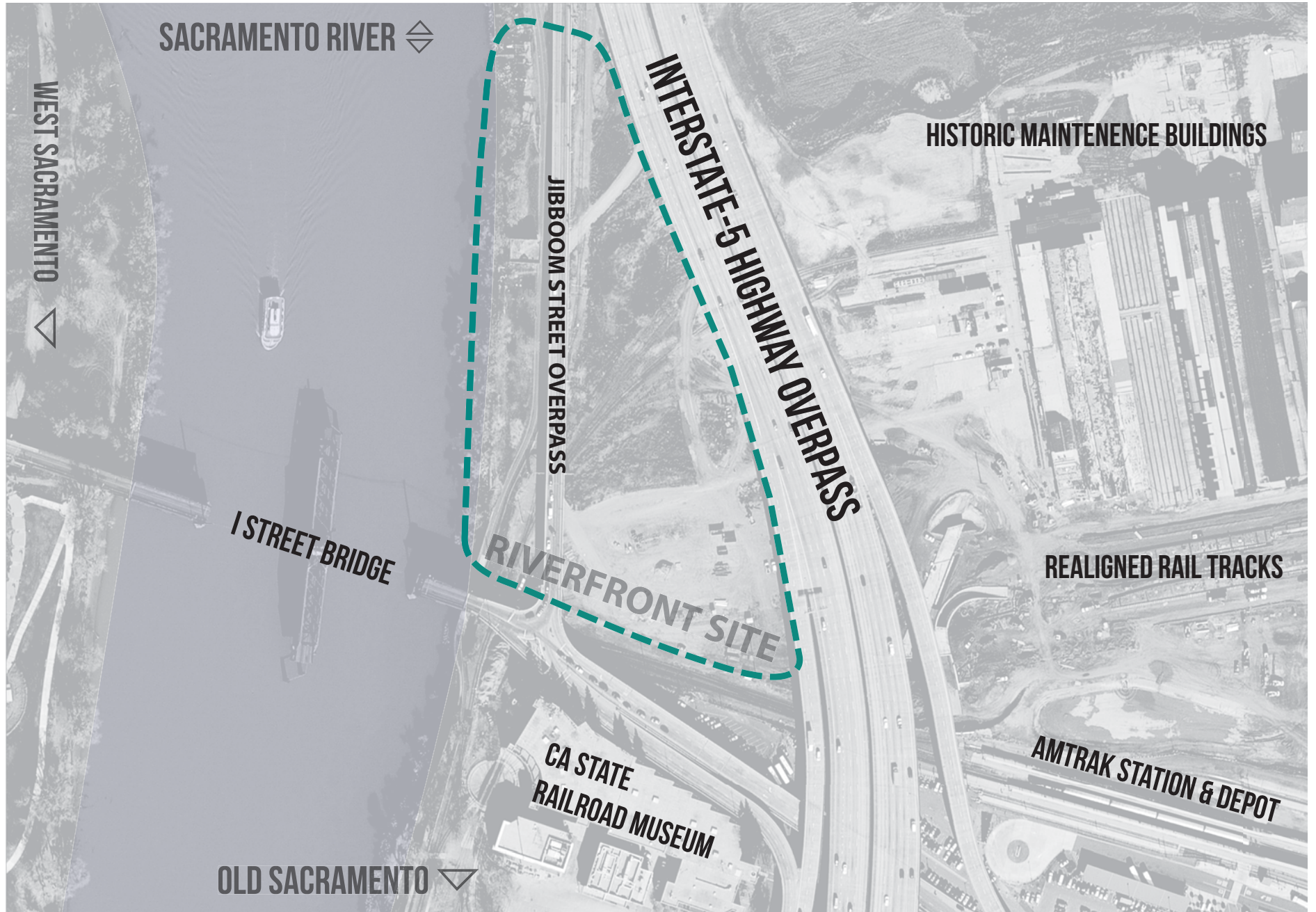
The highway serves as a major barrier between the river and center of the city. Light rail may be a convenient method to access the future park and railyards development as a whole.



The riverfront site is surrounded by areas designated as retail/commercial zones and also multi-family housing. The housing density gradient features more multi-family residences closer to the site – a large population of the city lives in fairly close proximity.

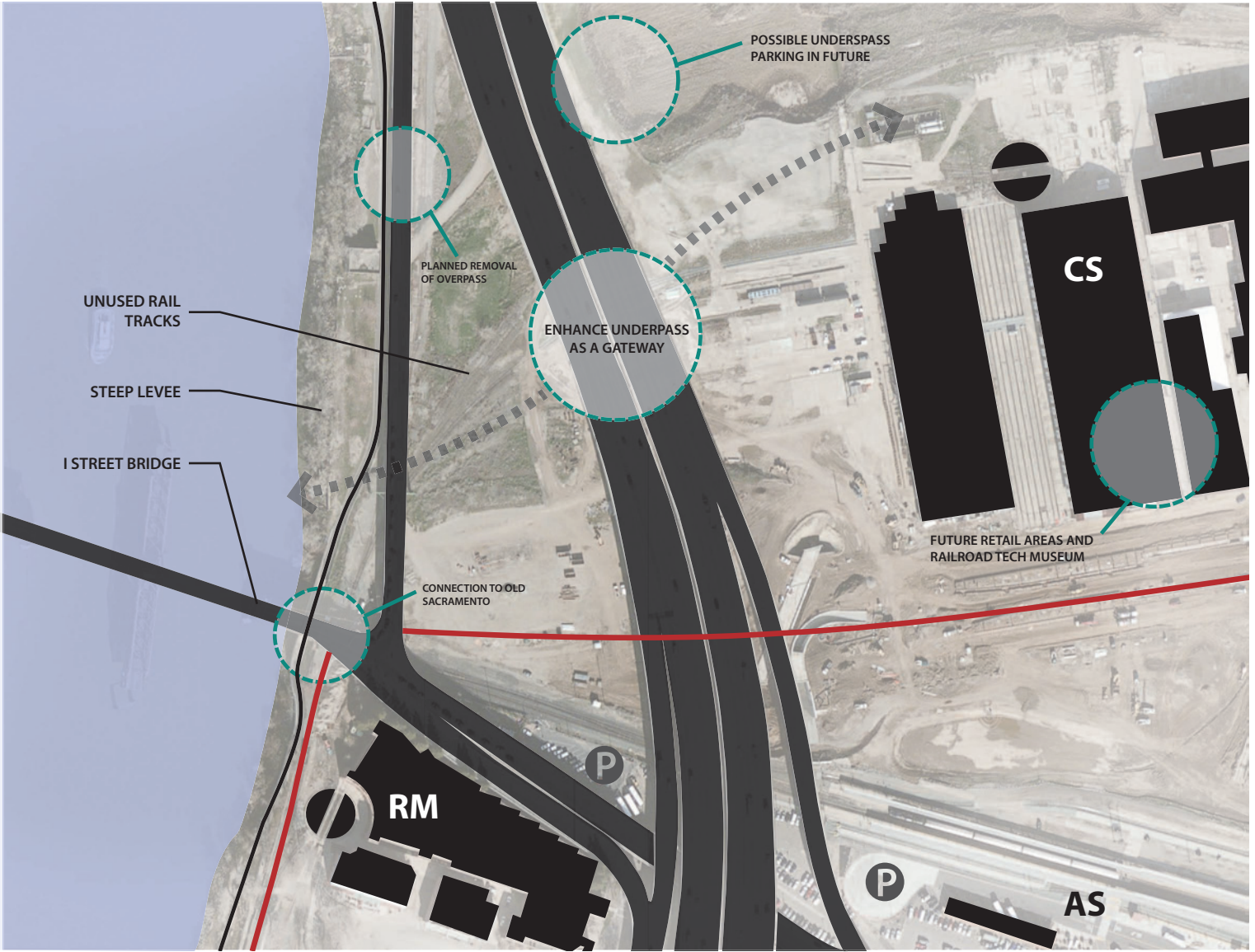
In addition to being planned as a recreational area, the city views the riverfront as an additional opportunity for housing. Because the site is adjacent to several zones already planned for high density housing, the riverfront area should take full advantage of the recreational potential.

# INVENTORY



# OPPORTUNITIES

-  BICYCLE ROUTE
-  RAILROAD
-  POINTS OF INTEREST
-  EXISTING PARKING
-  RAILROAD MUSEUM
-  CENTRAL SHOPS
-  ANTRAK STATION



## CENTRAL SHOPS

The historic buildings to the east, or better known as the Central Shops, will be a major draw to the developed site in the future. There is an opportunity to attract visitors of the area to the future park.

## OLD SACRAMENTO

Old Sacramento is a popular tourist destination in the city. While only a small park space is available in the area, the riverfront park may provide the quintessential waterfront park that is lacking in the area.

## I-5 HIGHWAY

The highway overpass divides the riverfront site with the rest of the railyards property. Spanning up to ten lanes, the highway is the largest piece of infrastructure on the site. One benefit provided by the overpass is the high level of exposure of the site to those driving through.

## I STREET BRIDGE

The I Street Bridge currently accommodates train, vehicle, and pedestrian transportation. This bridge is planned for solely train circulation in the future plans for the site. A much more pedestrian and vehicle-friendly bridge is planned north of the riverfront site.

## STATE RAILROAD MUSEUM

The California State Railroad Museum just south of the riverfront attracts many visitors to the area. A park design on a site that once held significance to Sacramento's rail industry in the past should appeal to people attending the museum.

## JIBBOOM STREET OVERPASS

The Jibboom Street overpass is planned for removal. The street will instead be connected to a new series of roadways planned throughout the railyards. There is an opportunity to recycle the concrete from the demolition of the overpass and use it in the park design.

## PARKING

A parking area north of the site will help frame an entrance to the riverfront park. This parking area will primarily be used to access the Central Shops area as well as the park. Lots at the Amtrak and Old Sacramento will provide supplemental parking areas.

FIG. 4.6 Park in Old Sacramento



FIG. 4.7 Outside the California State Railroad Museum



# EXISTING VIEWS

1. UNDER JIBBOOM ST.
2. BIKE PATH LOOKING SOUTH
3. RIVER EDGE
4. SOUTH AERIAL
5. I ST. BRIDGE
6. WEST AERIAL



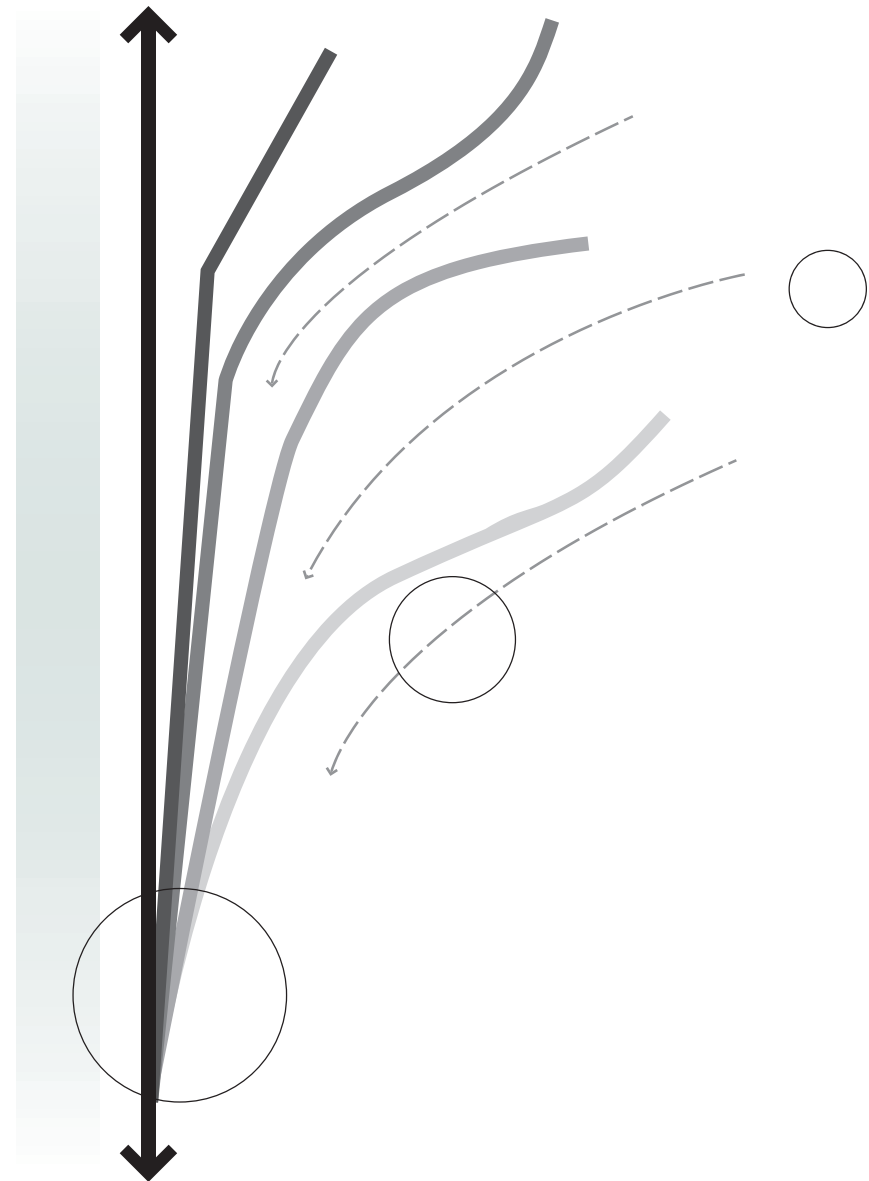
# THE DESIGN

The following set of pages showcase the railyards riverfront park design. After an explanation of the overall concept, a master plan introducing the entire site design is displayed. The design is separated into three distinct areas that thread together the whole site – the concepts of each area are introduced.

# CONCEPT

Replicating the fluvial processes associated with flowing rivers, the main source of inspiration for the riverfront park design originates from the adjacent Sacramento River. Erosive effects associated with streams and rivers influence the overall design form – elements resemble a “stripping pattern” that spreads into the landscape. A number of unique instances of the park are threaded together through the designed layout.

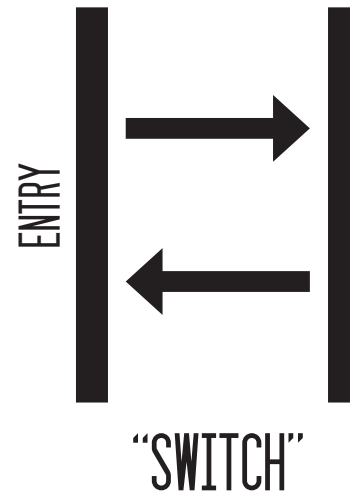
The peeling form opens to a main entry point at the eastern end of the site where the rest of the railyards area is accessible. The frayed aesthetic of the park design imitates the pattern of former railroad tracks near the center of the site – the rail bed was once a switch area for locomotives to change routes. As a result of the stripping form, openings, which now serve as circulatory routes, are introduced; the axes terminate at the edge of the river. The open space at the river edge provides an essential view of the Sacramento River. Branching paths draw pedestrians to a moment at the edge where the company of the river can be experienced.







The river edge, the most prominent intervention, is split into two spaces. While the new design at the edge still features the same elevation change as the previous levee, some alterations have been made. An axis designated for circulation has been recessed into the earth while a gathering and viewing platform is provided at the upper level. Split spaces will prevent the interference between differing uses. People are able to take a break, or recess, to enjoy views of the river on the platform while others are able to navigate through the scenic edge through the bottom level.



The purpose of the railyards riverfront has changed or better yet – switched. What was once an industrial hub focused on the maintenance, repair, and rerouting of locomotives is now a contemporary riverfront park for intended for leisure. The main concept in the entry space is symbolized by the rail tracks that are inset into the pavement. This area was once featured a “railroad switch”, which redirected trains by shifting tracks. These curving tracks terminate, similar to the former First Transcontinental Railroad, at a planting bed where the tracks are exposed; vegetation grows in between each railroad tie to symbolize the site’s regeneration as a park.



The Interstate – 5 highway overpass is a major site consideration. Thousands of people need to pass through the site each day. As with most overpasses, the spaces beneath, or underpasses, are usually uninviting. The design utilizes this span of landscape with a purpose common to the roads above – navigation. A pedestrian pathway meanders through the underpass; the path is wide enough to accommodate walking, jogging, and bicycling simultaneously. Shade-tolerant vegetation is planted alongside the route to make for a more pleasant, inviting space.

# SITE DESIGN



# KEY

1. RIVER VIEWING PLATFORM

2. SUNKEN PLANTING BED / MONUMENT

3. OPEN LAWN

4. BUFFER + BIOSWALE

5. EVENT + VENDOR SPACE

6. STORMWATER DETENTION BASIN

7. BICYCLE PATH + RIVER SEATING

8. UNDERPASS PEDESTRIAN ROUTE

9. PLANTERS + SEATING

10. TREE GROVE

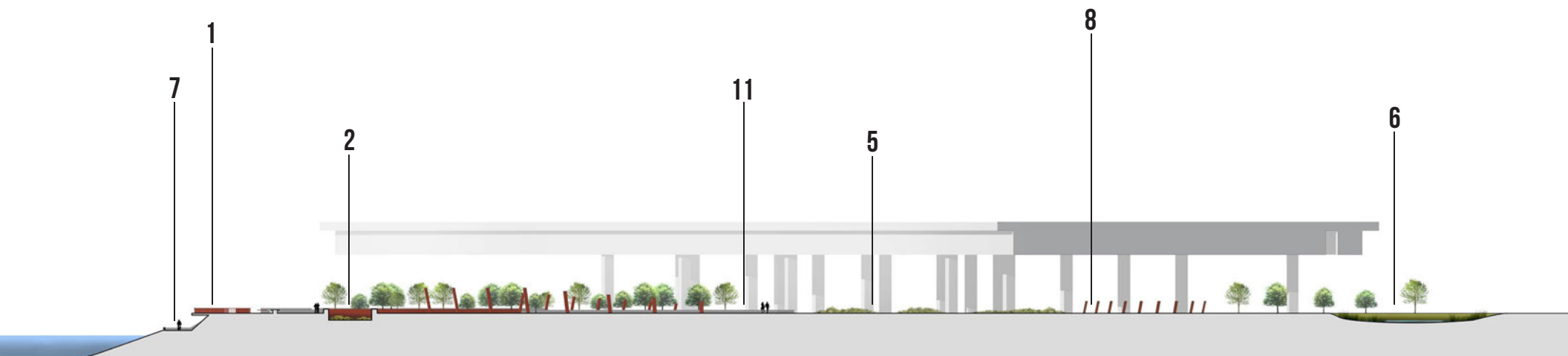
11. MAIN ENTRY

12. NATIVE GARDEN DISPLAY

13. AMPHITHEATER

14. NATIVE GRASS MEADOW

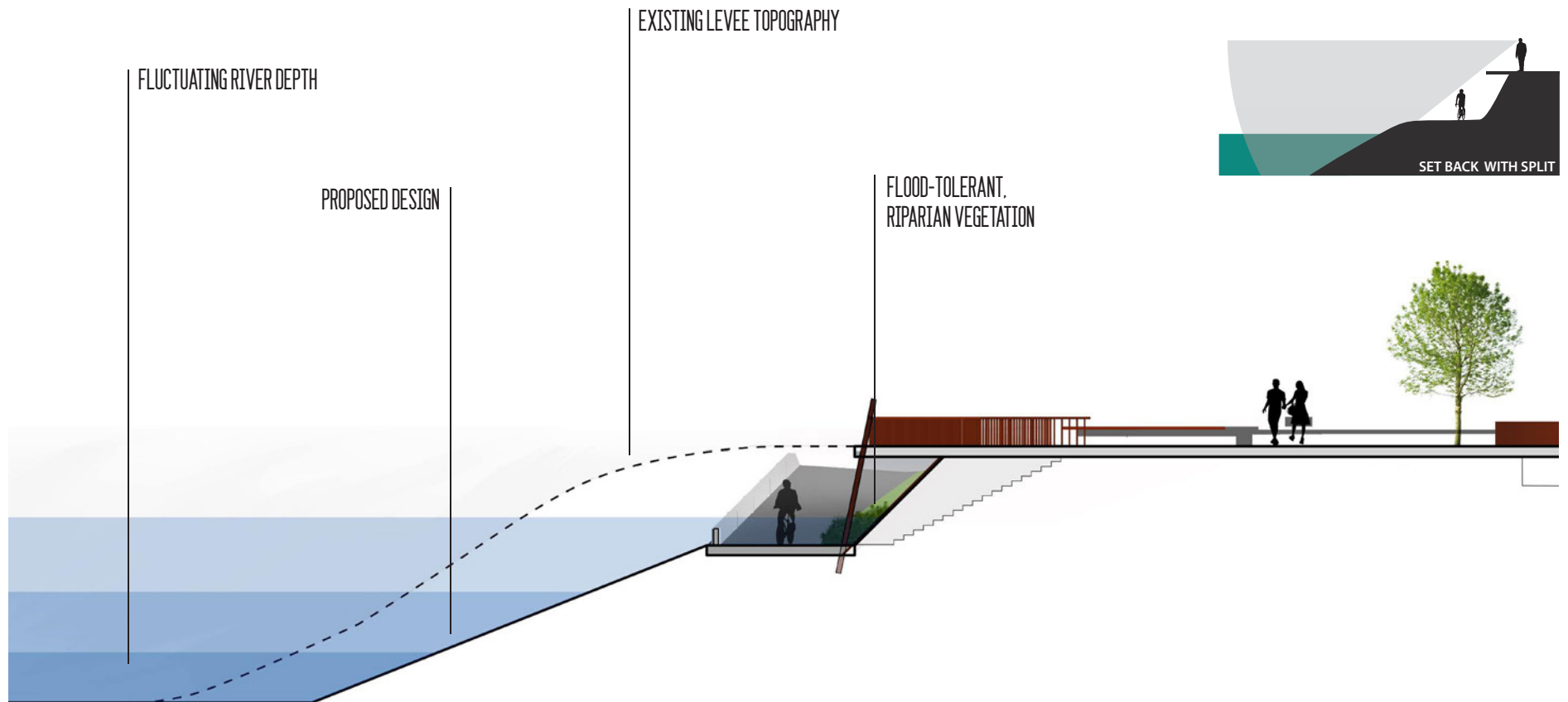
## SECTION A-A'



# RIVER EDGE

At its current state, the levee along the Sacramento River obstructs views to the river at far distances. Views of the river can be maximized by manipulating the grade of the levee slope. Also, creating a new level intended for circulation will ensure that people moving through the site will not interfere with those gathering in the space.

## LEVEE TRANSFORMATION





RIVER VIEW

## PLANTERS

Planters tapering off from the river edge can also be used as benches for users seeking seating further away from the water.

## RECYCLED CONCRETE

The Jibboom Street overpass is planned for removal. The street will instead be connected to a new series of roadways planned throughout the railyards. There is an opportunity to recycle the concrete from the demolition of the overpass and use it in the park design.

## TIES

Serving as structural reinforcement or lighting throughout the park, the repeating steel forms draw inspiration from railroad ties, as seen on the typical set of tracks.



## FLOODED RIVER VIEW

### STEPS

In addition to allowing visitors to take a seat, the large stepping forms measure the fluctuating water levels over time.

### PEDESTRIAN ROUTE

During periods of inundation, bicyclists may take an alternate route through the underpass to reach the other end of the park.

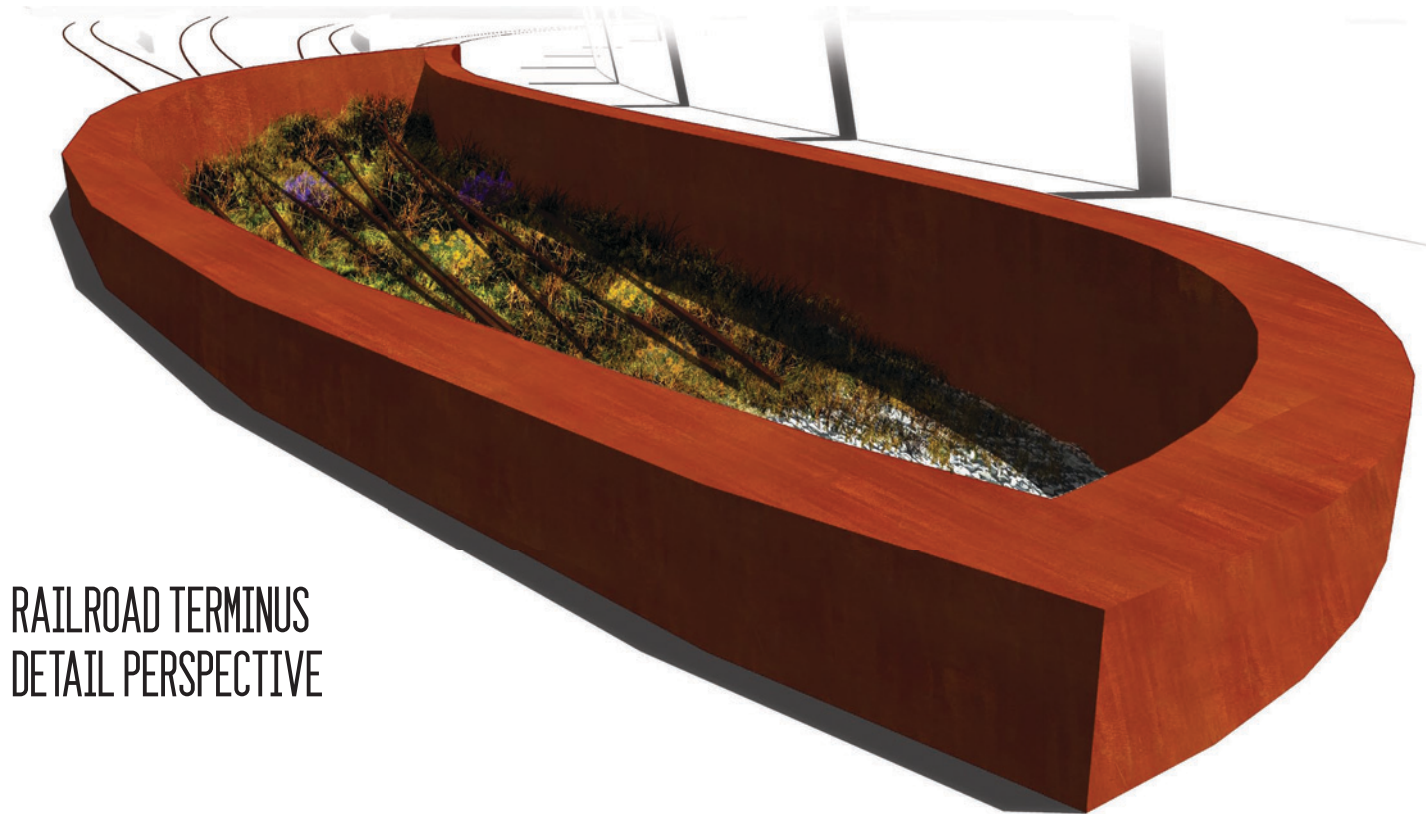
### VIEWING PLATFORM

The platform to the south offers sufficient space for events along the riverfront. This is the closest provided viewing area in the park to Old Sacramento.

# ENTRY

As railroad tracks, which are inset and flush with the surface of the pavement, spread towards the main entry, visitors are encouraged to move through the park towards the Sacramento River. This primary path to the river leads individuals past a prominent landscape feature. The historic “switch tracks” terminate in an organically formed planting

area. The display encapsulates the varied uses of the space through the years. As plants grow, they overtake the bed of railroad tracks to symbolize the current function of the site – a park. Also contained in the form are recycled chunks of concrete from the former Jibboom Street overpass that once intersected the riverfront site.



RAILROAD TERMINUS  
DETAIL PERSPECTIVE



## ENTRY VIEW

### OPEN SPACE

The expanse of open space enables users to take part in various recreational activities. Plenty of space is provided for play areas and picnics.

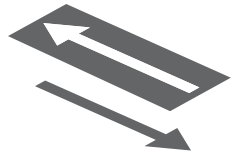
### RAIL PATH

Inset railroad tracks sweep towards the riverfront. Tracks feature a subtle glow from LED lights after the sun sets.

### LIGHTING

Repeating steel forms ascend towards the river to promote movement through the space. These linear, towering slabs are also used as lighting.





# UNDERPASS

Originally dividing the site from the rest of the city, the underpass is now vital to linking areas. The main entry to the northeast frames the underpass as a gateway; visitors are able to enter the space from a parking area that serves multiple areas of the railyards property or by a brief walk from the central shops district. Secondary access points are

located from the American River Bike Trail to the north and to the south where it connects to Old Sacramento. The major circulation route travels around the perimeter of the park. This looping path allows most areas of the park to be easily accessible.

## CIRCULATION DIAGRAM

### LEGEND

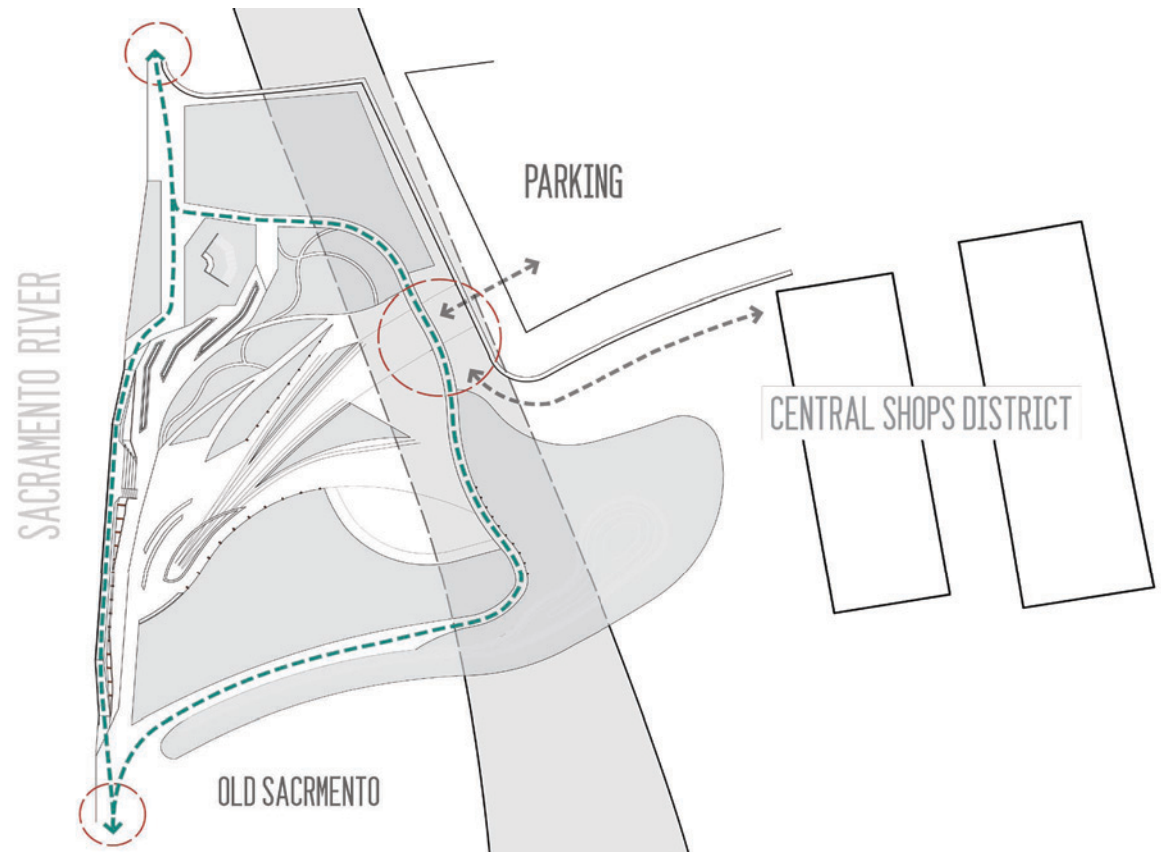
PEDESTRIAN ROUTE (ON-FOOT + BICYCLE)



CONNECTION TO RAILYARDS



ACCESS POINT





## UNDERPASS VIEW

### PLANTING

The addition of shade-tolerant plant species help generate an attractive and inviting underpass space. Possible plant species include: evergreen currant, island alumroot, and western spice bush.

### EVENT/VENDOR SPACE

An expanse of open space, shared by sunlight and shade, accommodates vendors, performers, and events. The space merges with the pedestrian route that loops through the site.

### PEDESTRIAN ROUTE

Wide enough for people on foot and bicycles, the pedestrian pathway meanders through the underpass. Most areas throughout the park are easily accessible from the route. The overpass supplies shade during Sacramento's warmer months.

# CONCLUSION

## BACKTRACKING

Identity evolves. Historically celebrated for the Gold Rush and also as a prominent destination along the Transcontinental Railroad, Sacramento today is still associated with at least one constant – its rivers. In the case for Sacramento, spaces that connect the population to these water systems can be maximized in an attempt to enhance the sense of time and place. As industrial sites fade to brownfields, opportunities to revive the landscape arise.

## MOVING FOWARD

The railyards brownfield offers a prime location to provide a formal connection to the Sacramento River while still retaining elements from the site's industrial past. While manipulation of the levee would face great opposition, the design to improve views, circulation, and gathering spaces along the river were purely conceptual; this project explores potential. Also, repurposing elements from the site, such as the underpass, rail tracks, and infrastructural materials to accommodate newer needs for a public park space are merely suggestions. As development of the Sacramento railyards property advances in the future and varied plans for the site are considered, there is one likely result for the riverfront – people will have access to one of the city's most iconic features.

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