



# PEDERNALES, DR

*Final Review*



JACKSON P.



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# AGENDA

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**1. GEOGRAPHIC CONTEXT**

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**2. HISTORICAL CONTEXT**

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**3. EXISTING CONDITIONS**

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**4. DESIGN FRAMEWORK**

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**5. PROPOSALS**



# GEOGRAPHIC CONTEXT





HAITI

PEDERNALES

DOMINICAN REPUBLIC

ANSE -A-PITRES

# HISTORICAL CONTEXT



# ORIGINS

## HISTORICAL CONTEXT



- Originally part of Barahona province
- Became a separate municipality in **1938**
- Settled as an **agricultural zone**

- Dictator Trujillo inflicted **anti-Haitian violence** in 1930s
- encouraged Dominicans to **settle along the border** for fortification



### *Alcoa's Impact on Pedernales*

- Operated bauxite mines from **1942** to **1984**
- Turned Pedernales into a Company Town





## EXISTING CONDITIONS

# POPULATION

Average household size: **4.7 people**



Both Pedernales and Anse-a-Pitres are growing

16,000



OUT OF 32 PROVINCES,  
**PEDERNALES IS.....**

**27<sup>th</sup>**



Healthcare

**32<sup>nd</sup>**



Education

**31<sup>st</sup>**



Income

## *Major Industries*

- Logistics
- Agriculture
- Tourism
- Renewable energy



# ECONOMIC ACTIVITY

## *Geographic Isolation*

- Limited mobility networks connecting to other major cities
- Economies have become mutually reliant



# BINATIONAL MARKET

EXISTING CONDITIONS: SOCIAL

Economic and cultural  
exchange at the binational  
market



Located on the  
Pedernales riverbed



# INTERCULTURAL BORDER

EXISTING CONDITIONS: SOCIAL

## *Connectivity with Anse-a-Pitres*

Socially and culturally interwoven

Shared festivals, music, sports, and arts

### Legend



Pedernales has the **highest proportion (30%)** of Haitian residents

# MODERN MIGRATION

EXISTING CONDITIONS: SOCIAL



The Dominican Republic has one of  
the largest populations of  
stateless people in  
the Americas



# URBAN SPACES

EXISTING CONDITIONS: URBAN



**Lively Urban Spaces**

**Spacious central plaza**

**Parks, sports facilities,  
and beachfront**

## OVER-SIZED STREETS



# INFORMAL URBANIZATION

EXISTING CONDITIONS: URBAN

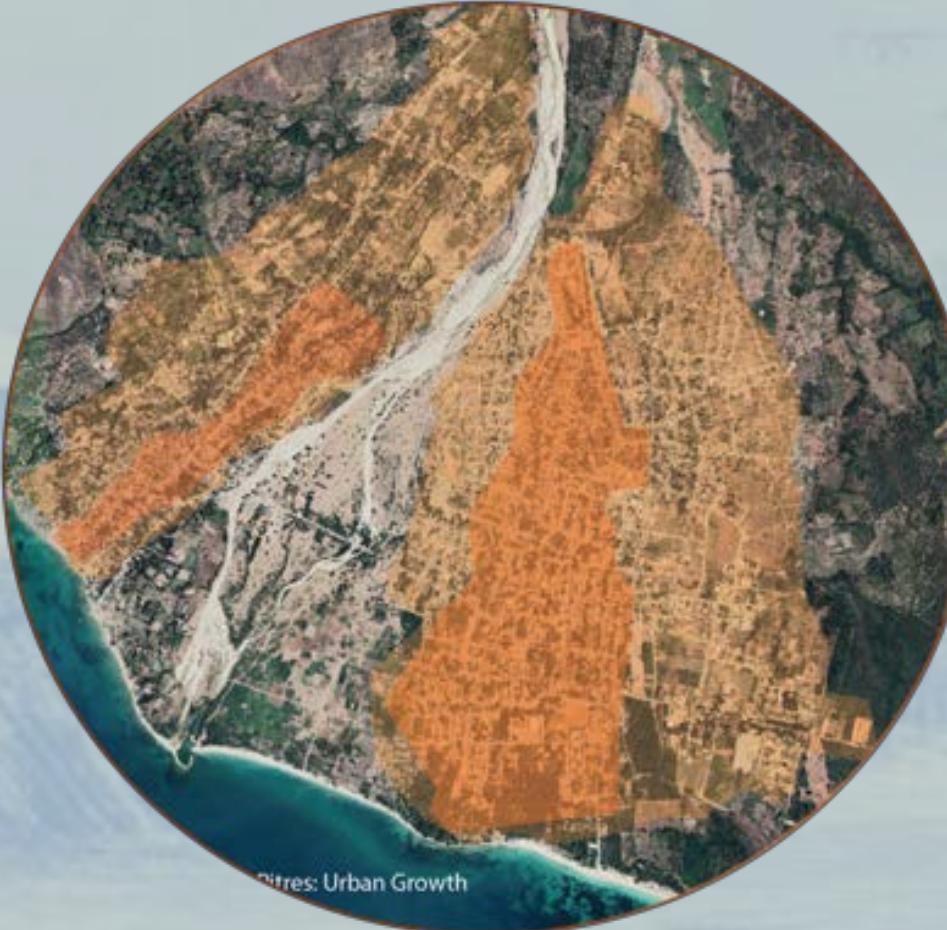
## *Self-constructed neighborhoods*

Clusters of self-constructed homes have emerged on the outskirts of the city



# URBAN EXPANSION

EXISTING CONDITIONS: URBAN





# PLANNED DEVELOPMENT

EXISTING CONDITIONS: URBAN

## *Cabo Rojo Tourist Development*

~ 25 km from Pedernales

Development in Cabo Rojo  
will impact  
the economy, population,  
& character of Pedernales



# TOPOGRAPHY



EXISTING CONDITIONS: NATURAL



# WATER SYSTEMS

EXISTING CONDITIONS: NATURAL

- 2 km of coastline to the south
  - Pedernales river to the west
- 
- Flood risks during the rainy season
  - Risk of sea-level rise on the coast



## ECOLOGICAL ASSETS



EXISTING CONDITIONS: NATURAL



# DESIGN FRAMEWORK



# THE PROCESS



Community **design charrette** with the residents of Pedernales

Community members shared the **strengths, challenges, and possibilities** for the future of Pedernales.





Q1  
Q2  
Q3  
Q4  
Q5  
Q6  
Q7  
Q8  
Q9  
Q10



**PROPOSALS**



# EXISTING BASEMAP



## EXISTING ROADS



PROPOSALS

## PROPOSED ROADS

PROPOSALS



# PROPOSAL: ROAD NETWORK

PROPOSALS



# PROPOSAL: WATER SYSTEM

PROPOSALS



## PROPOSAL: GREEN ARMATURE



PROPOSALS



# FRAMEWORK

DESIGN FRAMEWORK





## CONNECTED COMMUNITIES

Pedernales has a strong existing urban identity which we propose strengthening through improved road networks and flexible housing models.



EXISTING  
HOUSING

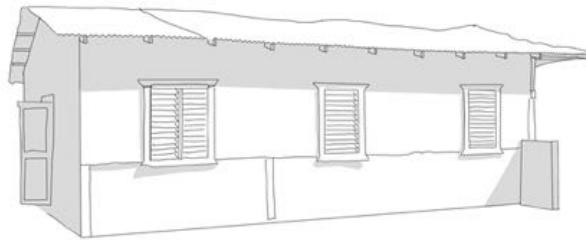


Self-constructed  
housing



Self-constructed  
rock walls

# BLOCK TYPOLOGIES

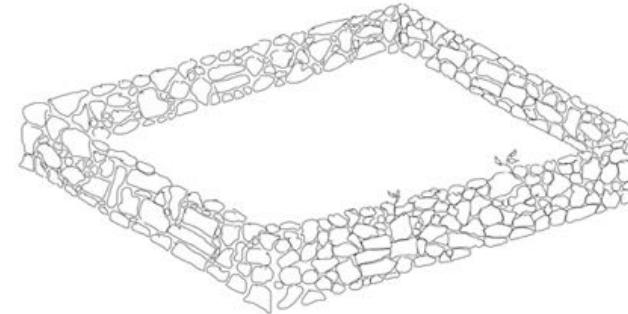


*Existing  
Self- Constructed  
Housing*

# BLOCK TYPOLOGIES



**Existing  
Self- Constructed  
Housing**

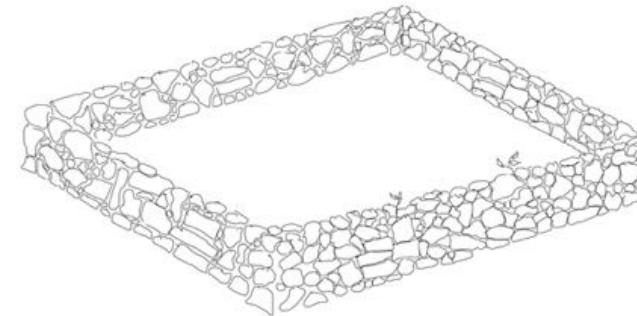


**Existing  
Self- Constructed  
Rock Walls**

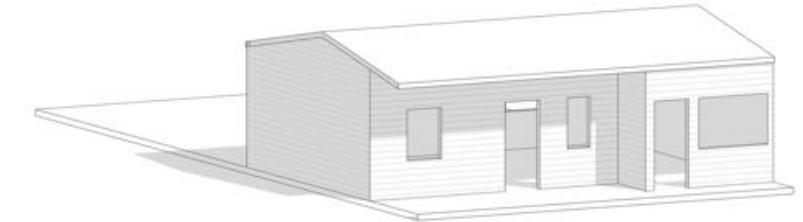
# BLOCK TYPOLOGIES



Existing  
Self- Constructed  
Housing



Existing  
Self- Constructed  
Rock Walls



Proposed Modular  
Housing

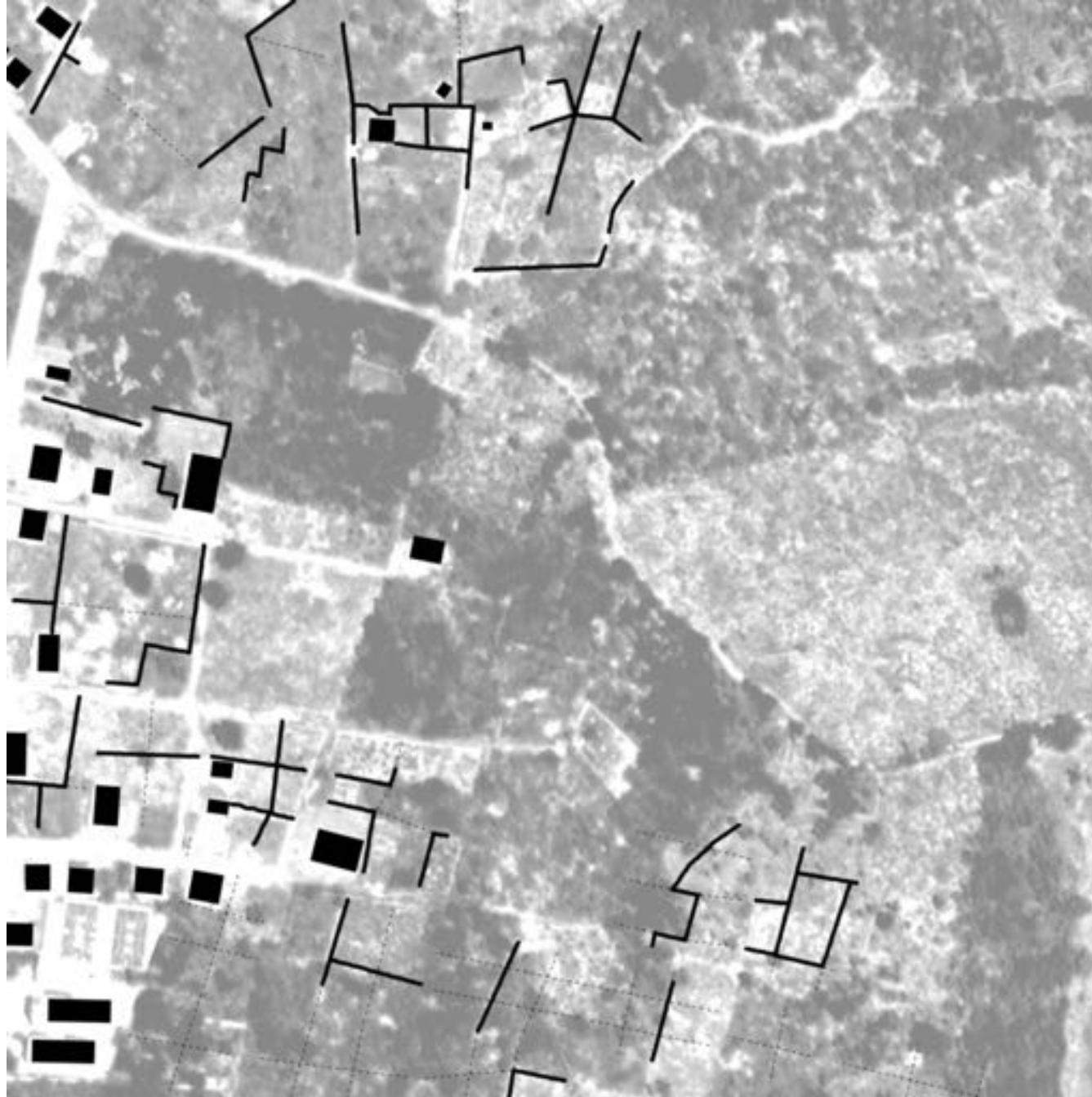
# EXISTING



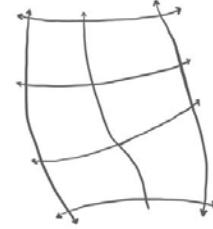
# EXISTING BUILDINGS



# EXISTING BUILDINGS

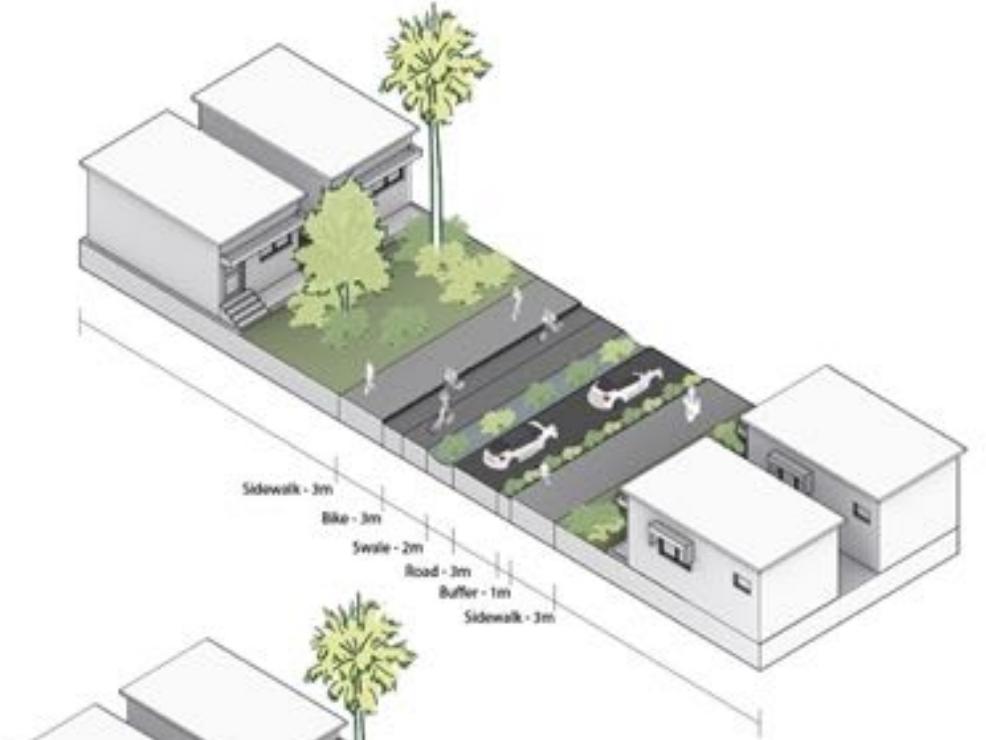


# VEHICULAR STREETS



# VEHICULAR STREETS

CONNECTED COMMUNITIES



**ONE WAY**

Urban Expansion  
Neighborhood Roads

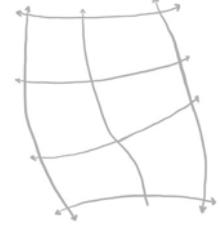
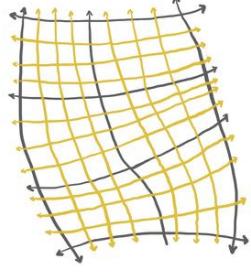
**TWO WAY**

Urban Expansion  
Perimeter Roads

# PUBLIC REALM

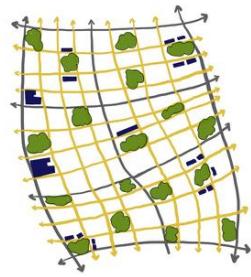
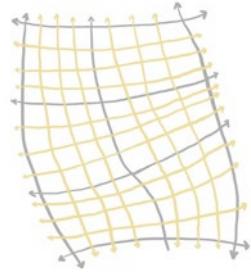
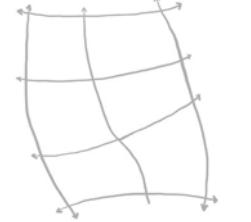
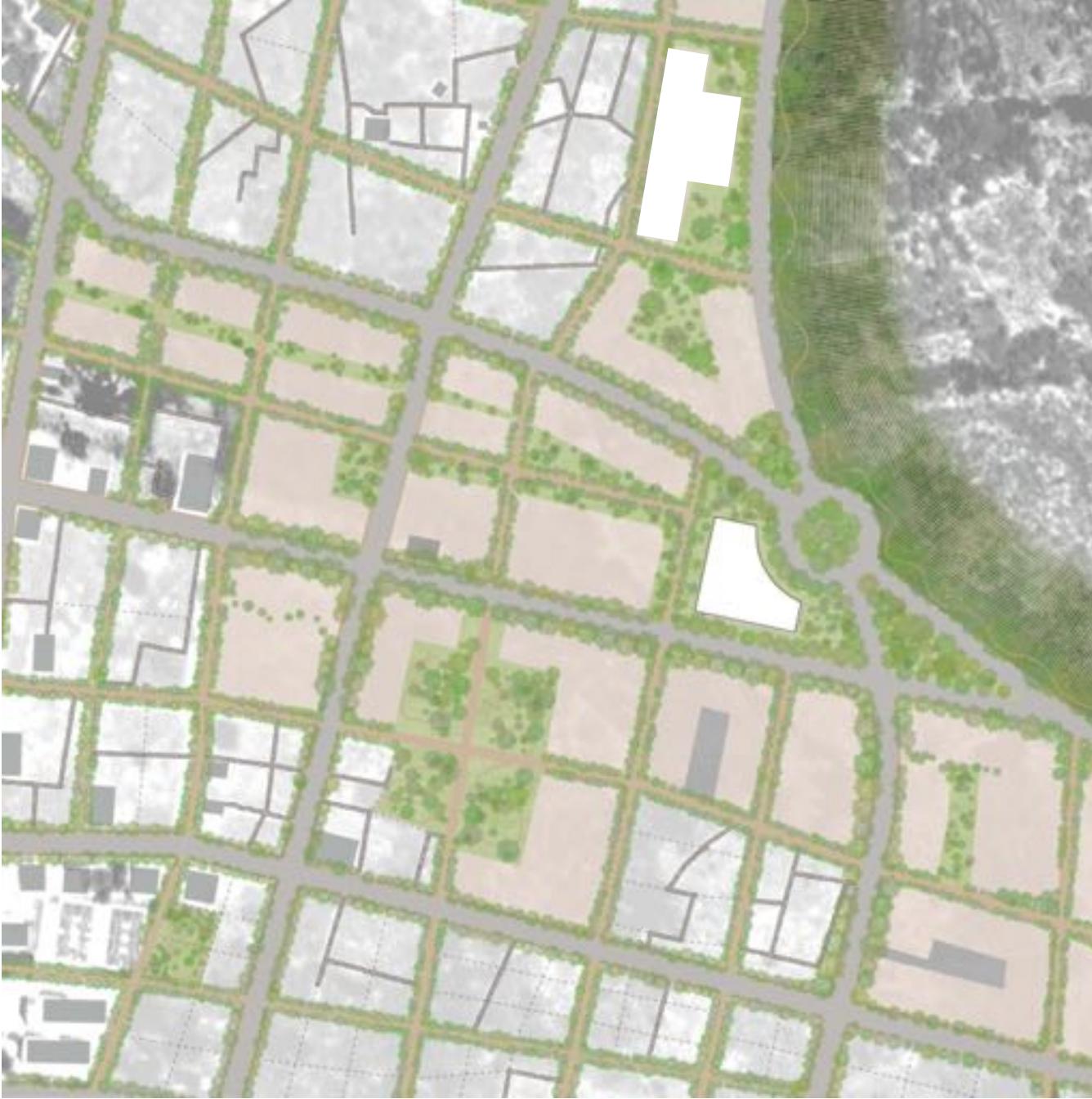


CONNECTED COMMUNITIES

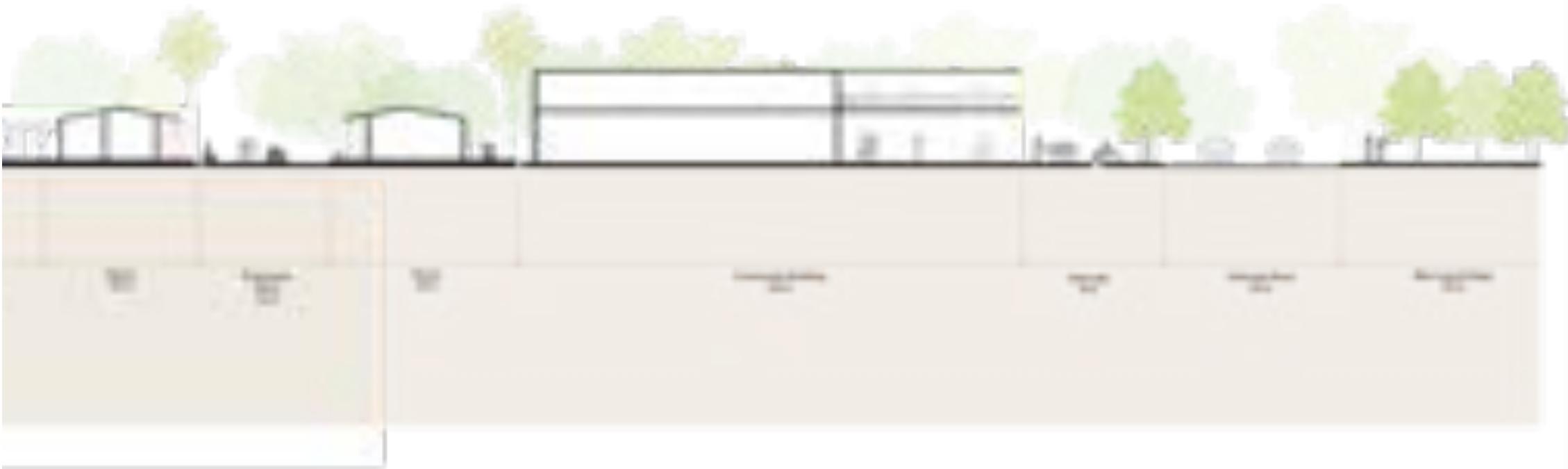


# COMMUNITY SERVICES

CONNECTED COMMUNITIES



EDGE  
STEWARDS

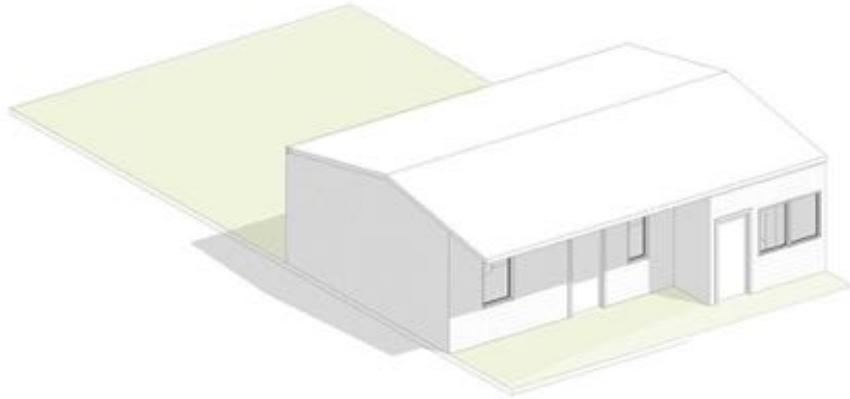




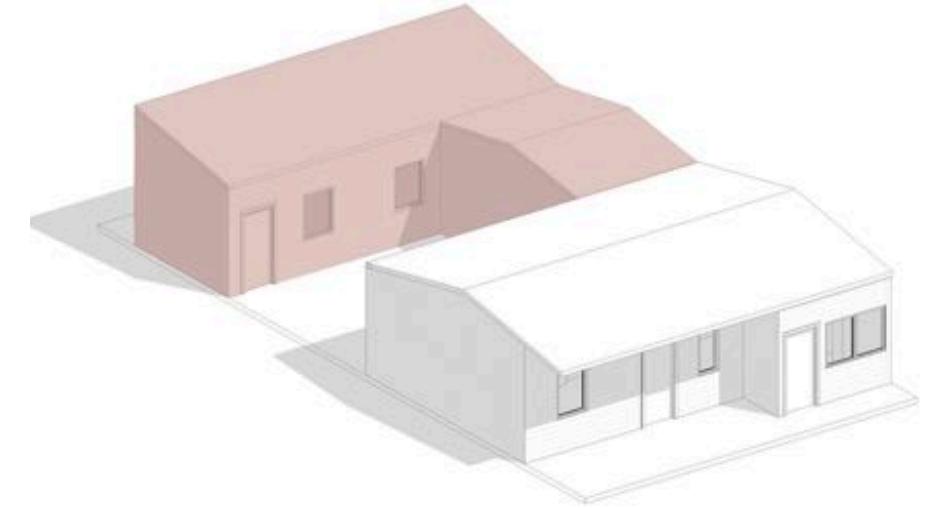
## HOUSING GRID



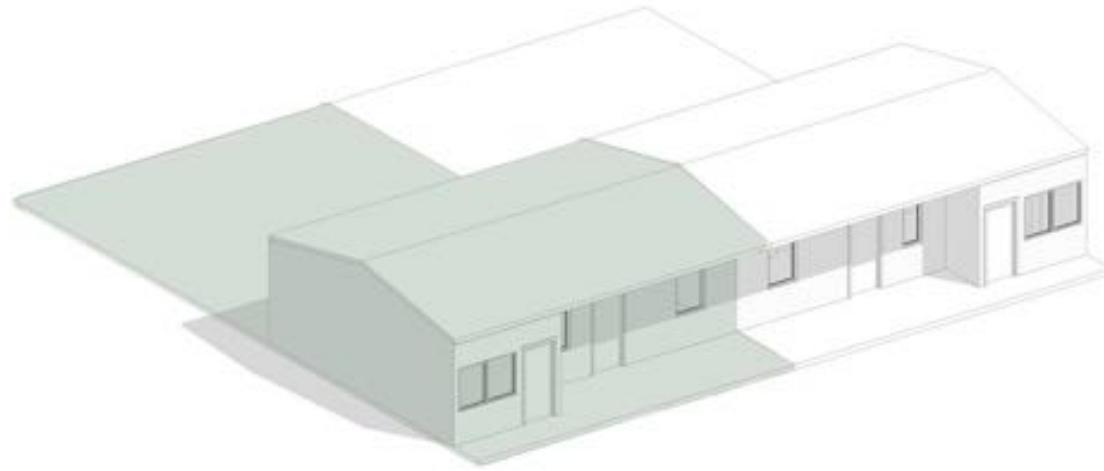
# HOUSING TYPLOGY



**Basic Unit (10m x 8m) with  
Front & Back Yard  
(10m x 20m lot)**

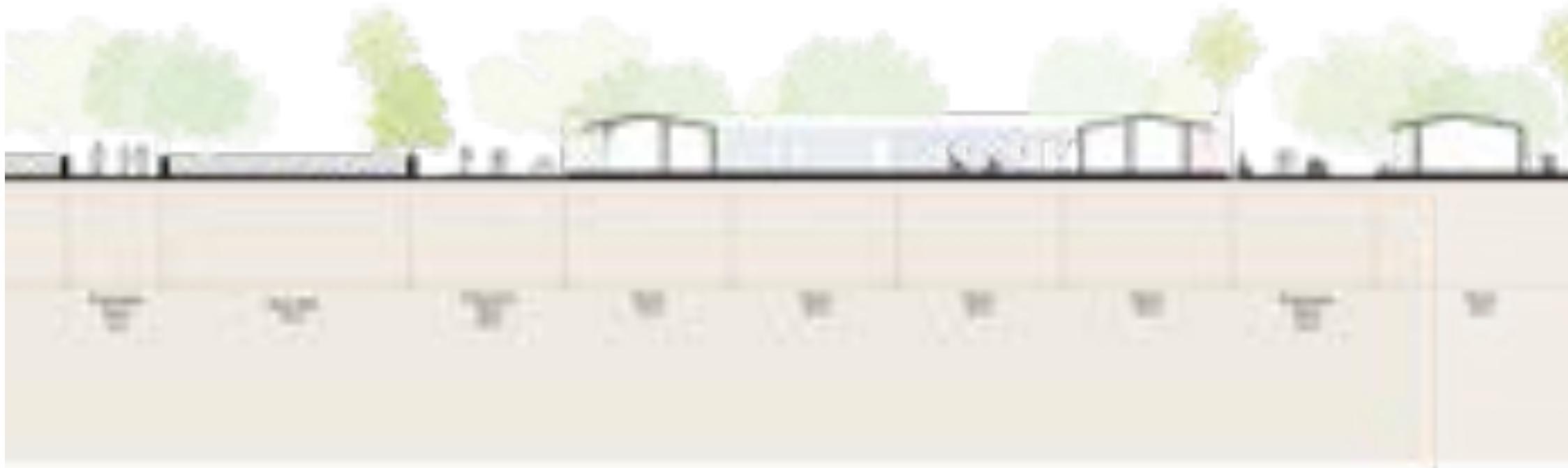


**First Possibility of Growing**



**Second Possibility of Growing**

HOUSING  
TYPOLOGY







## ACTIVATED BEACHFRONT

The beautiful coastline will be home to a vibrant locally driven tourism economy and public spaces for recreation and outdoor activity.



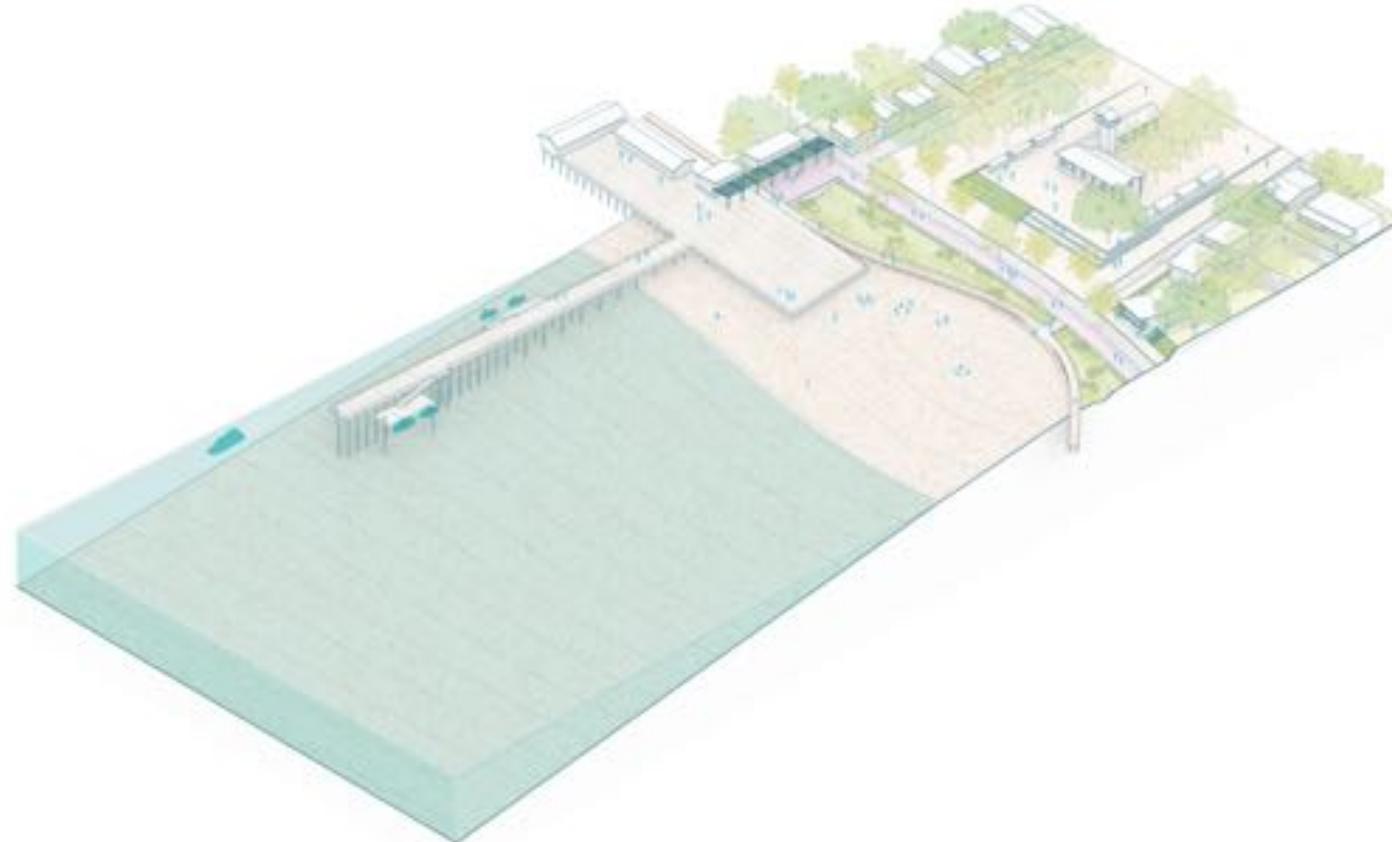


## B E A C H F R O N T C O N N E C T I O N S

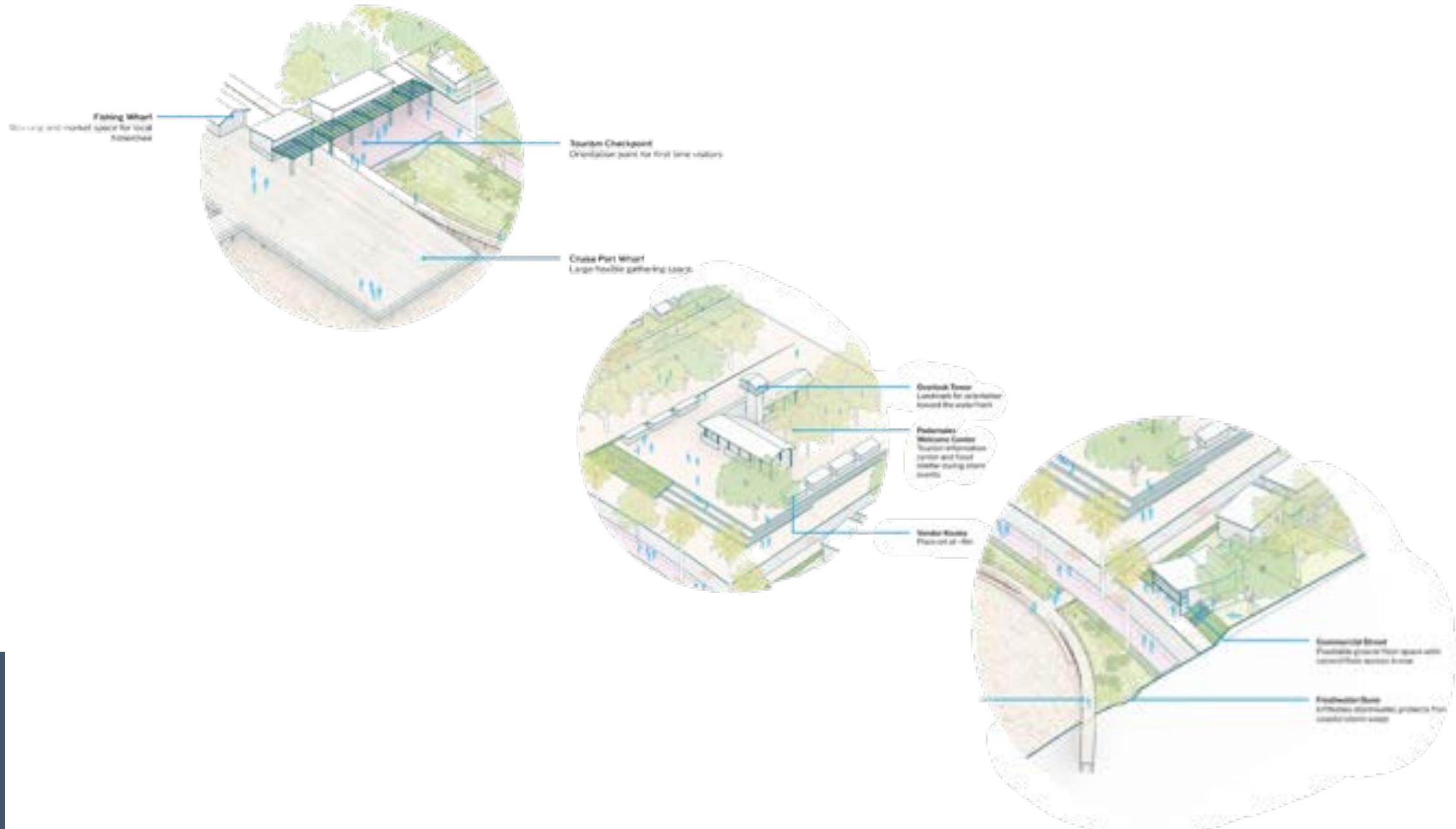


ACTIVATED BEACHFRONT

MALECON PLAZA

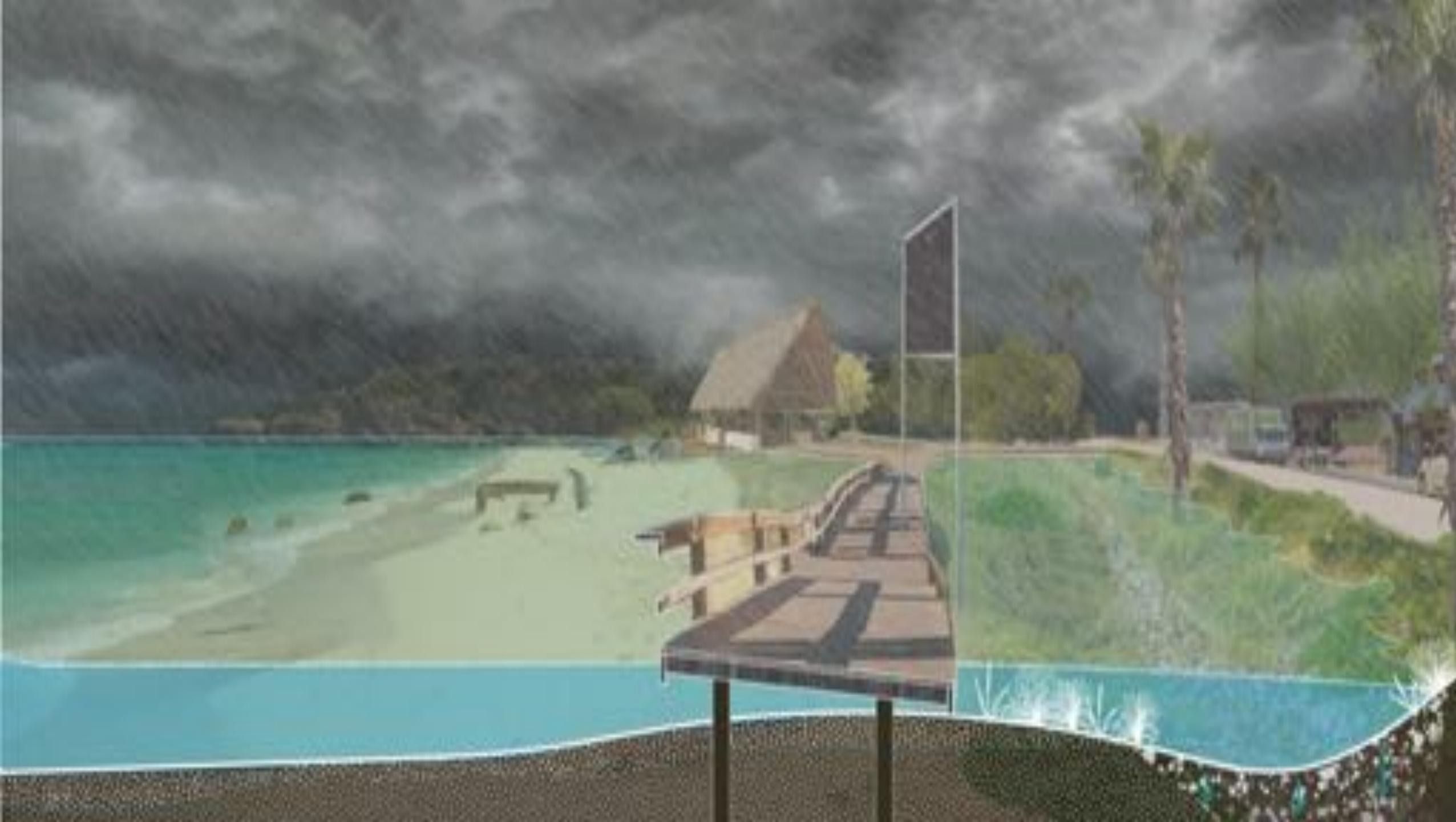


## MALECON PLAZA









**Boardwalk & Promenade**



**Multipurpose Pavilion**



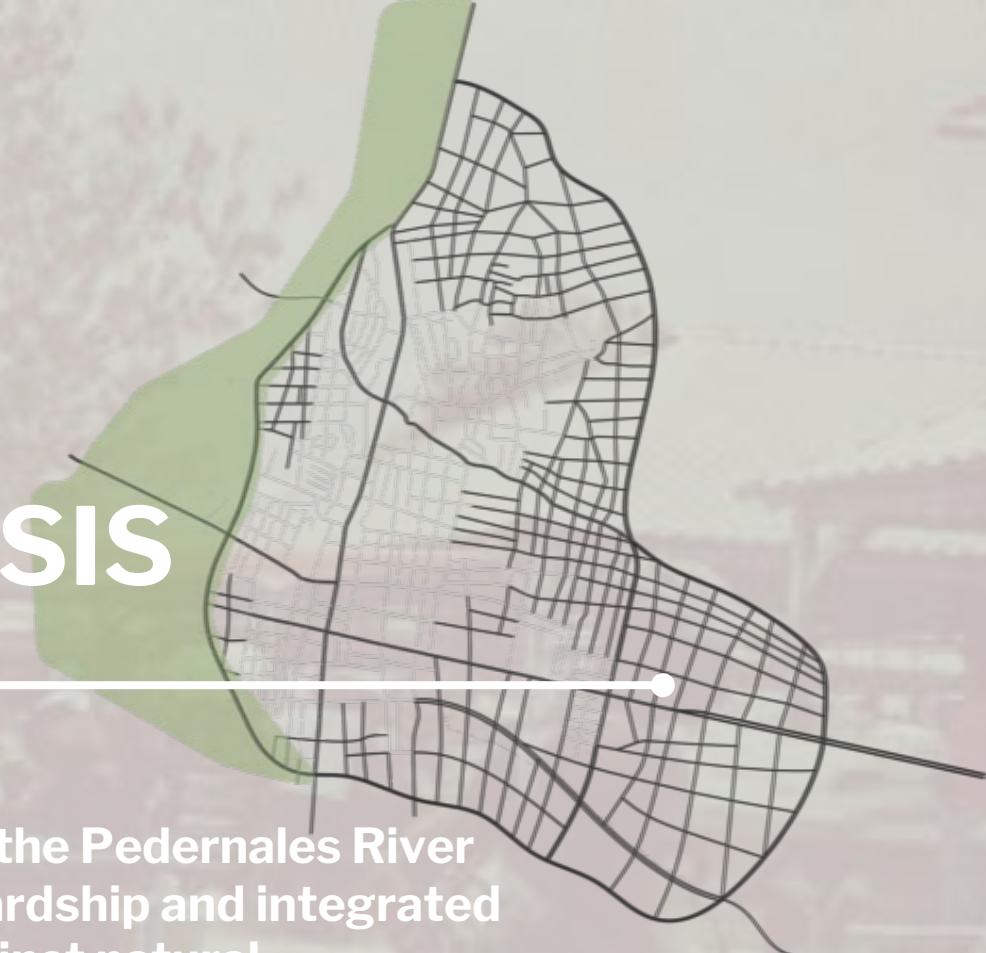
**Flexible Use Cabin**





## BINATIONAL OASIS

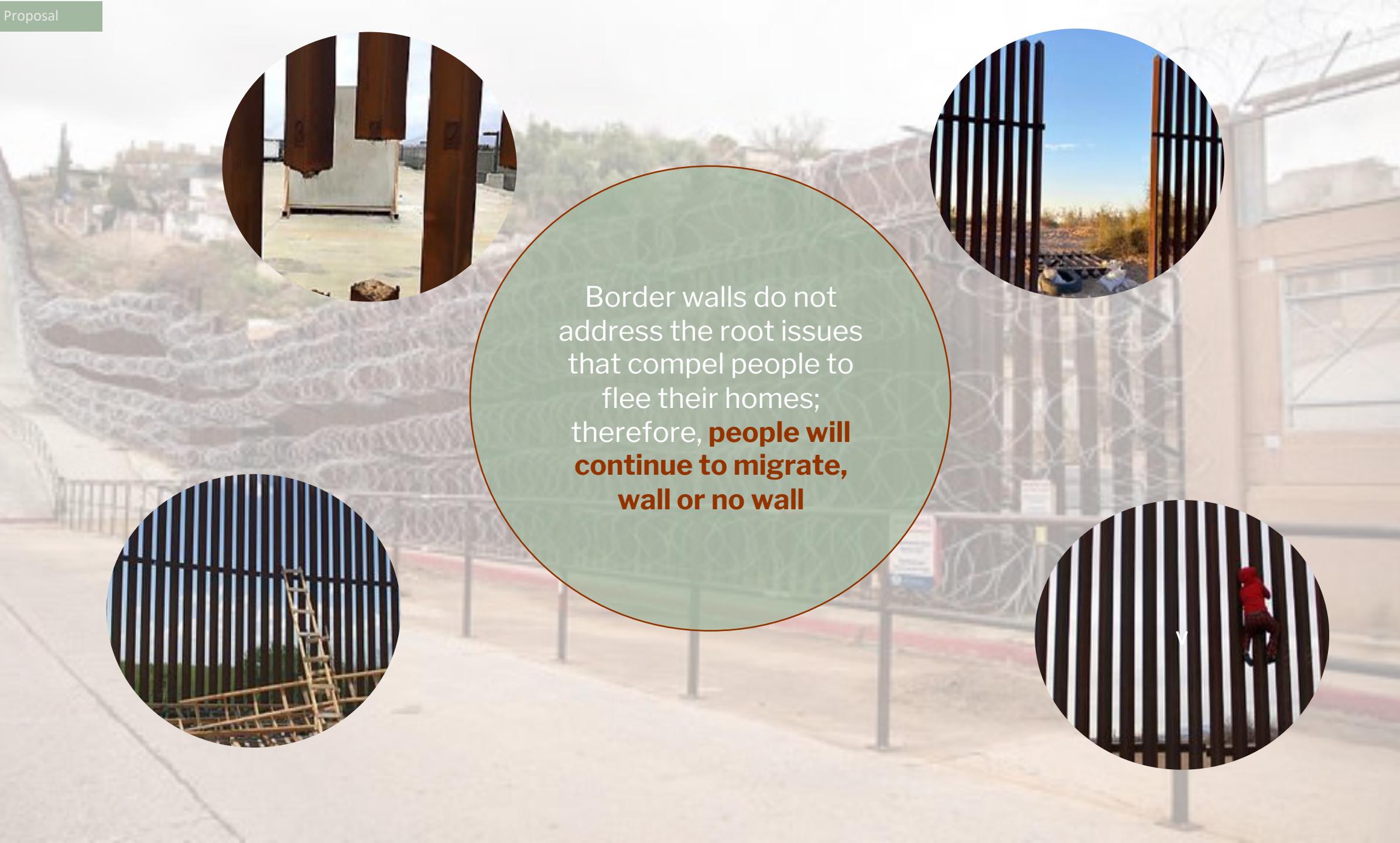
**Enhancing the existing public spaces in the Pedernales River through binational environmental stewardship and integrated community development to protect against natural disasters, boost the local economy, bolster peace and security, and preserve the convivial nature of the sister cities.**

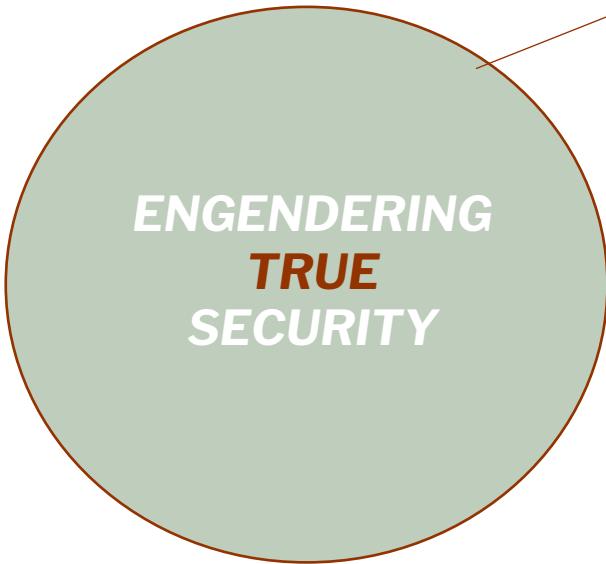


# BINATIONAL RIVERBED



# MILITARIZED BORDER WALL





Nurture transborder  
peacebuilding



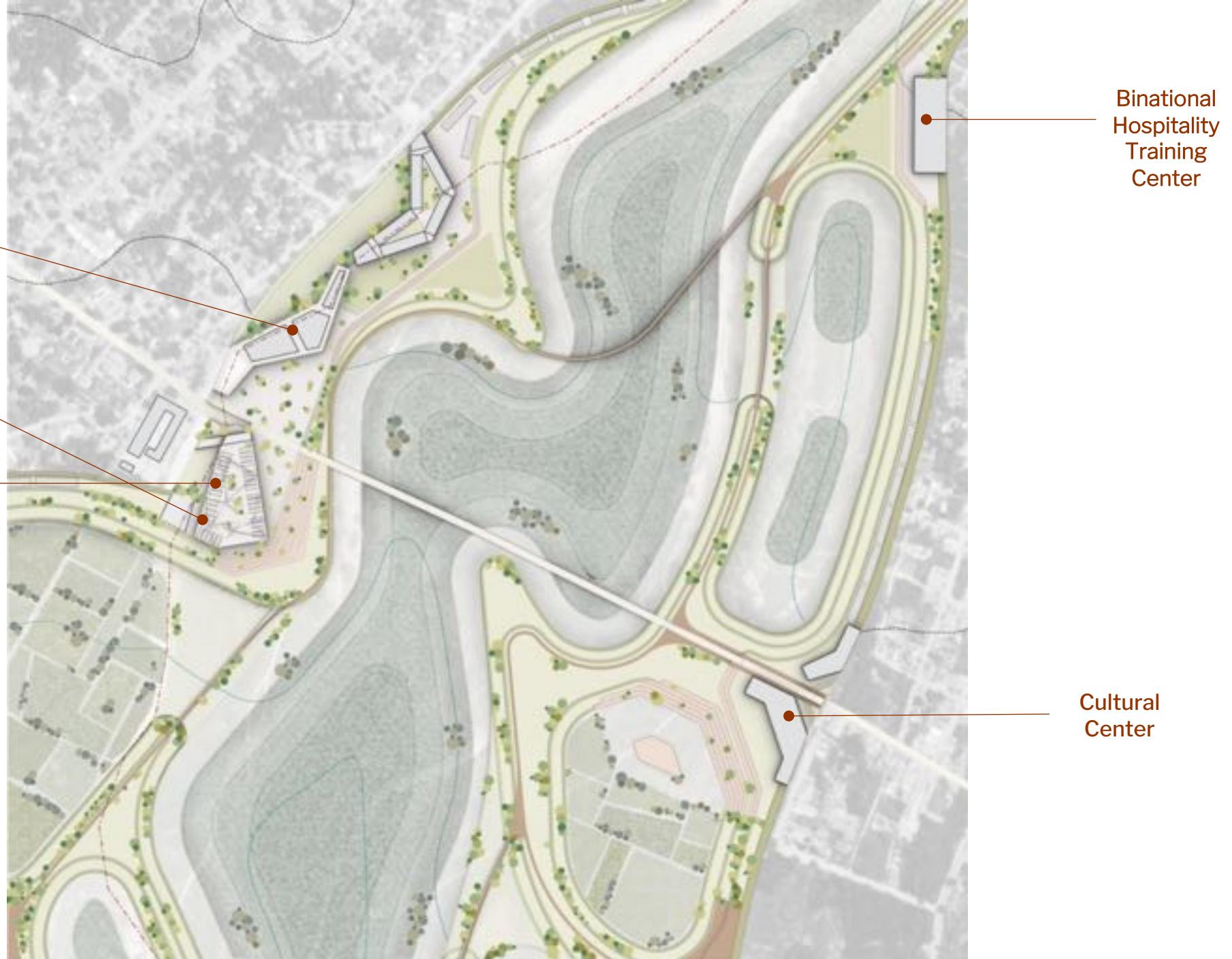
Fortify river for  
public safety



Facilitate economic  
resilience

# BINATIONAL OASIS

Proposal

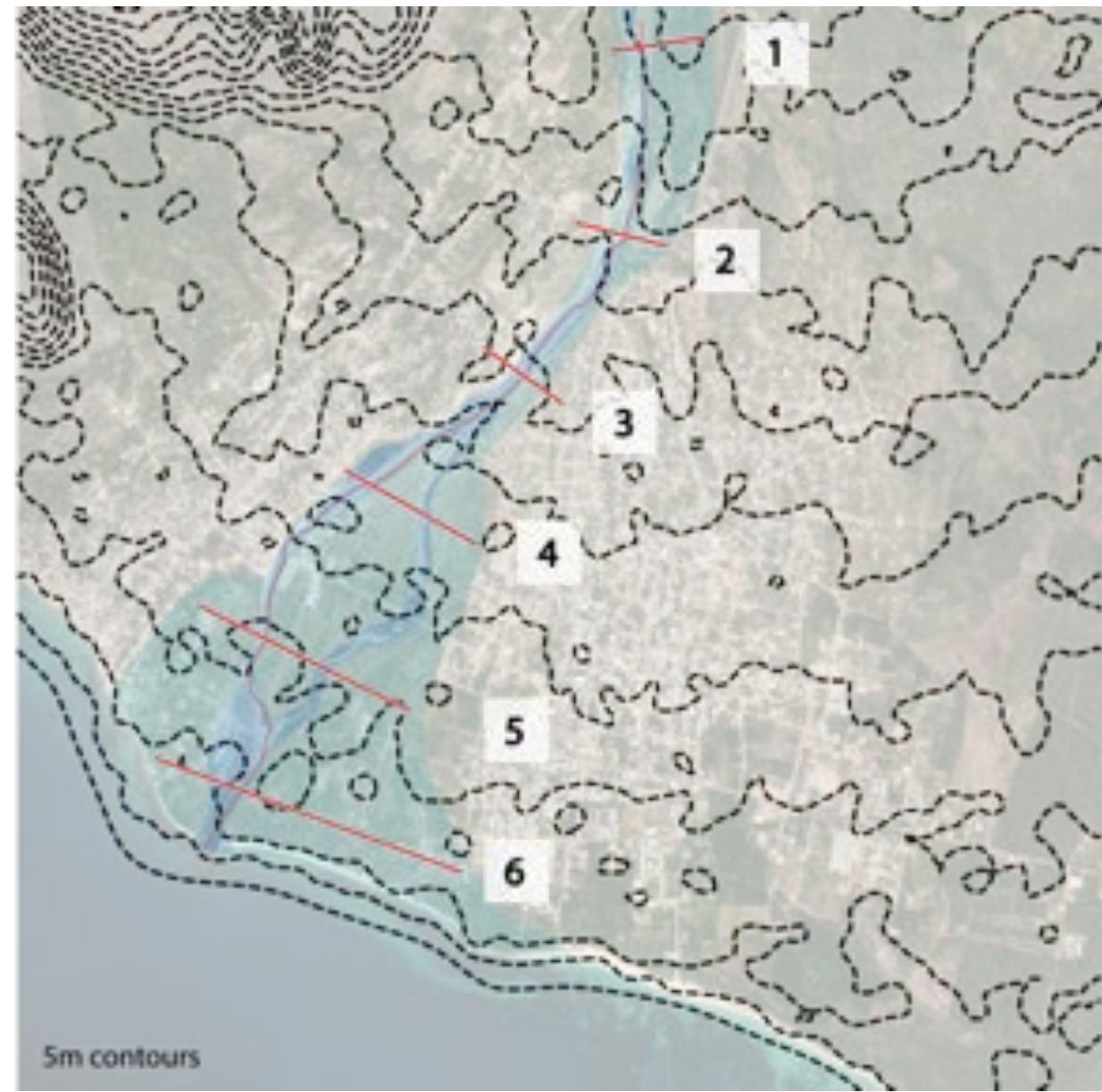
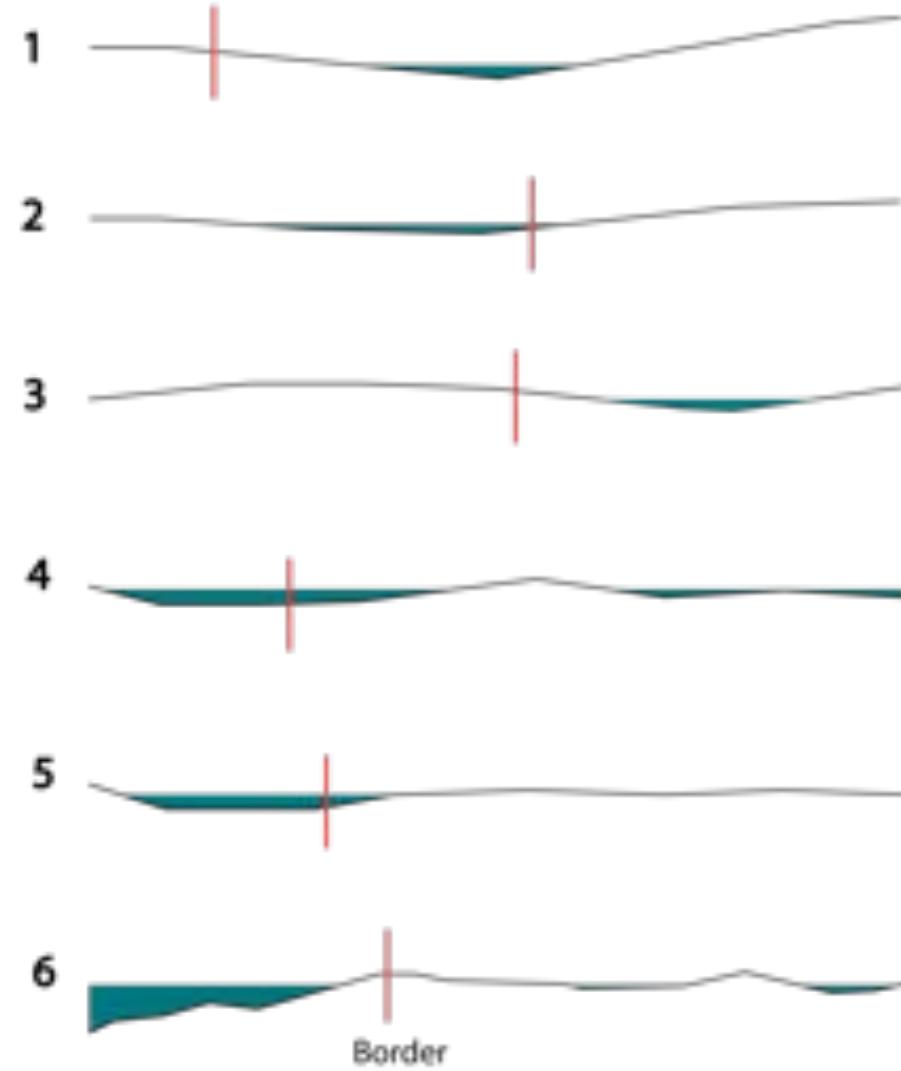


## CURRENT RIVER CONDITIONS



- Dry river ecology
- Intermittent & flash flooding
- Gravel & sedimentation in the delta

# EXISTING TOPOGRAPHY



**2010**



**2021**



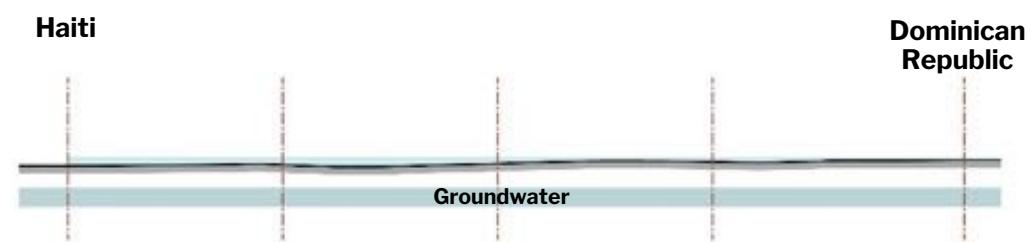
## BASIS OF DESIGN



- Deepening the river
- Artificial meanders- slowing down the flow
- Terraces, Gabion walls, & Berms for **flood control & recreational space**

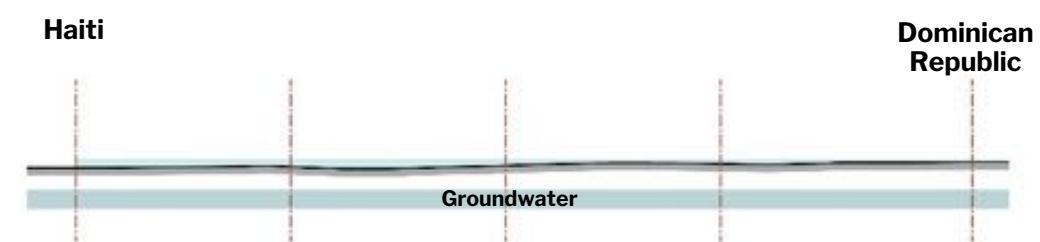


Existing  
river  
channel &  
floodplain



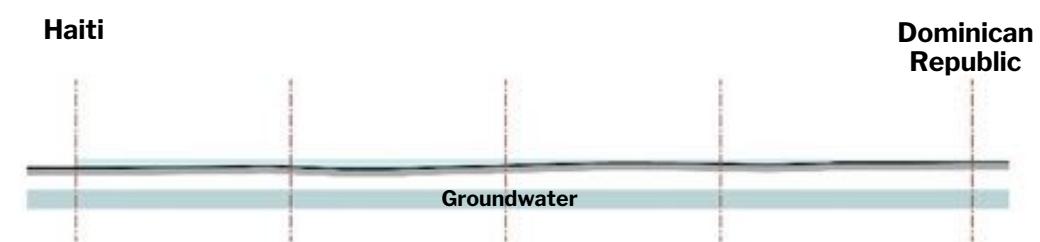


Outer lines  
of flood  
defense



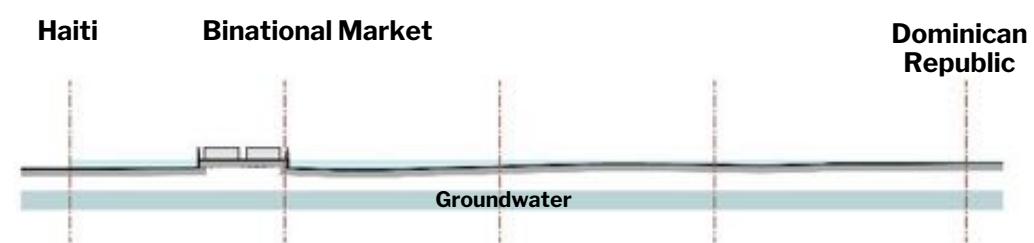


Inner lines  
of flood  
defense



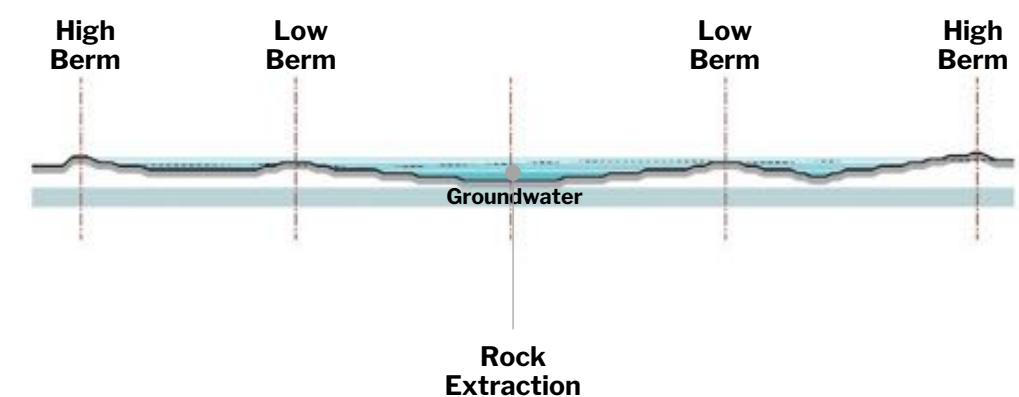


Proposed  
Wall



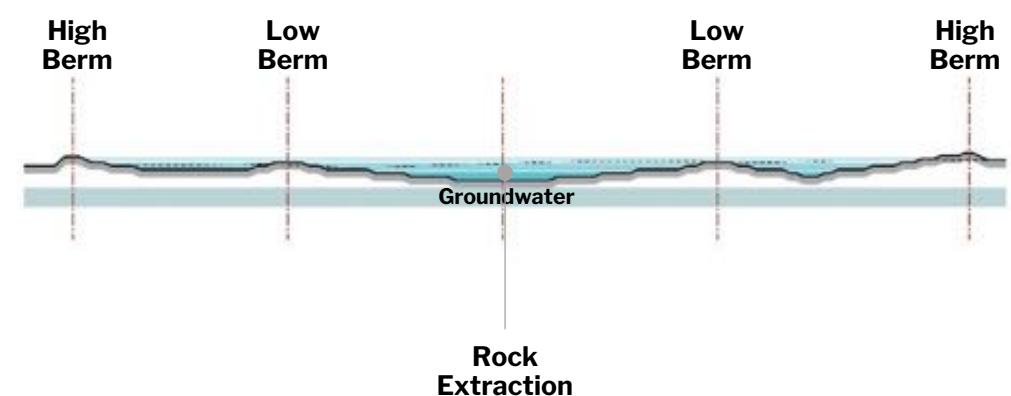


Proposed  
river  
meander



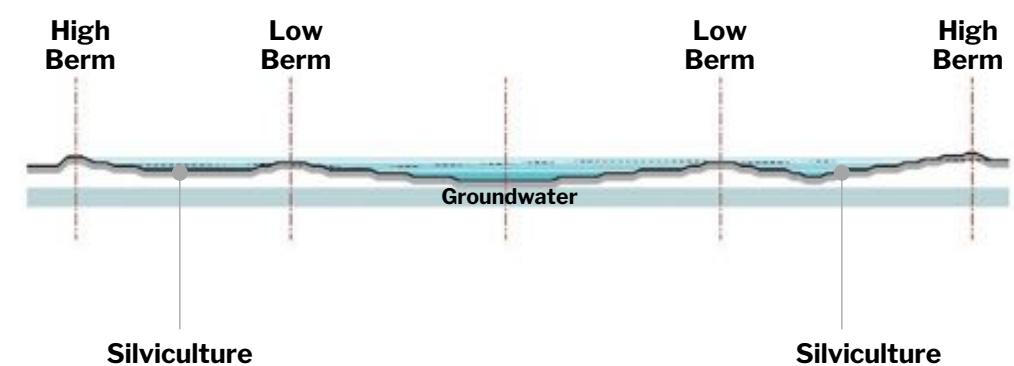


Land forms  
for river  
training



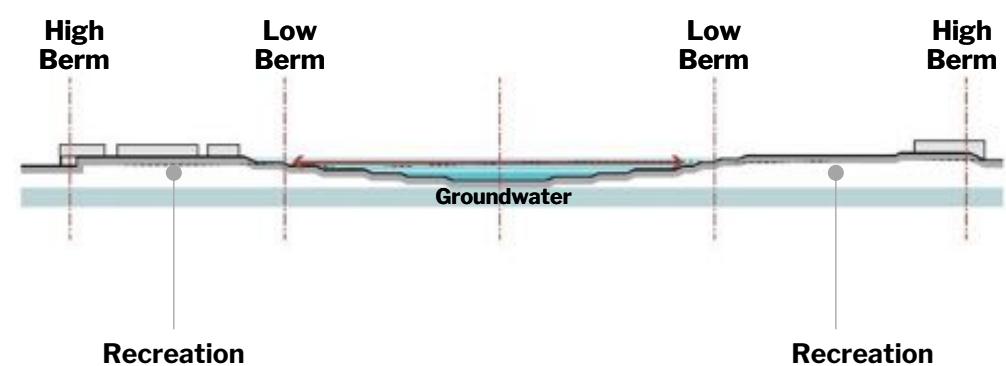


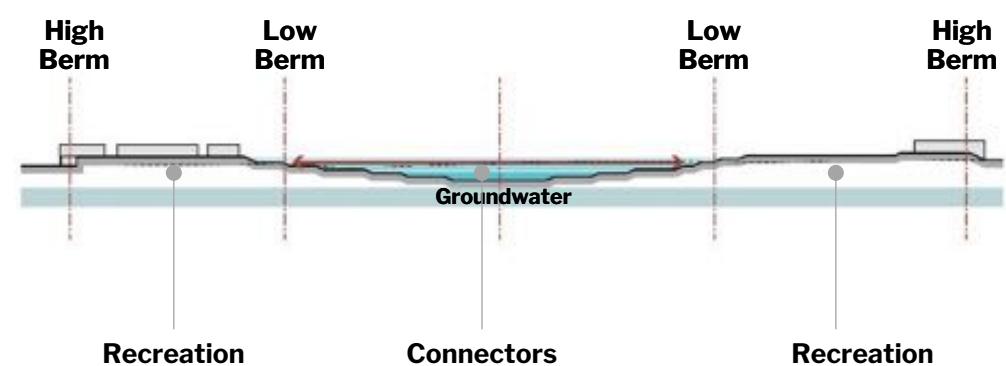
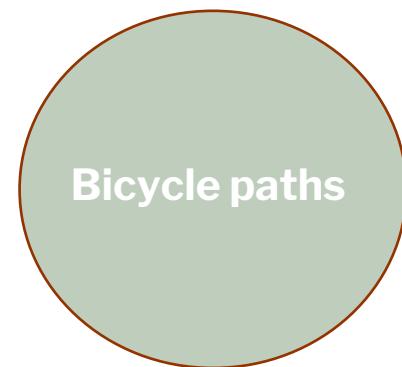
Check dams  
&  
silviculture





Edge  
stewards &  
connectivity







Hall

Western Edge Staircase  
High Berm  
100m

Terrace  
30m

Low Berm  
+ Bike  
Path  
30m

Flow Area  
180m

Recreational Space  
Low Berm  
150m

Music, Arts, and Dance Amphitheatre  
Agoraometry  
170m

Eastern Edge  
Staircase  
Cultural Center  
High Berm  
45m

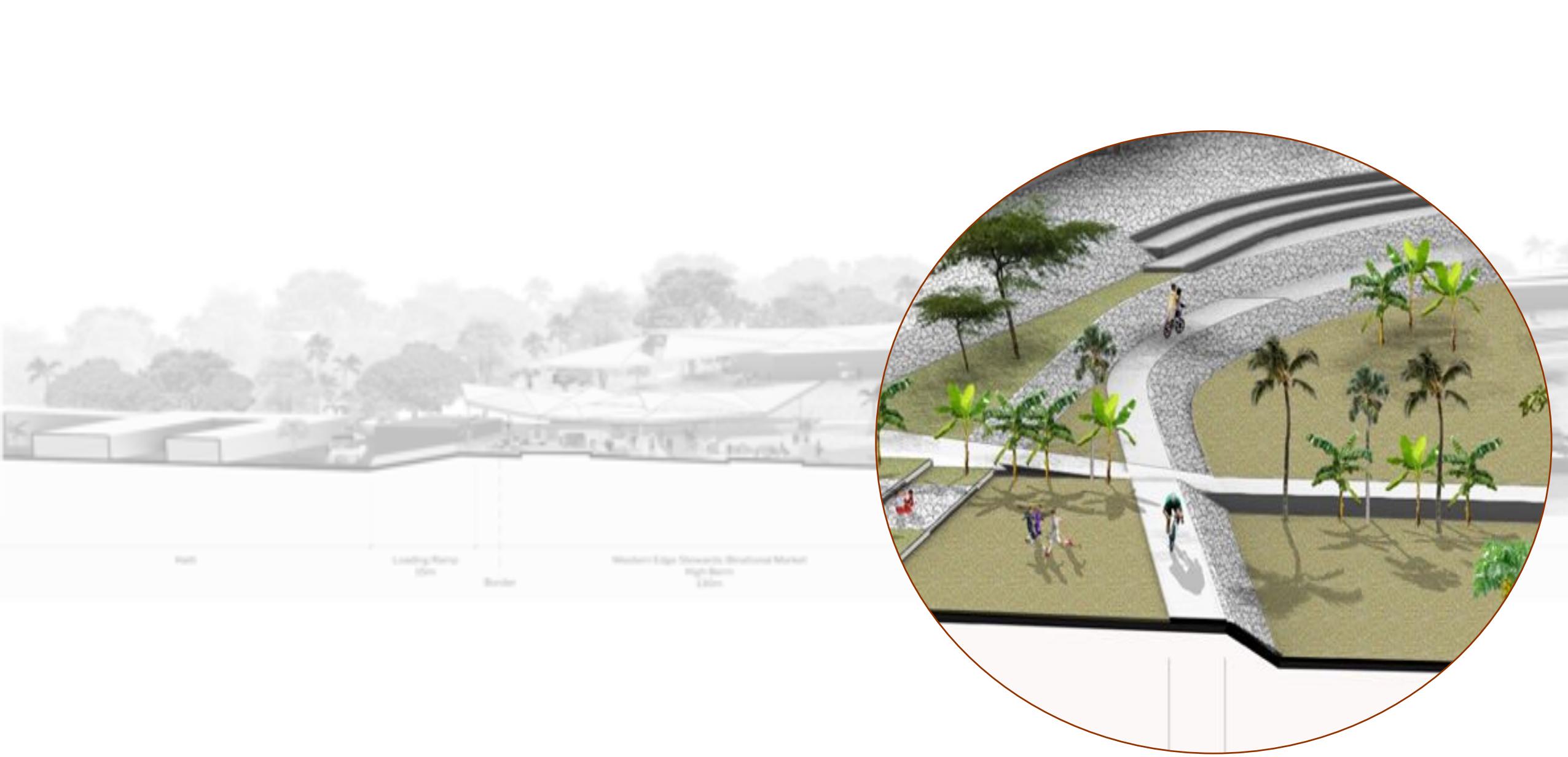


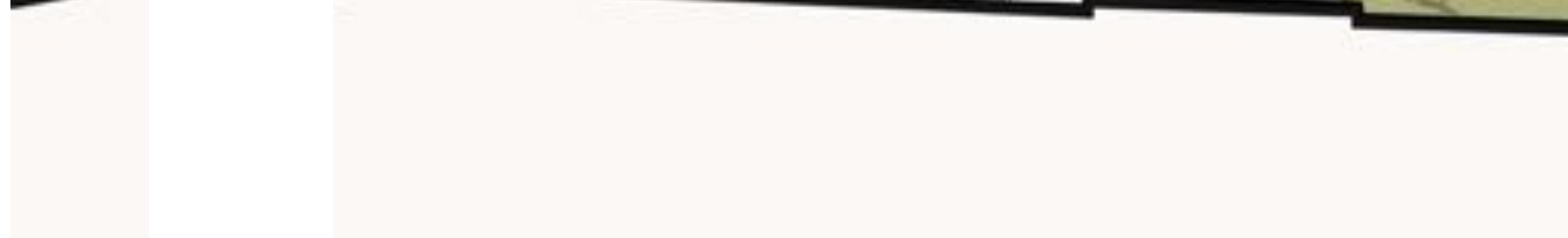
0m

Loading Bay  
25m

Buses

Western Edge Markets Structural Market  
High Bay  
25mService  
AreaLow Bay  
25mPeds  
5mRecreational Space  
Dentition and Play Area







Muse, Arts and Sports Amphitheater  
55m

Surround  
Area

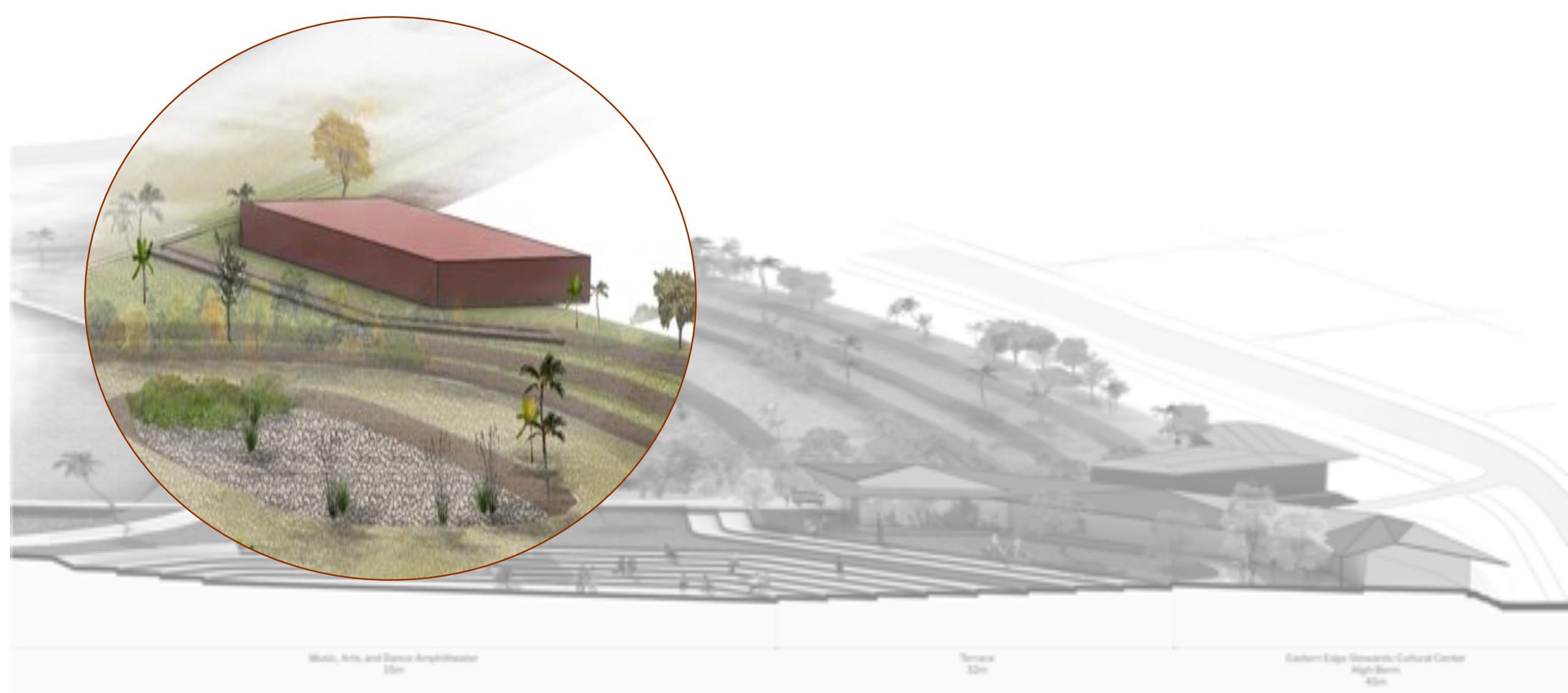
Southern Edge Newworks Culture Center  
High School  
45m



100m

50m

Eastern Edge Thousands Cultural Center  
High-Berm  
40m



Music, Arts, and Dance Amphitheater  
33m

Terrace  
33m

Eastern Edge Shawards Cultural Center  
High Berm  
43m





# THANK YOU!

---

Kate  
Sanjana  
Allison  
Jackson  
Simón  
Jie  
Kendra  
Carlos  
Emma  
Aminah  
Myron