

Vertical Connectivity along the Sacramento River



Reconnecting Big Rivers

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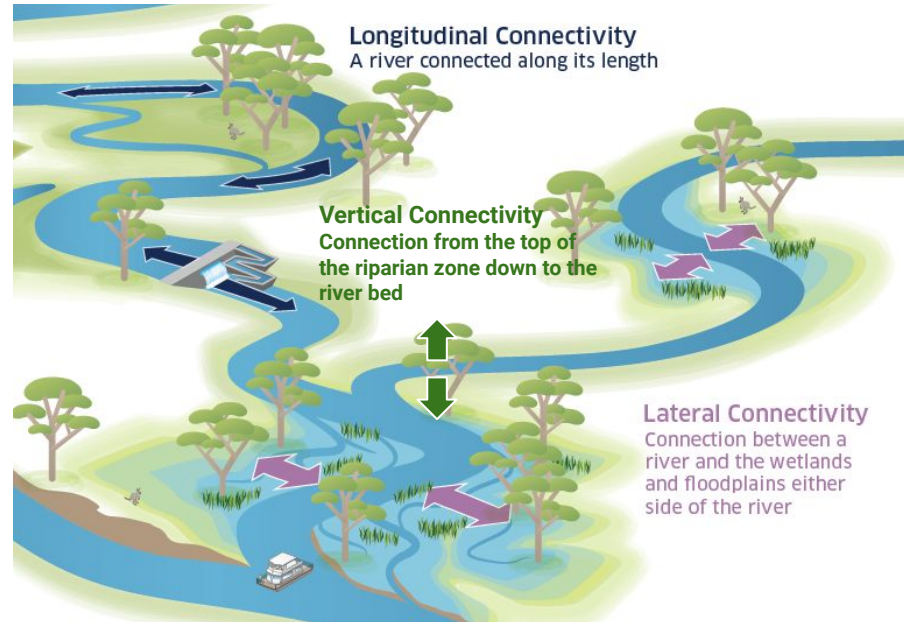
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Background of River Connectivity

Rivers are dynamic forces with deep hydrological, ecological and social connections. We use the river connectivity framework to better conceptualize these connections: recognizing longitudinal, lateral, and vertical connectivity, which emphasizes recognition of upstream to downstream connections, connections between the river and surrounding riparian zones and floodplains, and connections between the riparian habitat down through the aquatic habitat to the river bed.

We emphasize the importance of not just the ecological connections within this framework, but the social connections as well. It is important that urban systems make the river accessible to people from the most densely used or occupied parts of the city (pedestrian paths and bridges, transit linkages), link the river visually and conceptually to the city (greenways, parks, attractive riverfront destinations, integrated design elements, vista points, identifiable images and logos), and provide social and cultural attractions along the riverfront.



Vertical Connectivity and Access

Vertical connectivity requires **direct access to water**.

In designing new waterfront public spaces, vertical connectivity can be improved, to better promote access from the upper street level down to the water level and into the water.

Vertical connectivity also concerns exchanges between the river and groundwater, subsurface differentiation of habitats (such as surface vs. benthic or river-bottom environments), convection, and local differences in water quality, temperature, and turbidity.



Health

Recreational uses of rivers can help improve public health by providing public resources for recreational exercise.

Physical inactivity can lead to the development of chronic disease and premature death. In adults, strong evidence aligns sedentary behavior to being overweight and becoming obese, cardiovascular disease, adverse metabolic profiles, osteoporosis, diabetes, cancer, hypertension, depression and reduced psychosocial functioning.

Common practices of physical activity are categorized as unstructured and structured activities

Structured physical activity, also known as goal-oriented play, generally involves using logic to solve problems, while unstructured physical activity or free play is creative and open-ended.

Vertical Connectivity can lead to unstructured physical activity such as urban swimming

Access and Equity

Safe, reliable, and affordable access to water bodies for recreation are often not equitably distributed within cities. Wealthy white communities often have more access to safe recreational uses of rivers, while low-income and communities of color have less access.

Waterway improvements can also **increase property values** and housing prices, which can push people out of neighborhoods. **Green gentrification** should be addressed in any attempts to improve riverfront parks and access through parallel planning policies to protect rents and ensure housing affordability.

In addition, unhoused communities often reside along riverways, development of parks and green spaces along rivers can **displace** these communities. Shelters and Housing first programs should be expanded to address this issue.



Study Area

In this workshop, we look at riverfront connectivity along the reach of the Sacramento River from the confluence of the American and Sacramento Rivers south to the Interstate 80 bridge.

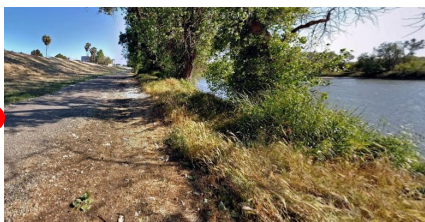
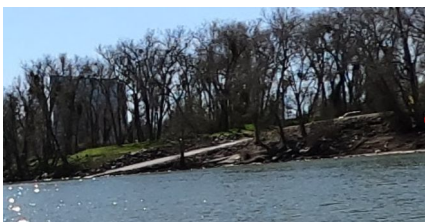


Current Conditions

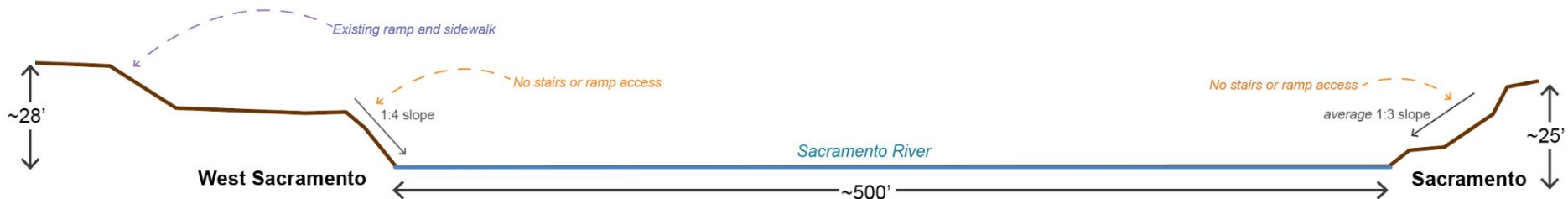
- West Sacramento has funding for riverfront developments for recreation and public art, Sacramento does not
- There is no water access besides docks for boats
- Unhoused populations reside along the river, any project may displace these groups and should address the need for housing and helping these individuals



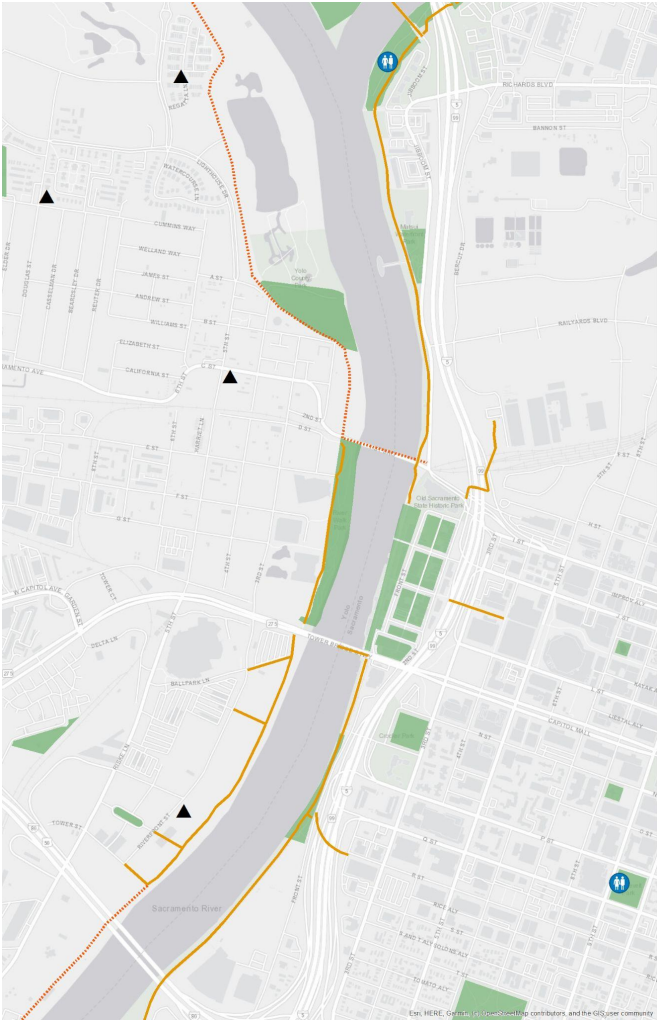
Current Conditions



Current Conditions

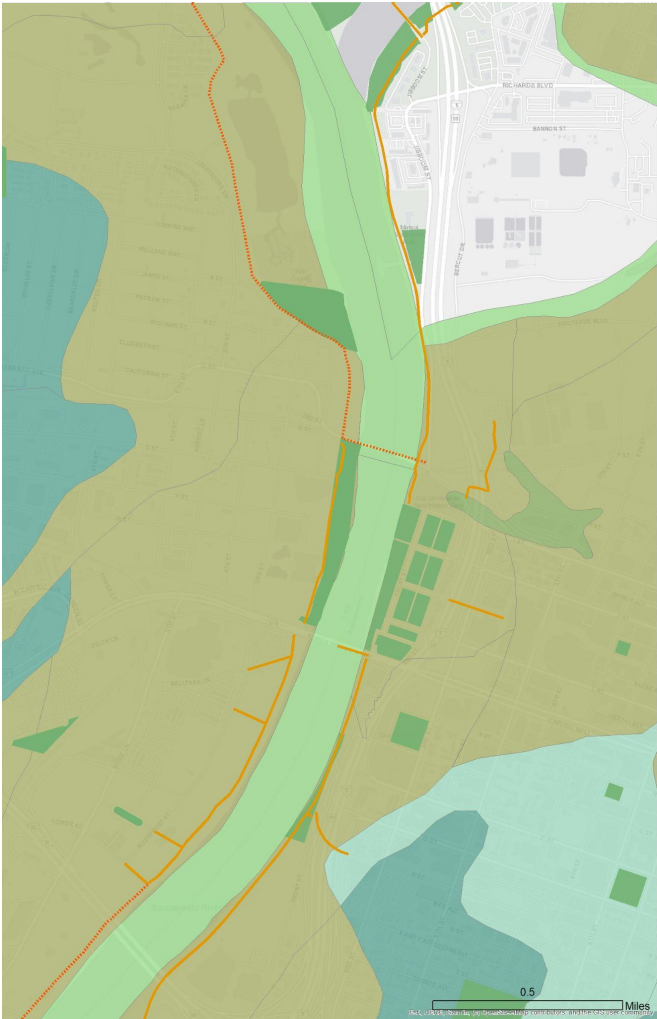


Current Conditions

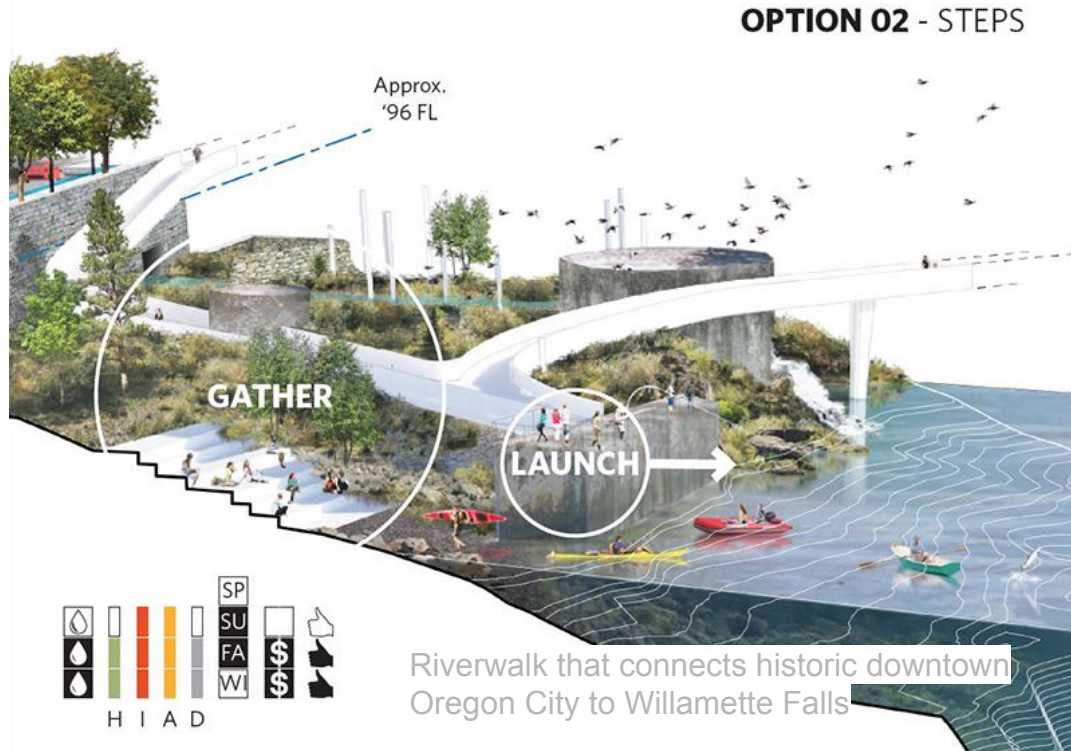


- Legend**
- ▲ WestSacramentoUrbanFarms
 - Public Restrooms
 - Biketrails
 - Proposed Bike Trails
 - Levees
 - Parks

Historical Habitats

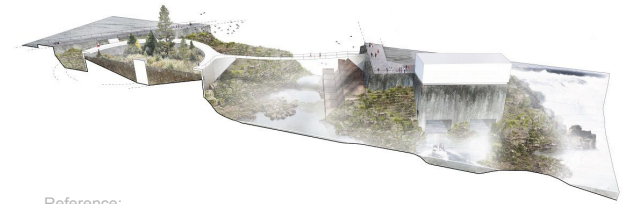


Example from other cities



Willamette falls legacy project Oregon City

It provides a small gathering space, such as **steps**, along the shoreline to allow people to get close to the river and put their toes in the water. This could be a place to launch small, non-motorized watercraft like kayaks, canoes, and paddle boards. It also provides a potential portage connection below the falls.



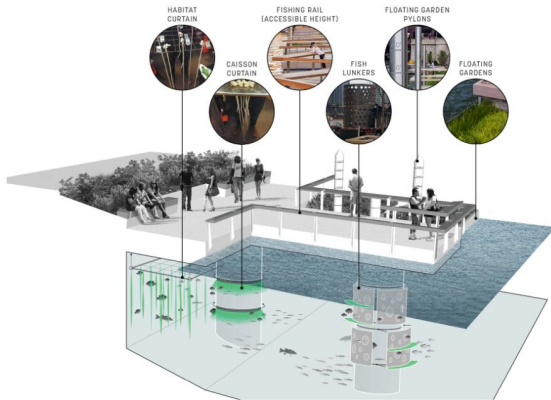
Reference:

<https://www.willamettefallslegacy.org/river-access-options-in-the-north-riverbank/>
<https://www.willamettefallslegacy.org/riverwalk/>

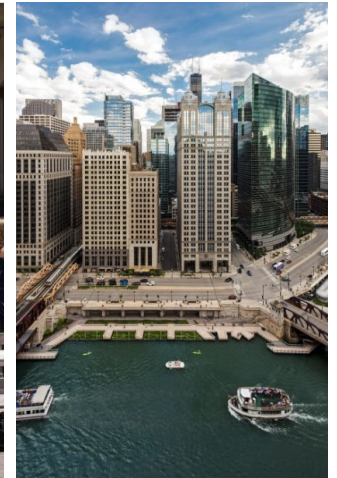
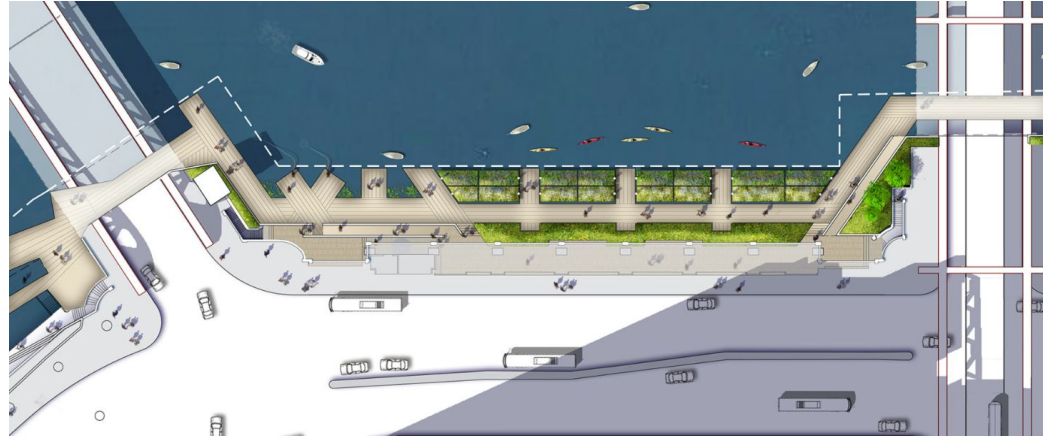
Chicago Riverwalk

Sasaki

The Jetty's floating wetlands provide a healthy habitat for the Chicago River's diverse native fish population, as well as educational and recreational opportunities for visitors to observe and interact with the aquatic

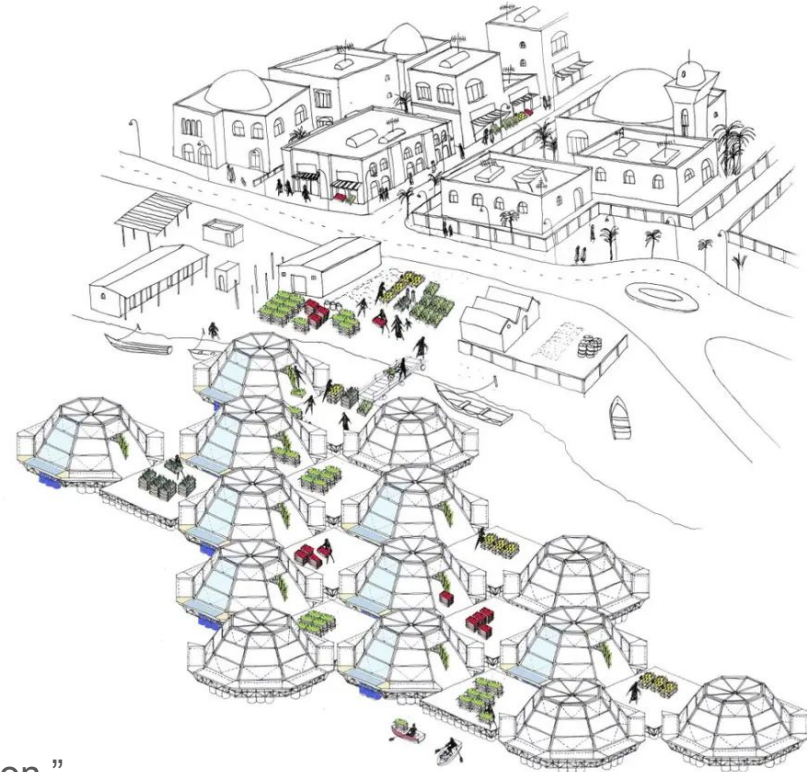


It also incorporates several innovative and low-cost features- lunkers, curtains, and hulcs.



Jellyfish Barge

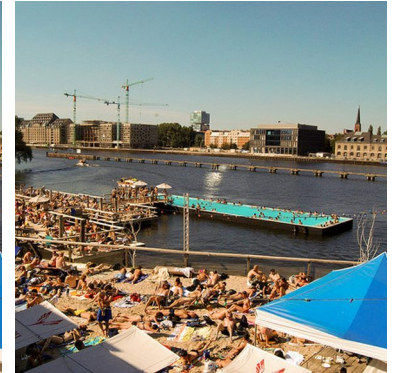
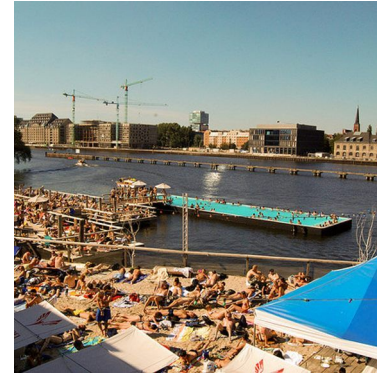
EXPO 2015, milano



“We can save 70% of water compared to traditional cultivation.”

The Floating Swimming Pool "Badeschiff"

Berlin, 2015



Following on from the tradition of public bathing in the century before last, the project attempts to create a more intensive connection between the city and the river by means of a floating pool.

Roped-off swim area

We were told by a local stakeholder that there are deaths in the river every year due to swimming in areas with no services or infrastructure to support swimming safety. A roped off swim area with a dock and lifeguard can help improve safety if swimming is desired.



Kayak, Paddle Board, and Canoe Rentals

Austin, Texas

Boat and paddle board rentals can be created to provide access to recreational opportunities in the river. Cities such as Austin, Texas have high use of the urban river due to kayak, canoe, and paddle board rental options.

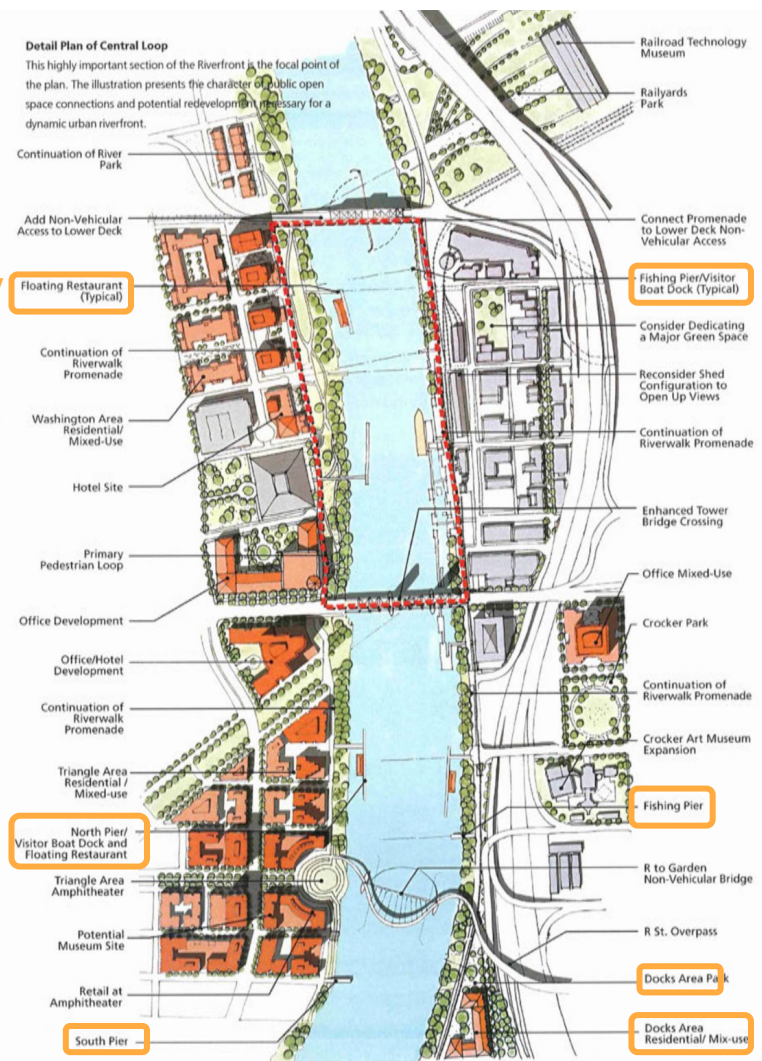


Sacramento Riverfront Master Plan 2003

Programs for Vertical Connectivity

There was a master plan created for Sacramento Riverfront, but much of it was not implemented.

- Dock for canoe, kayak, paddle board rentals
- Enclosed swimming area
- Floating dock in swimming area
- Stairs and ramps to the water



Suggested Applications

Walk way down to the water

Canoe, kayak, and paddle board rentals

Walk way down to the water

Canoe, kayak, and paddle board rentals



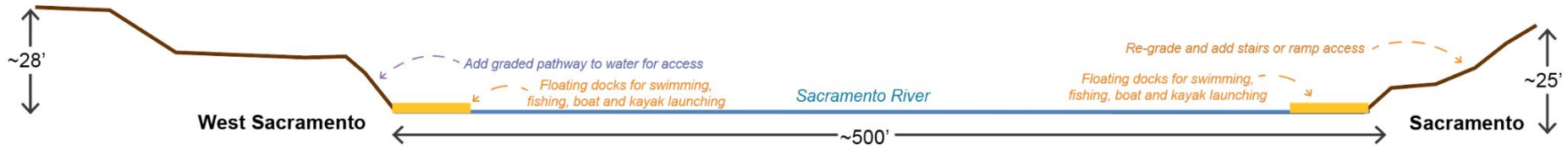
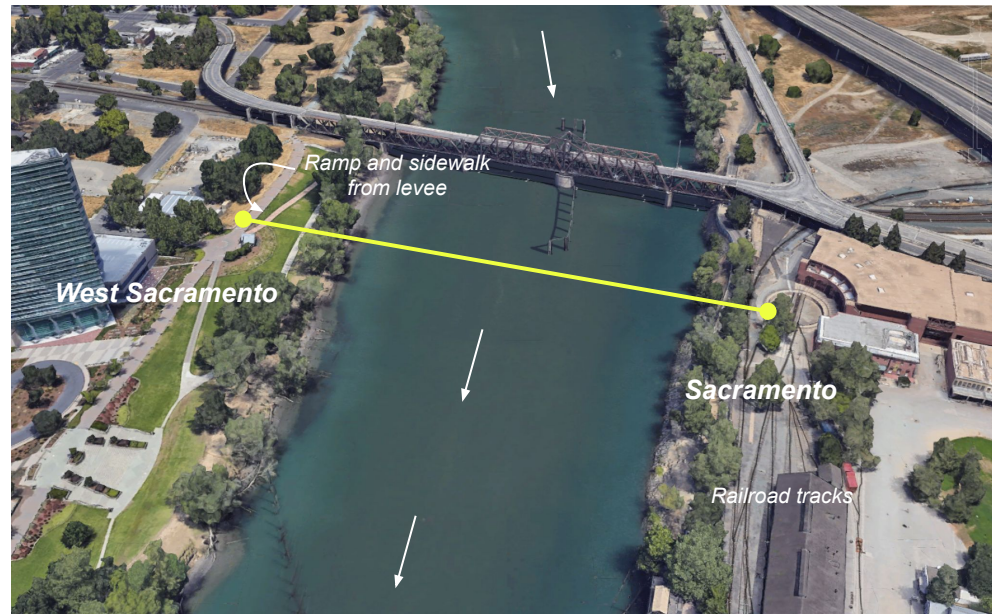
Roped-off swimming area

Walk way down to the water

Canoe, kayak, and paddle board rentals

Walk way down to the water

Conditions to improve vertical connectivity to Sacramento River



Spatial Strategies:

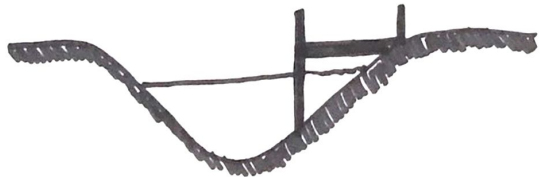
How can we integrate the levee?



Changing the slope



Grades



Floating Structures



Water Activities

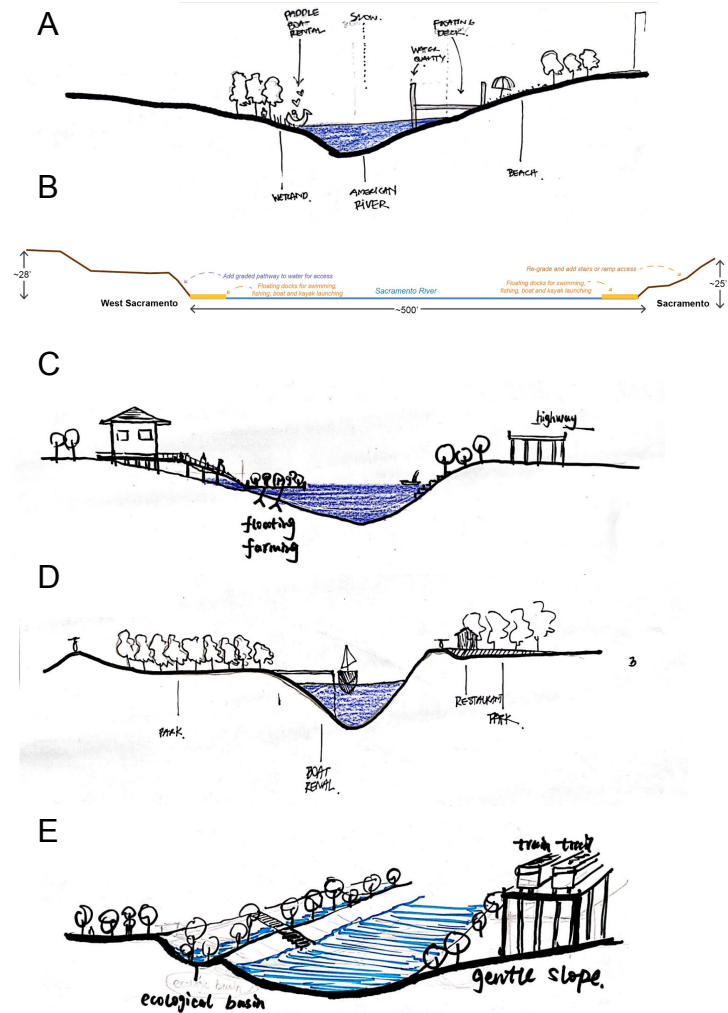




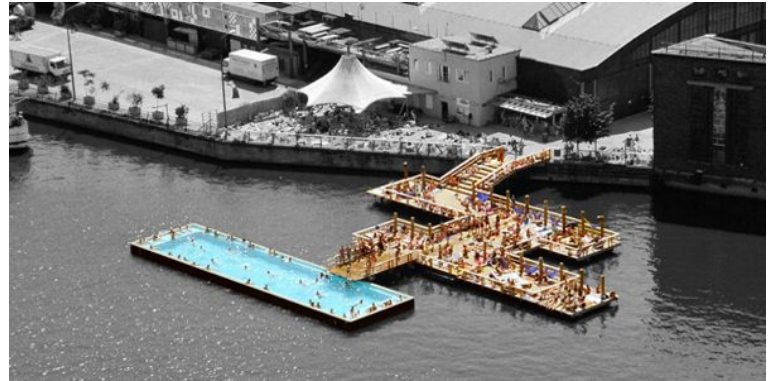
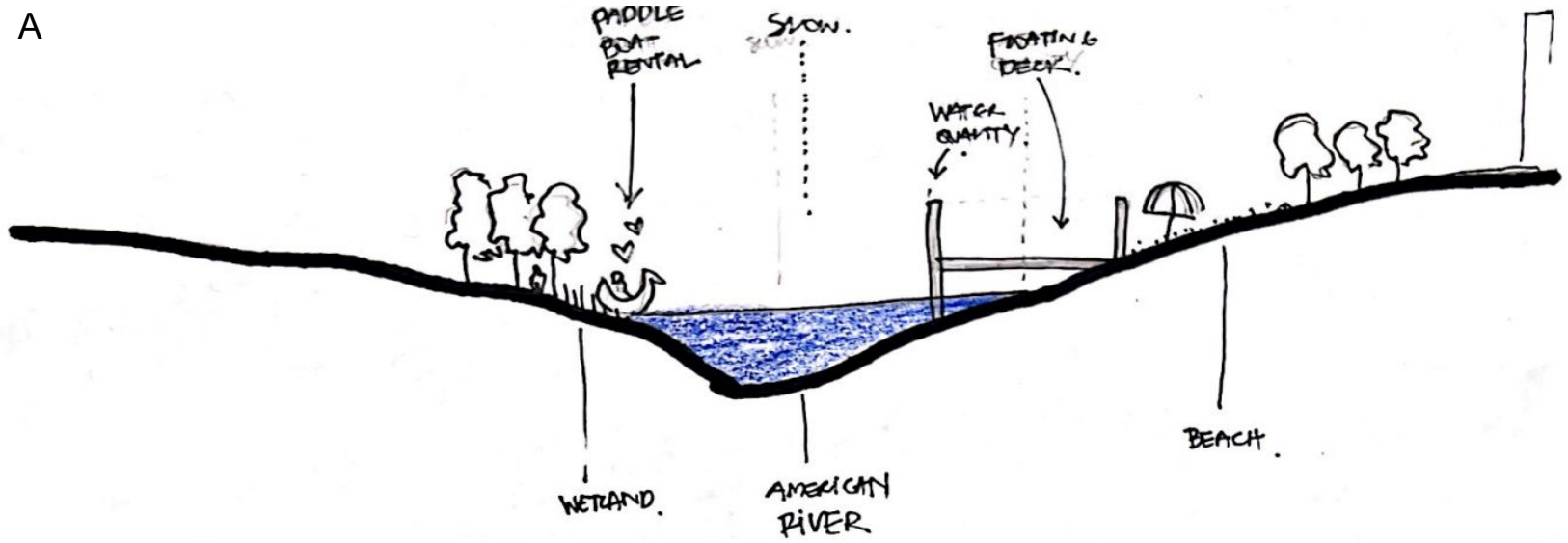
Current Green Spaces



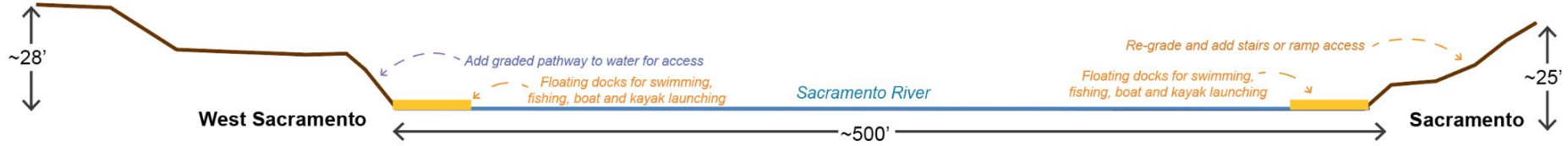
Sections



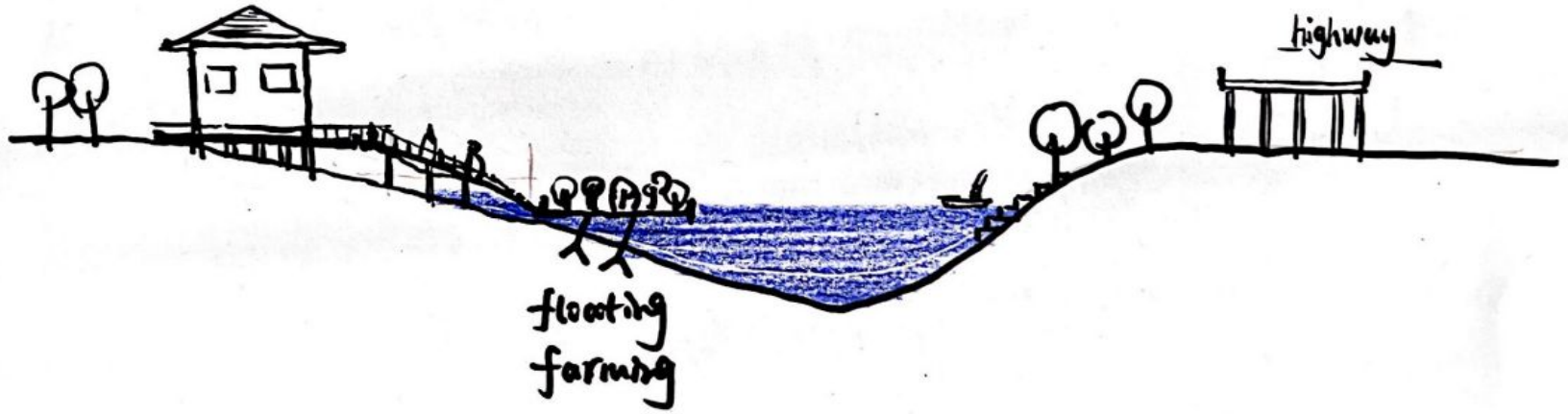
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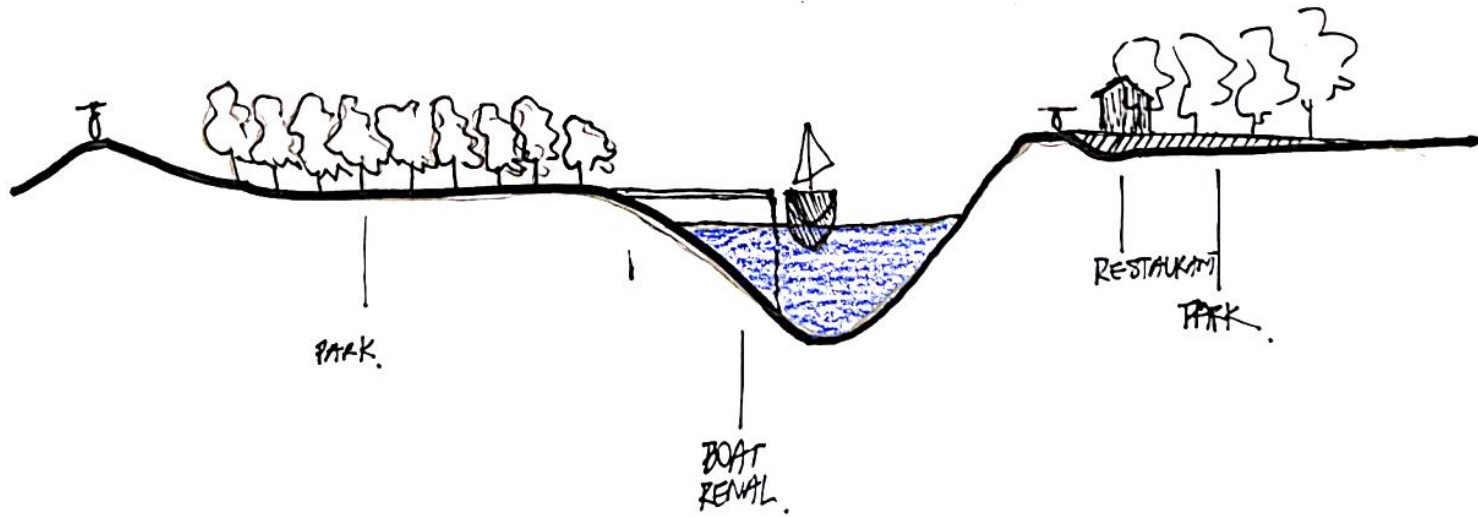
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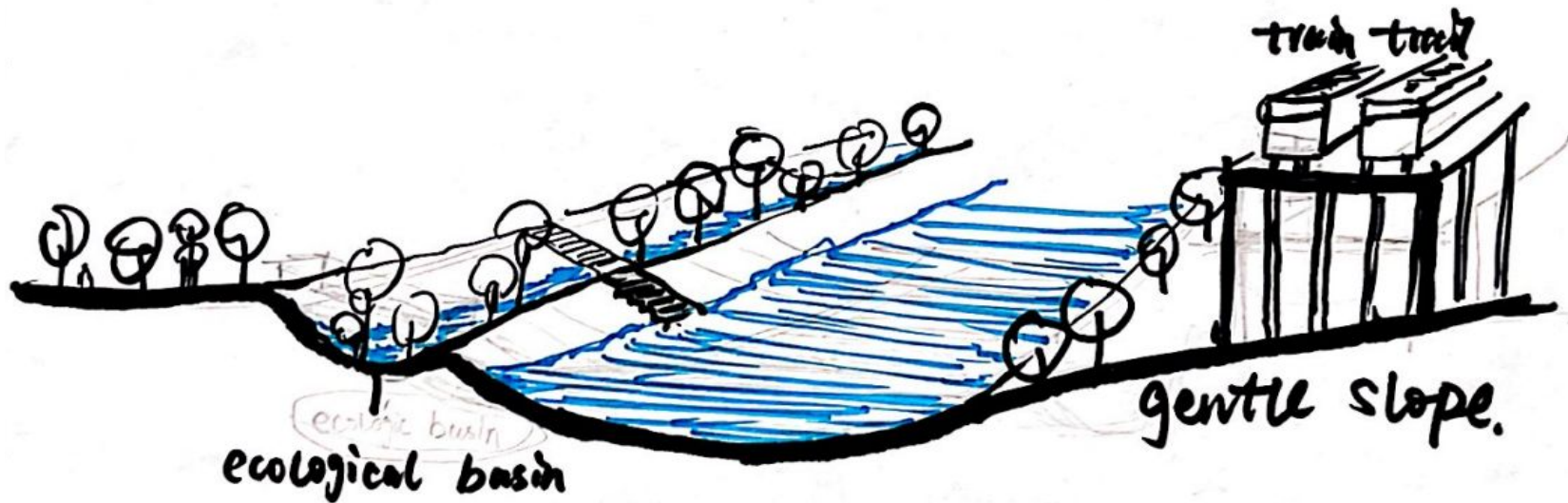
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Future Research

- How can we increase feasibility of getting projects done?
- Why has Old Sacramento had so many problems implementing past plans while West Sacramento was able to implement them?
- What is the criteria and likelihood for funding projects that can make such projects a possibility?
- What gentrification mitigation and housing assistance measures can be implemented in parallel to riverfront projects?