

Last Call

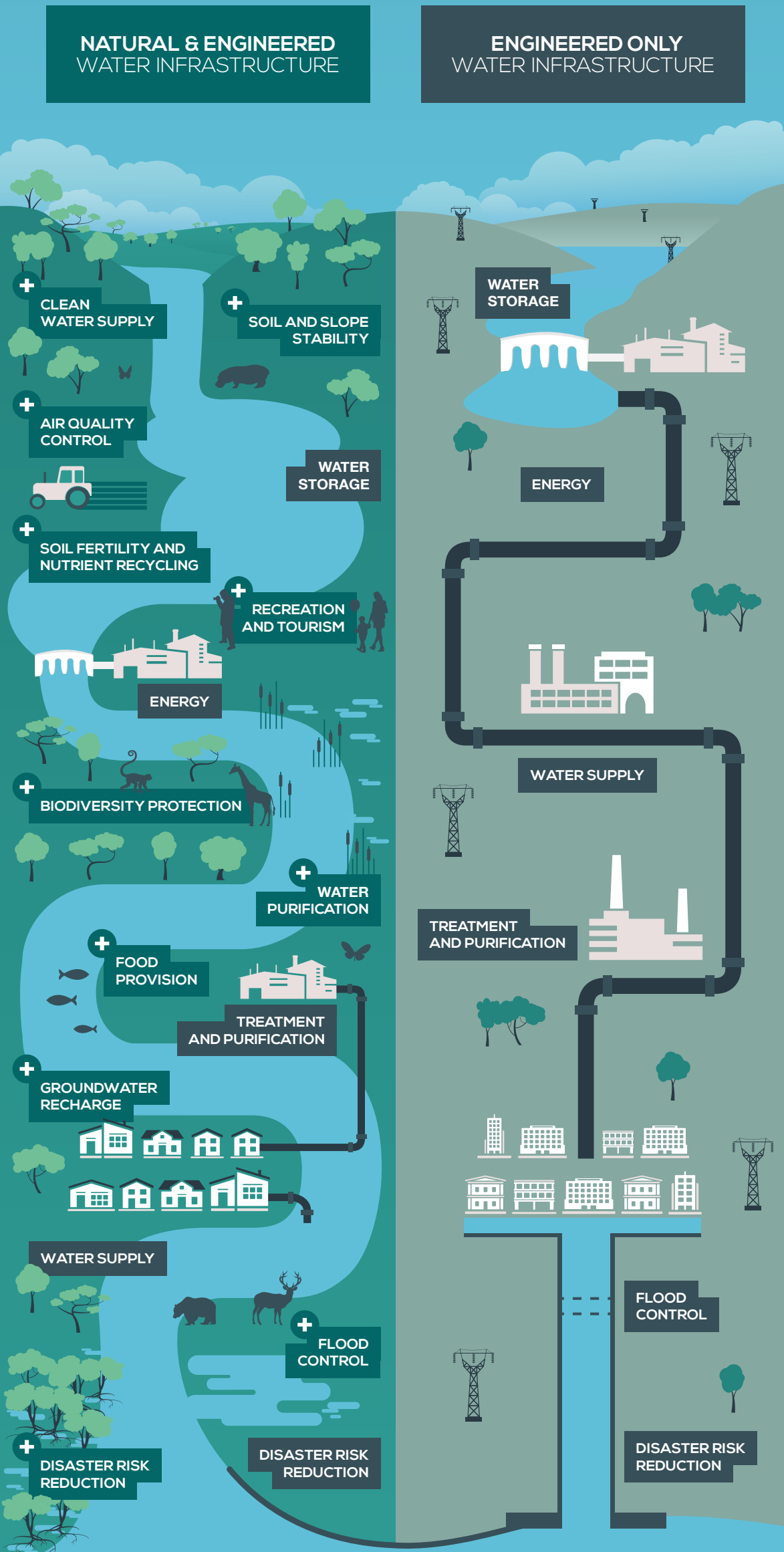
Post-María Puerto Rico and the need for a
Transformative Reconstruction

Edmundo R. Colón Izquierdo, ASLA
ECo-Principal
PUPR - ArqPoli - Dept. Landscape Architecture Coordinator
IAPPR - President



SEPTEMBER
2017





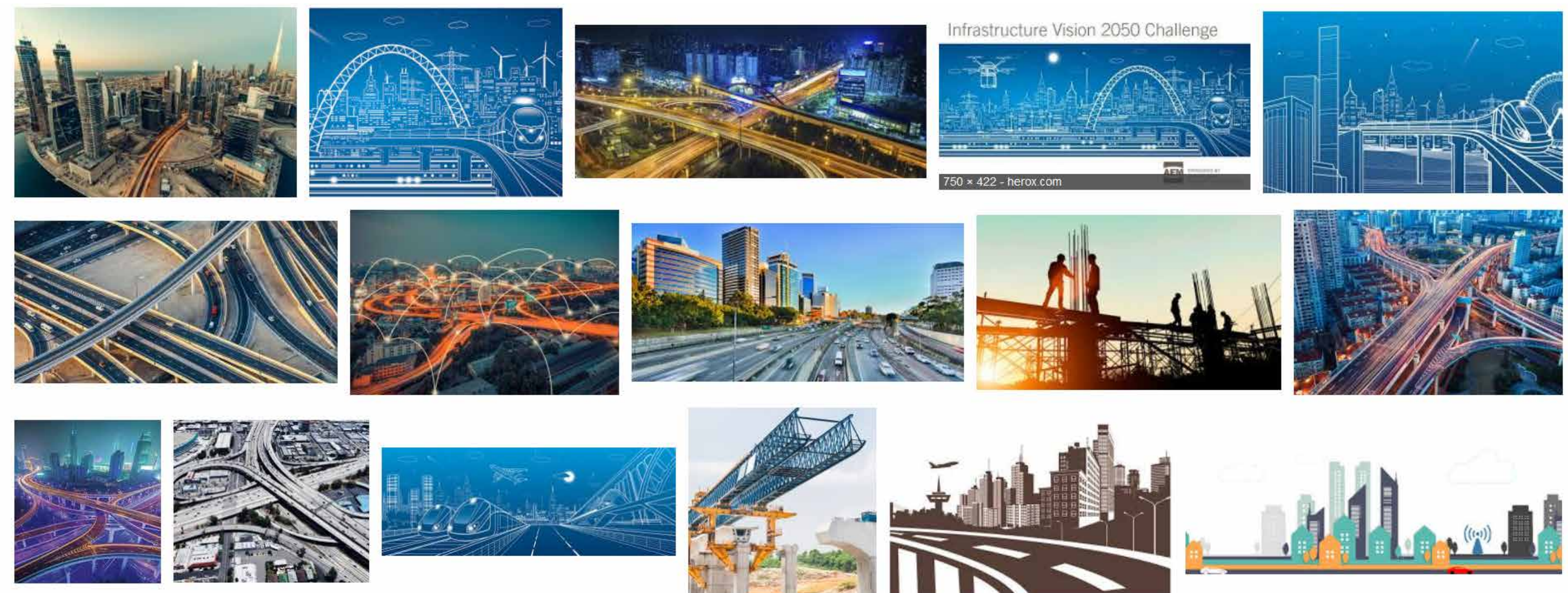
Added benefit:
\$29 TRILLION PER YEAR
 in natural water infrastructure services¹

BUSINESS AS USUAL

International Union for Conservation of Nature (IUCN)



VS





Human dominance over nature?

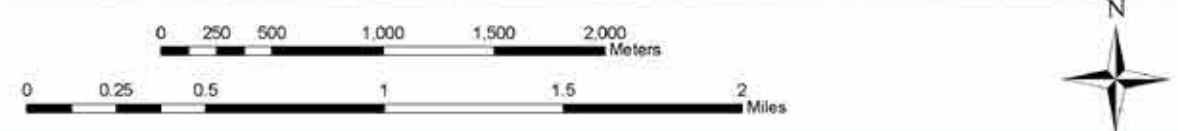
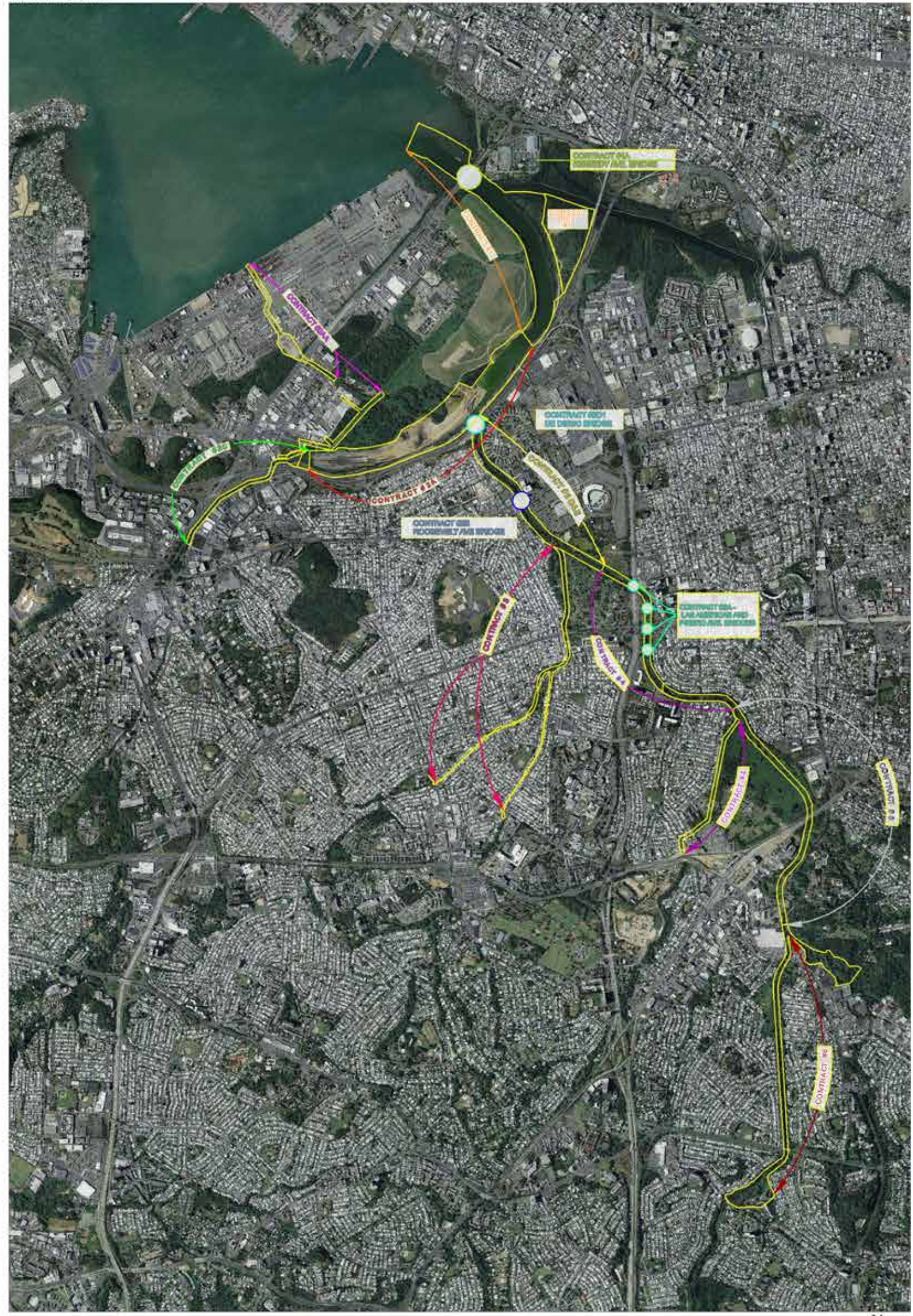
- There is a significant amount of funds that are supposed to arrive for reconstructing a place that had been in a constant economic and demographic decline for the past decade
- There is a real urgency to attend and prioritize communities that face real impending threats
- The “plan” is to solve these with the same **old ideas**

TRANSFORMACIÓN E INNOVACIÓN LUEGO DE LA DEVASTACIÓN

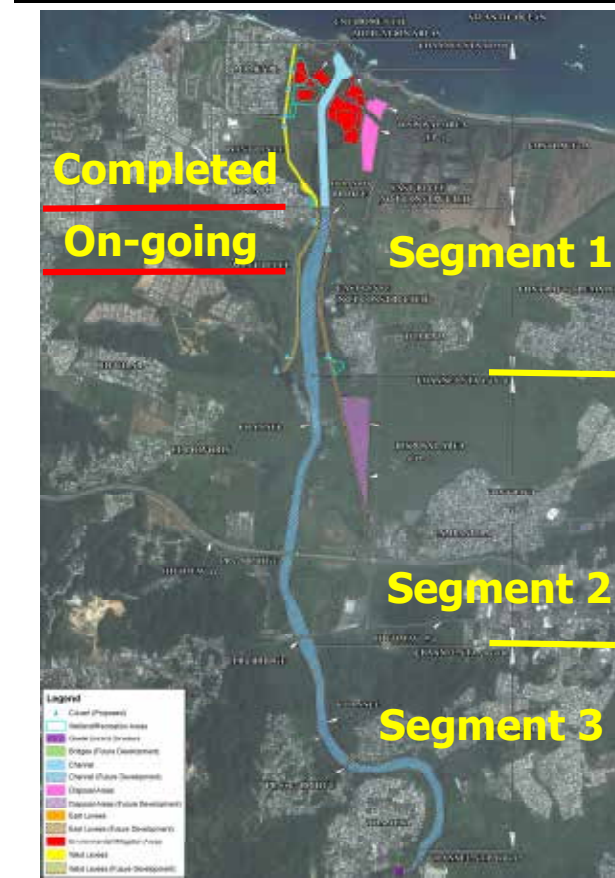
UN PLAN DE RECUPERACIÓN ECONÓMICA Y DE DESASTRES PARA PUERTO RICO



Puerto Nuevo Channel Project



RIO DE LA PLATA



Divided into three Segments:

Segment 1 – Partially completed.

- **Contract 1A** (West levee north of Dorado Bridge, Channel improvements & mitigation features) – **Completed**
- **Contract 1A** (Dorado Bridge Scour Protection, West levee south of Dorado Bridge & Channel improvements) – **On going**
- **Contract 1A** (Structures for Dorado Bridge levee) – **Remains**
- **Contract 1B** (Remainder of west levee, East Levee (to Sta. 150+00), Channel improvements, & Structures) - **Remains**

Segment 2 –

- Remainder of East levee, Bridge & scour replacement, and Channel improvements just south of PR HWY 2 Bridge - **Remains**

Segment 3 –

- Channel improvements, Bridge scour protection and a grade control structure – **Remains**



- As funding is starting to flow, many projects are in the pipeline for implementation. There is very little time to change the course of recovery efforts

- As funding is starting to flow, many projects are in the pipeline for implementation. There is very little time to change the course of recovery efforts

LAST CALL

CONCERNS:

- Investment should be meaningful
- The chasm between nature and infrastructure should be closed
- There is a high cost to infrastructure, but a poor quality of life
- Solving Inequity and Inequality is not a priority
- Plan does not account for demographic change, particularly the higher educated middle class who has left and is leaving
- The capacity to access and manage recovery funds

ASPIRATIONS:

- Tie infrastructure projects to creation of opportunities for social, economic and cultural growth
- Ensure that public investments has significant repercussion and creates positive transformative impact
- Promote resiliency of ALL systems. Economic, Social, Ecosystemic and Infrastructural
- Prepare for Climate Change
- Promote Equity, Equality, Beauty and the best Quality of Life possible

¿HOW?!

TYPES OF KINTSUGI

Crack Method

Touches up with
minimal, delicate lines



Makienaoshi Method

Replaces lost fragments
with golden pieces



Joint Method

Pieced together with
two different ceramics



WHATEVER WE PUT IN
PLACE, MUST ADD VALUE.

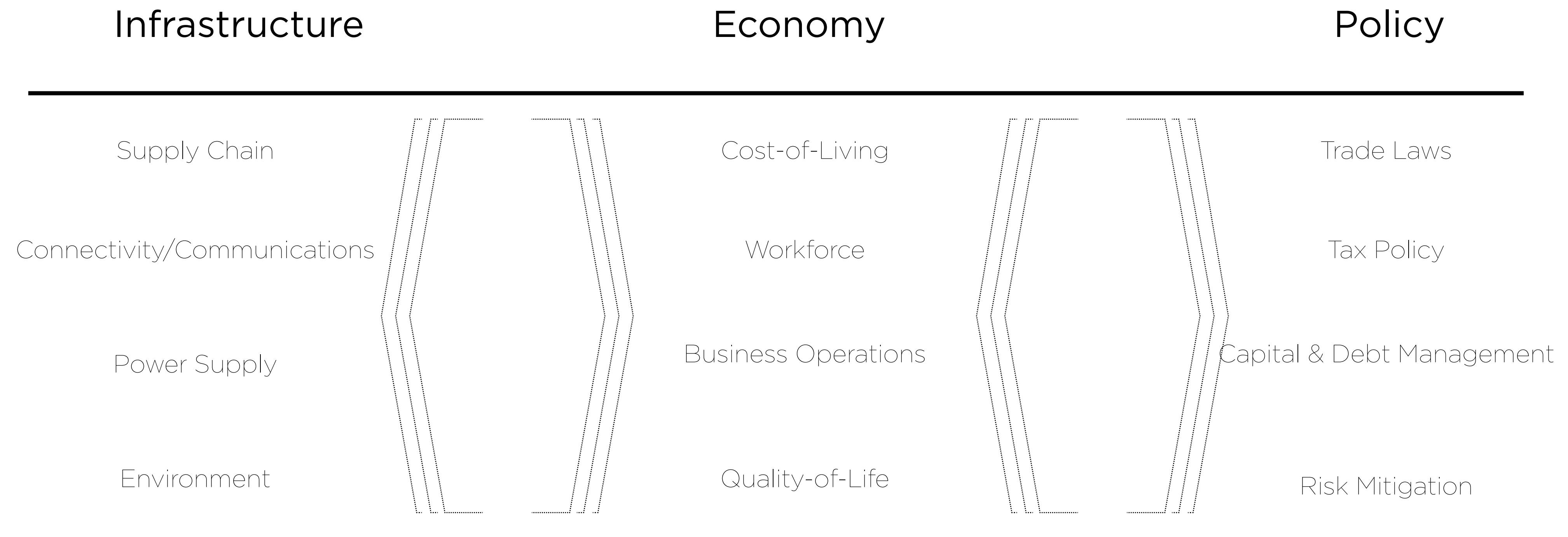
CREATIVE AND CRITICAL THINKING



TRANSDISCIPLINARITY

As the prefix "trans" indicates, transdisciplinarity concerns that which is at once between the disciplines, across the different disciplines, and beyond each individual discipline. Its goal is the understanding of the present world, of which one of the imperatives is the overarching unity of knowledge

Inter-Connected Resilient Development Strategy



Resiliency - Psychology

Resiliency is the capacity of a person or group to **recuperate** in the face of adversity to continue to **project or imagine the future**. Occasionally, difficult situations or traumas allow the individual or group to **develop resources or mechanisms that were not available or evident before**. Specialists affirm that **resiliency is directly related to self-esteem**, therefore emphasizing the need to work with children to allow for this capacity to develop.

Creative and Transdisciplinary Design

- Public Space

that encourages democracy, equality and enhances quality of life

- Natural or Naturalized Infrastructure

that serves social and natural environments/systems and interconnects them

- Community and Urban Development

that ensures easy access to services, provides better growth opportunities and remakes urban centers

- Hybrid Infrastructure

that considers and reacts to climate change

BUILD A COMPELLING ARGUMENT



Public Space

Plaza de la Republica, Paris - Martha Scwartz Partners



Espacio Público

Plaza de la Republica, Paris - Martha Swartz Partners



Espacio Público

Plaza de la Republica, Paris - Martha Scwartz Partners



CHARLIE
JE PENSE
DONC

20 JUIN 1789

JE SUIS
CHARLIE

Espacio Público

Plaza de la Republica, Paris - Martha Scwartz Partners



Espacio Público
Avenida Ponce de León



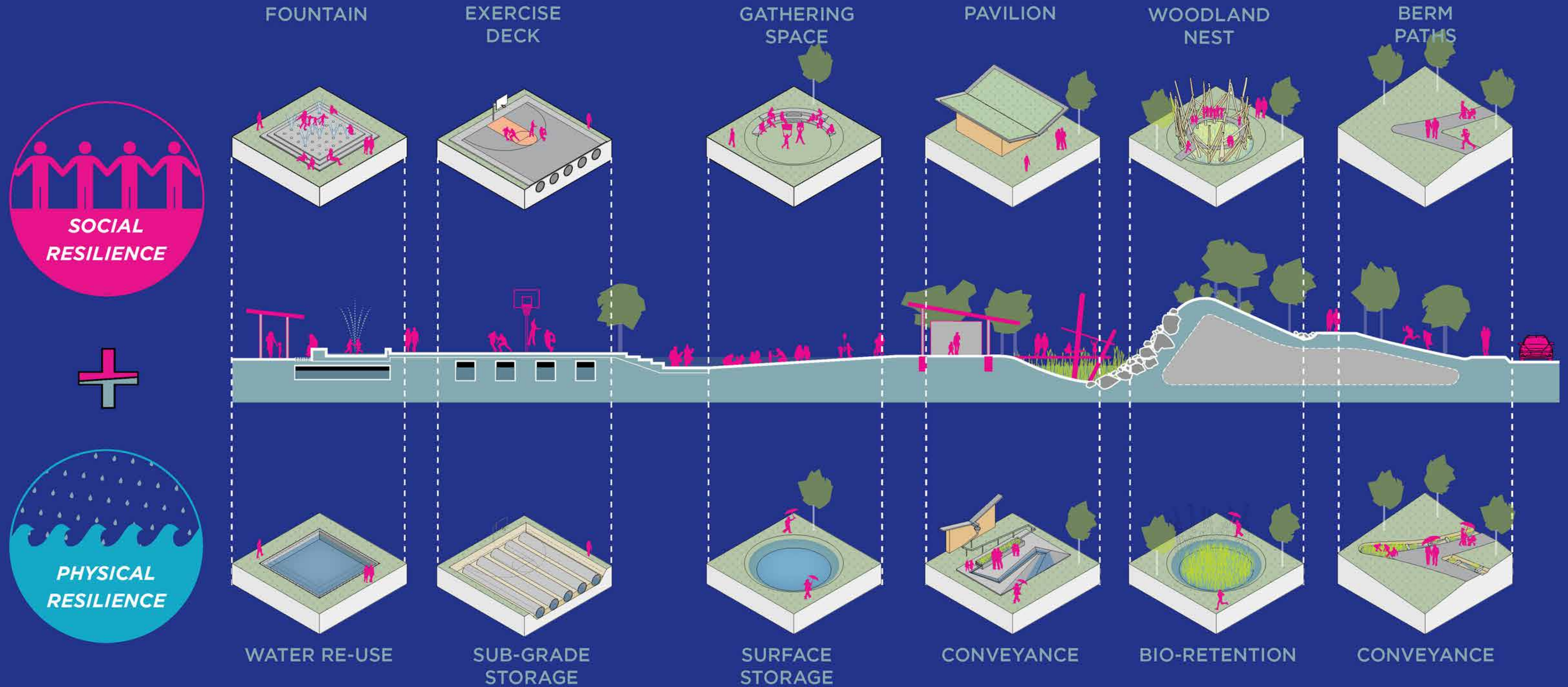
MILL RIVER : NATURAL RETURNS

Infraestructura Natural

Mill River - Stanford, CN DEIN 018 Olin

Contact Richard Roark. rroark@theolinstudio.com

Any investment in **infrastructure below** must also be an investment in **community space above**



LANDSCAPE INFRASTRUCTURE + **COMMUNITY COHESION** = **Infraestructura Natural**

Mill River - Stanford, CN - Olin
© 2018
Contact Richard Roark, rroark@theolinstudio.com

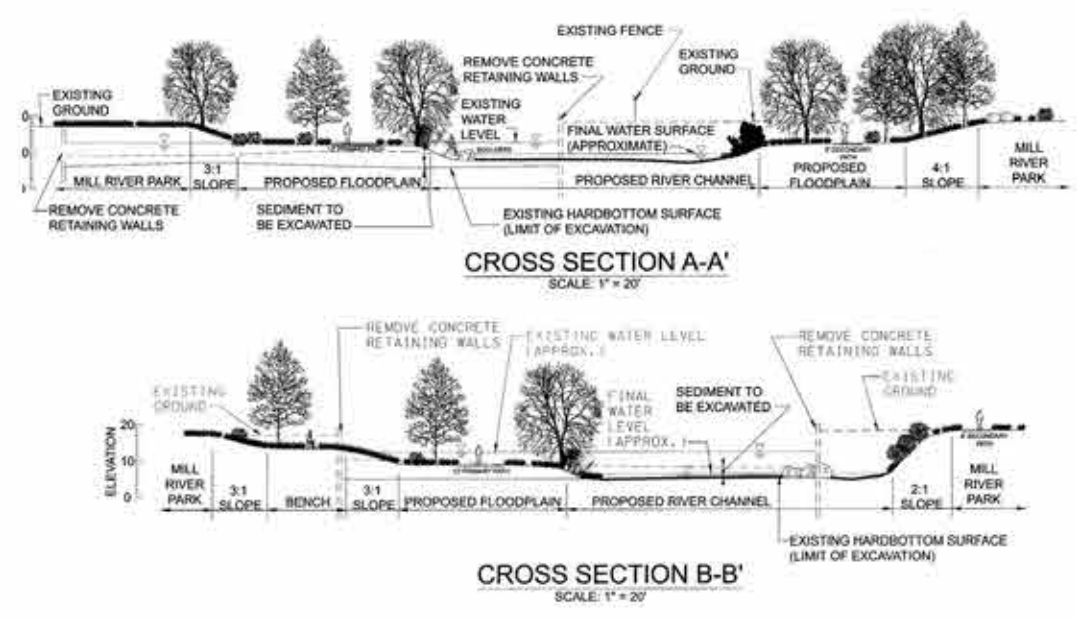
Timeline of Mill River

2005 - Ongoing

Hurricanes of 1954 and 1955



USACE Habitat Restoration Plan



Era of Mills and Industry



Sasaki Master Plan

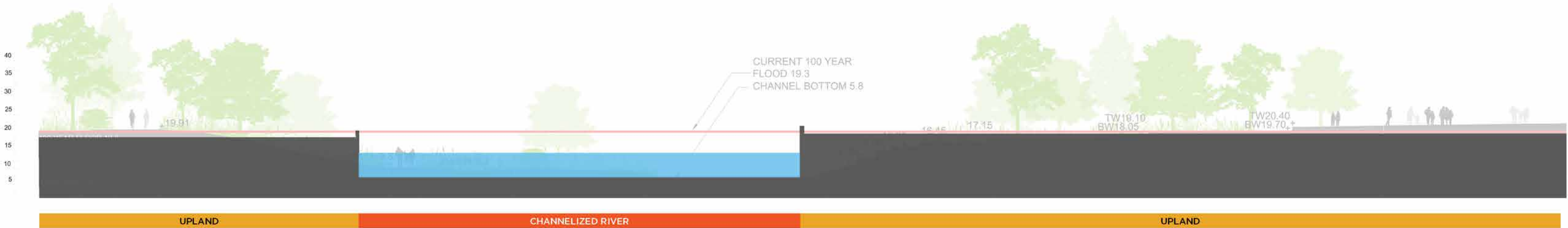


Mill River Greenway, OLIN

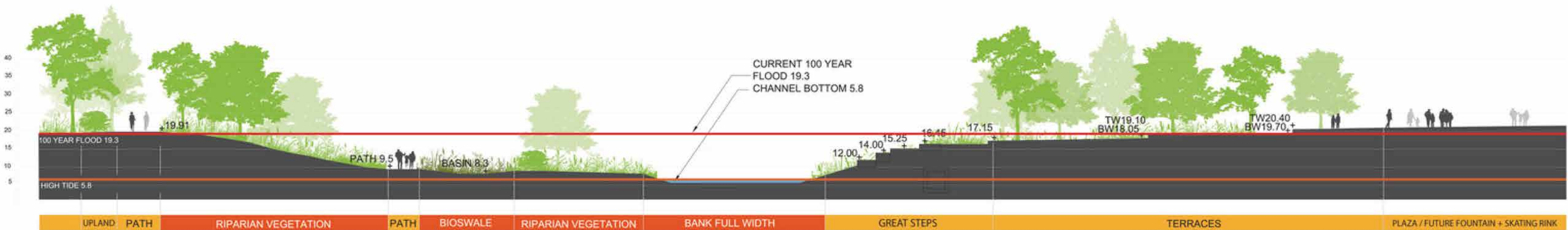
Infraestructura Natural

Mill River - Stanford, CN - Olin

Pre-Restoration Condition



Restoration Design



Infraestructura Natural

Mill River - Stanford, CN - Olin

Path to Restoration...



Infraestructura Natural

Mill River - Stanford, CN © 2018

Contact Richard Roark, rroark@theolinstudio.com



“It’s not only that a river runs through it, it’s that people will feel and see their lives enriched,” [U.S. Sen. Richard Blumenthal] said of the park. (c. 2013)

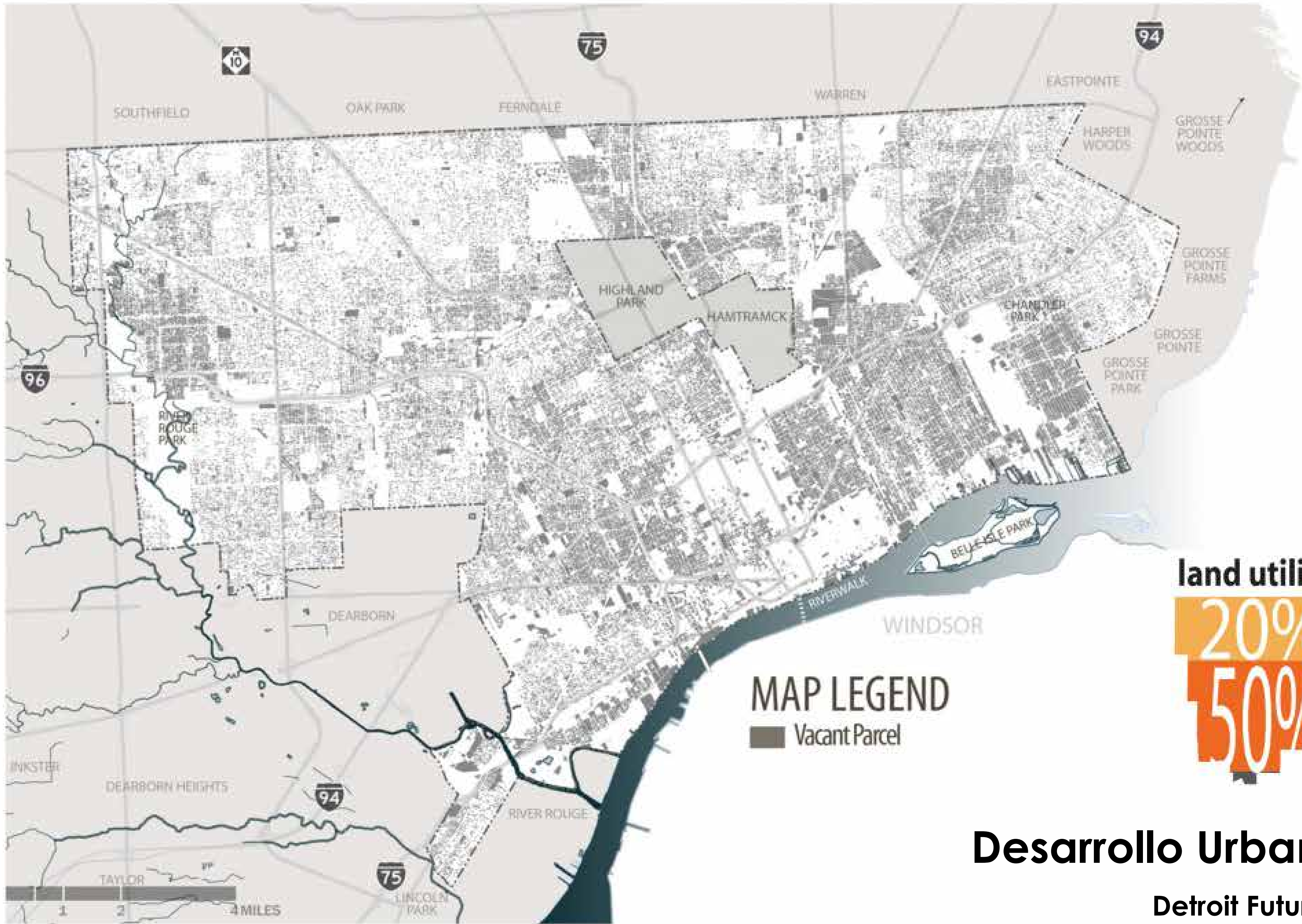
Infraestructura Natural

Mill River - Stanford, CN - Olin



Infraestructura Natural

Rio Piedras y Puerto Nuevo



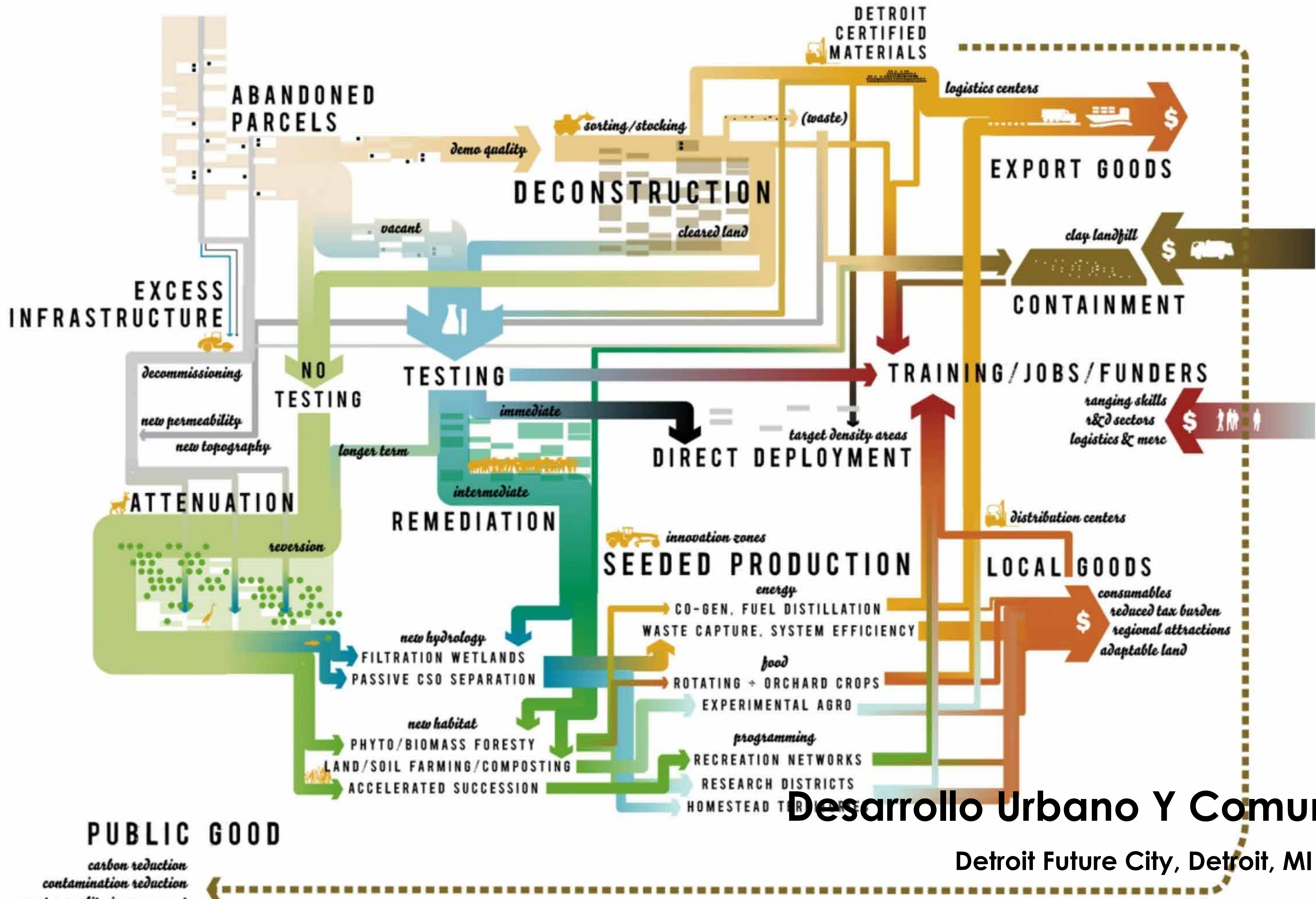
MAP LEGEND
 ■ Vacant Parcel

land utilization*



Desarrollo Urbano Y Comunitario
 Detroit Future City, Detroit, MI - Sloss LU

MICRO- OCCUPIED RIGHTS-OF-WAY



Desarrollo Urbano Y Comunitario

Detroit Future City, Detroit, MI - Stoss LU

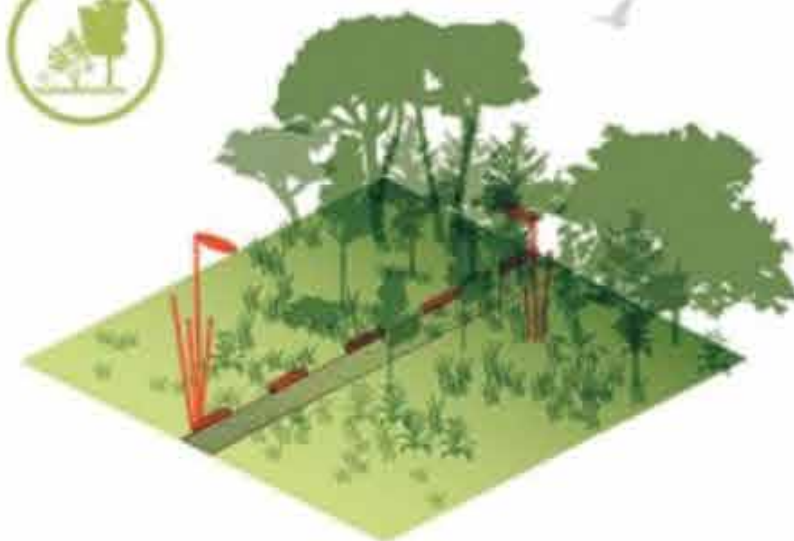
(Hamilton
 design for the
 ing, Urban Design)
 (ICIC) (Economics)
 (al Land)
 ic Land)
 Community
 munity
 oring)
 is a
 map for decision-
 and business in
 an of planners,
 the Detroit Works
 ck for Detroit. The
 es by establishing
 ological systems.
 ew forms of urban
 e city, and newly
 he city at large.
 versify the
 ly recreation by
 s can improve the
 ents. Single-use,
 sumptive, but
 can generate
 , they can reduce



COMMUNITY OPEN SPACES

LANDSCAPES FOR RECREATION, SOCIAL LIFE, AND SMALL-SCALE FOOD CULTIVATION

- PLAYGROUNDS
- NEIGHBORHOOD PARKS
- SPORTS FIELDS
- REGIONAL PARKS
- PLAZAS
- RECREATION CENTERS
- TRAILS / GREENWAYS
- URBAN GARDENS
- FARMERS MARKETS
- CEMETERIES (EXISTING)



ECOLOGICAL LANDSCAPES

MEADOWS AND FORESTS THAT PROVIDE HABITAT AND OTHER ENVIRONMENTAL BENEFITS

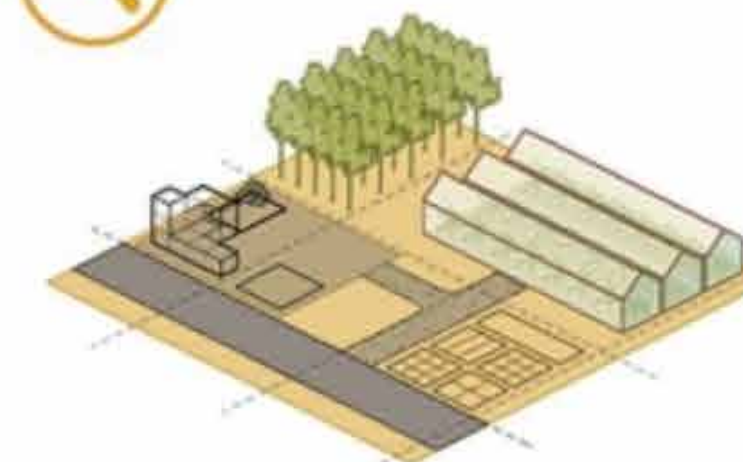
- NATURE PARKS
- INDUSTRIAL NATURE PARKS
- RAPID REFORESTATION
- SUCCESSIONAL ROAD
- ROADS TO RIVERS



BLUE+GREEN INFRASTRUCTURES

LANDSCAPES THAT CAPTURE STORMWATER AND CLEAN AIR

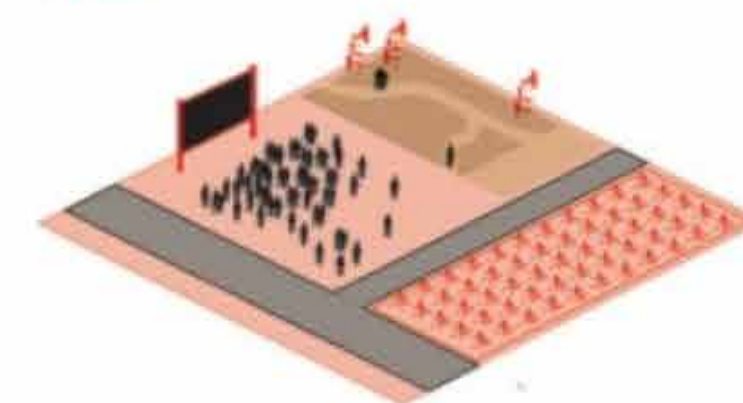
- LARGE LAKE
- SMALLER RETENTION POND
- INFILTRATION PARK
- SWALES + INFILTRATION MEDIANS
- ROAD-SIDE POND (ALONG WIDE ROADS)
- GREEN INDUSTRY BUFFER
- CARBON FOREST



WORKING+ PRODUCTIVE LANDSCAPES

LANDSCAPES THAT GENERATE NEW KNOWLEDGE, GROW ENERGY AND FOOD, AND CREATE NEW URBAN EXPERIENCES

- RESEARCH LANDSCAPE
- URBAN FARM
- AQUACULTURE AND HYDROPONICS
- ALGAE-CULTURE
- ENERGY FIELD OR FOREST
- HOMESTEADS
- CAMPGROUNDS



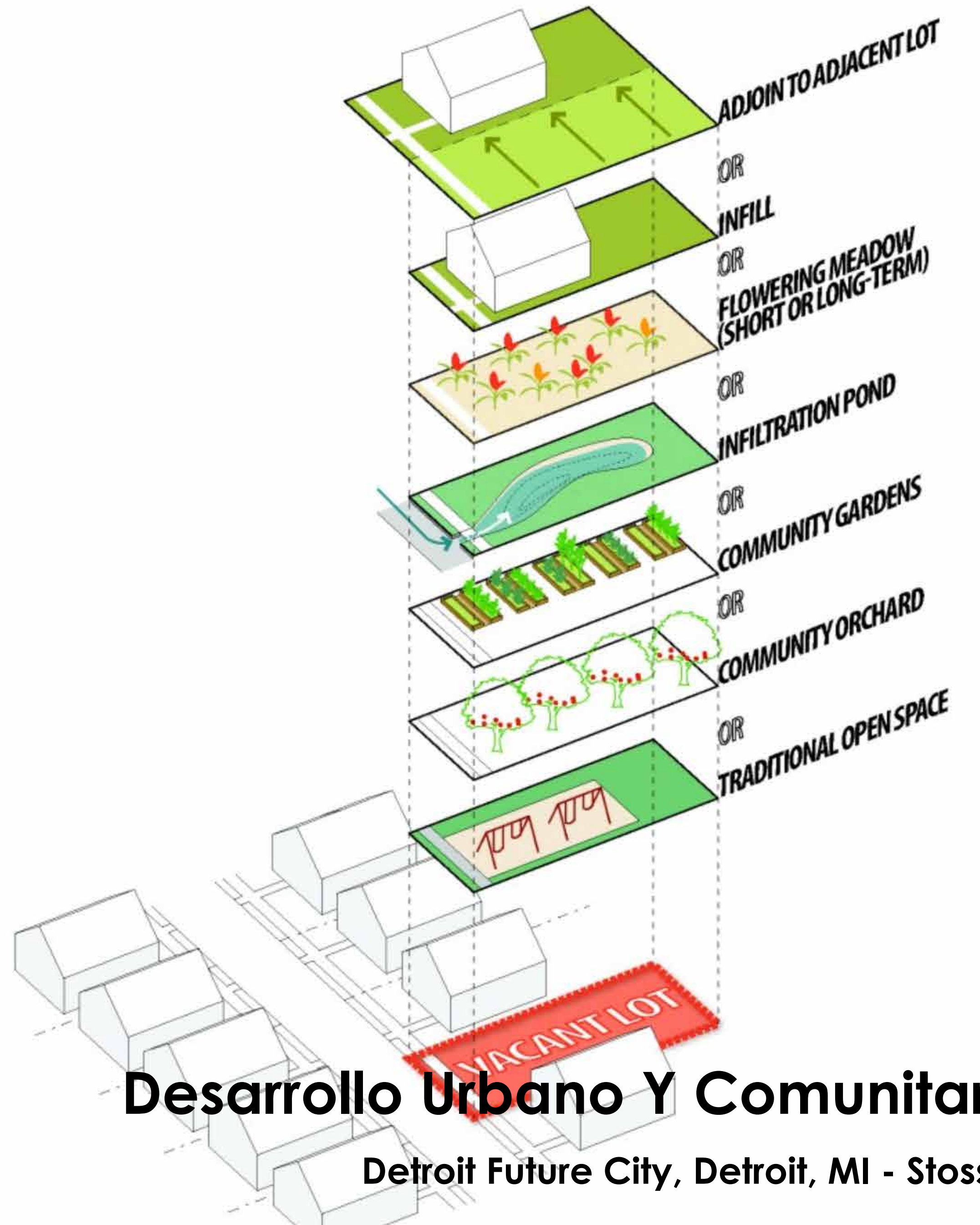
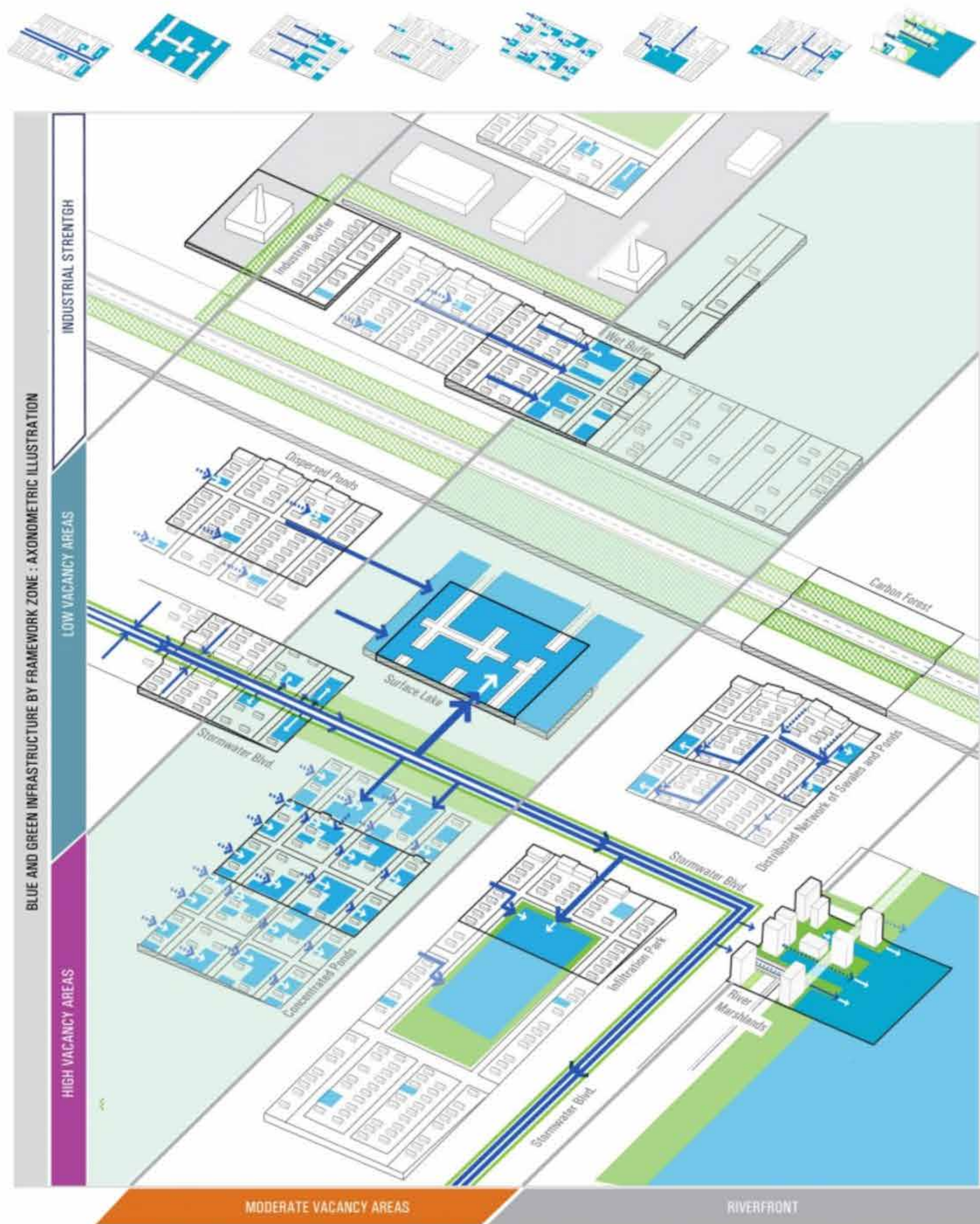
TRANSITIONAL LANDSCAPES

TEMPORARY LANDSCAPES THAT CLEAN SOIL AND ENABLE NEW FORMS OF SOCIAL LIFE AND CREATIVE DISPLAYS

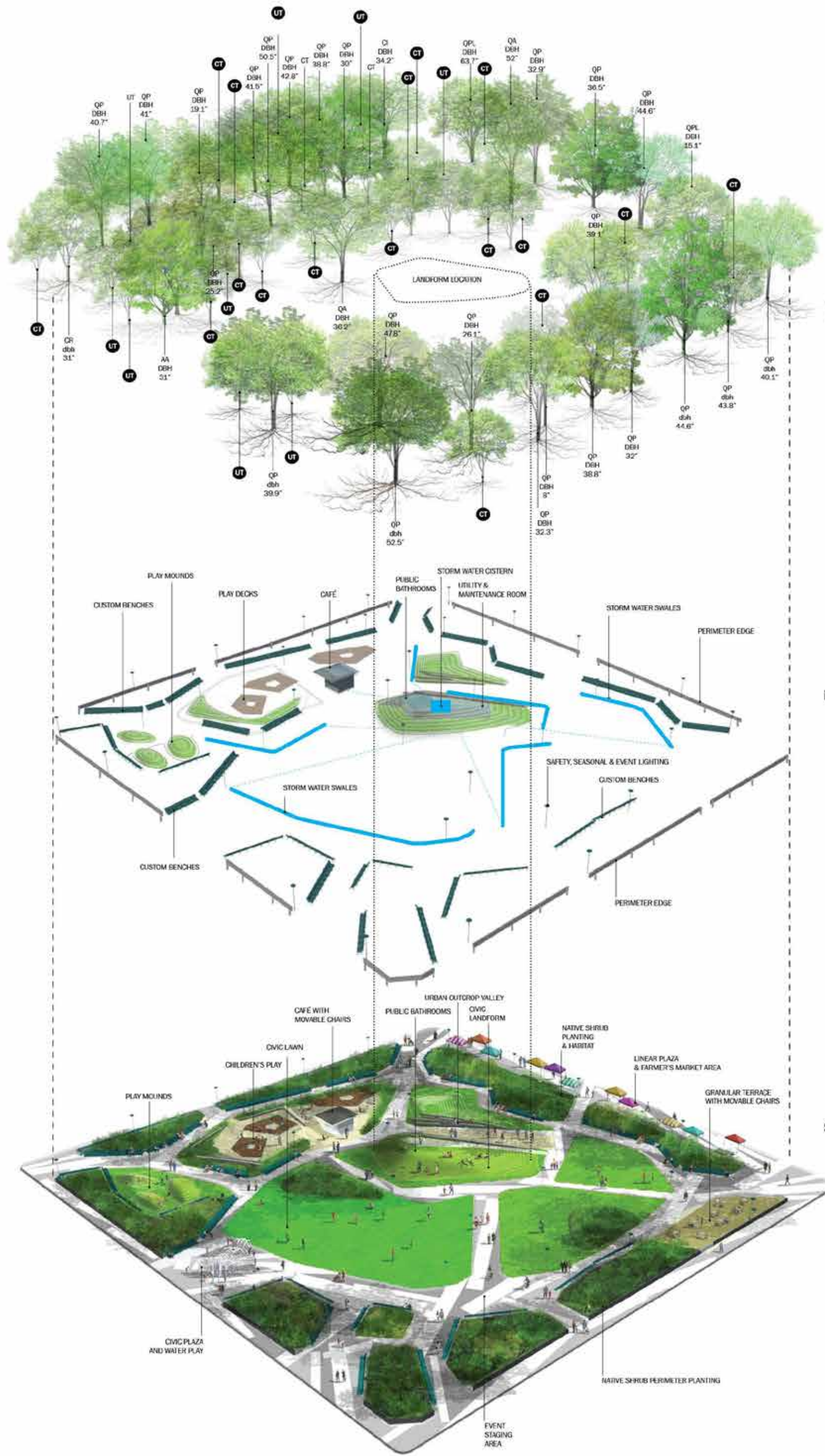
- EVENT LANDSCAPES
- REMEDATION FIELDS OR FORESTS
- ART-SCAPES
- URBAN MEADOWS

Desarrollo Urbano Y Comunitario

Detroit Future City, Detroit, MI - Stoss LU



Desarrollo Urbano Y Comunitario
 Detroit Future City, Detroit, MI - Stoss LU



EXISTING AND PROPOSED TREES

- EXISTING TREES**
- AA ACER AMERICANA
 - CI CARYA ILLINOENSIS
 - CR CARYA ROSTRATA
 - QA QUERCUS ALBA
 - QM QUERCUS MICHAUXXII
 - QPL QUERCUS PALLISTRIS
 - QP QUERCUS PHELLOS
- PROPOSED TREES**
- CI CANOPY TREE
 - QP UNDERSTORY TREE
- *DBH: DIAMETER AT BREAST HEIGHT

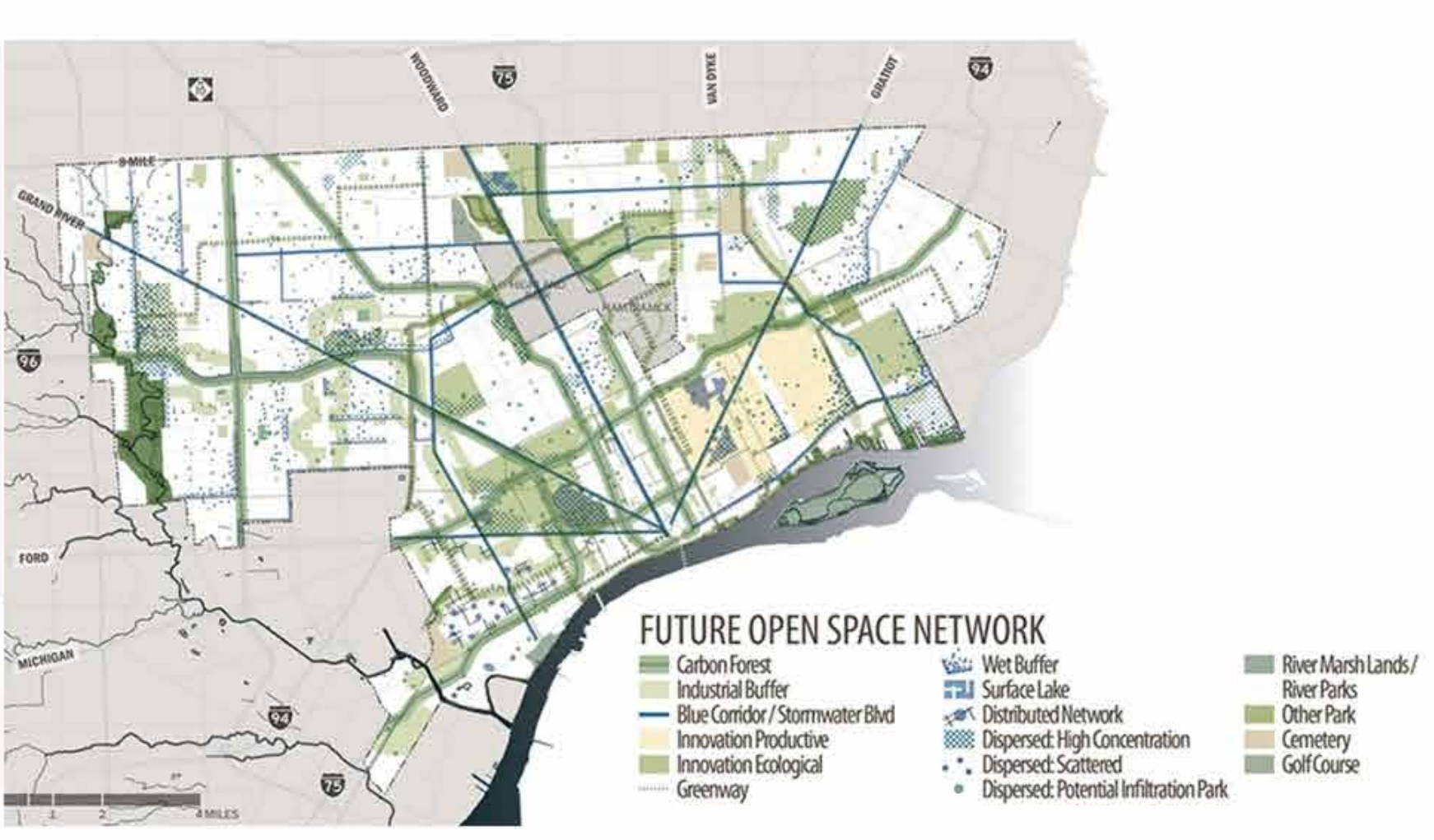
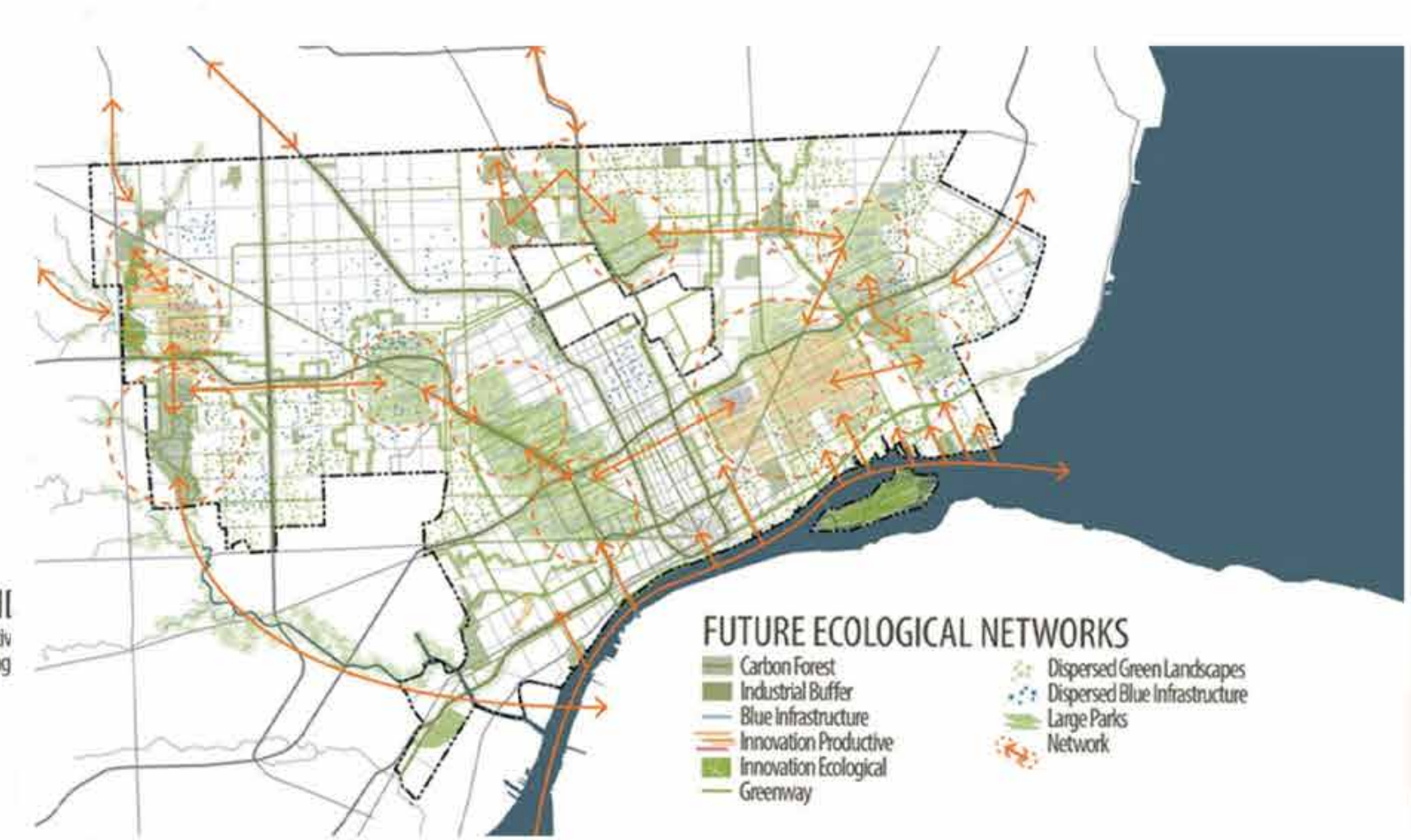
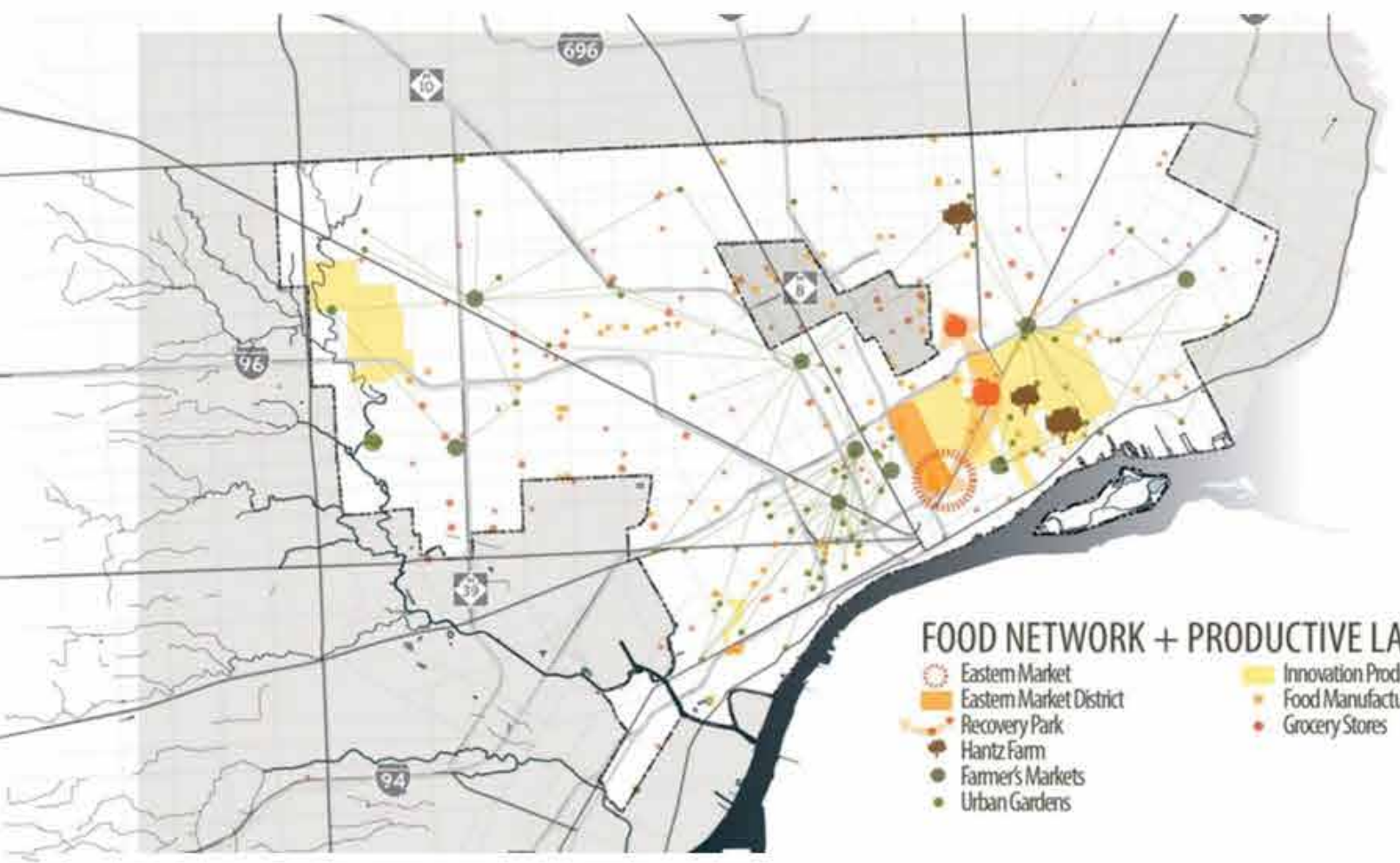
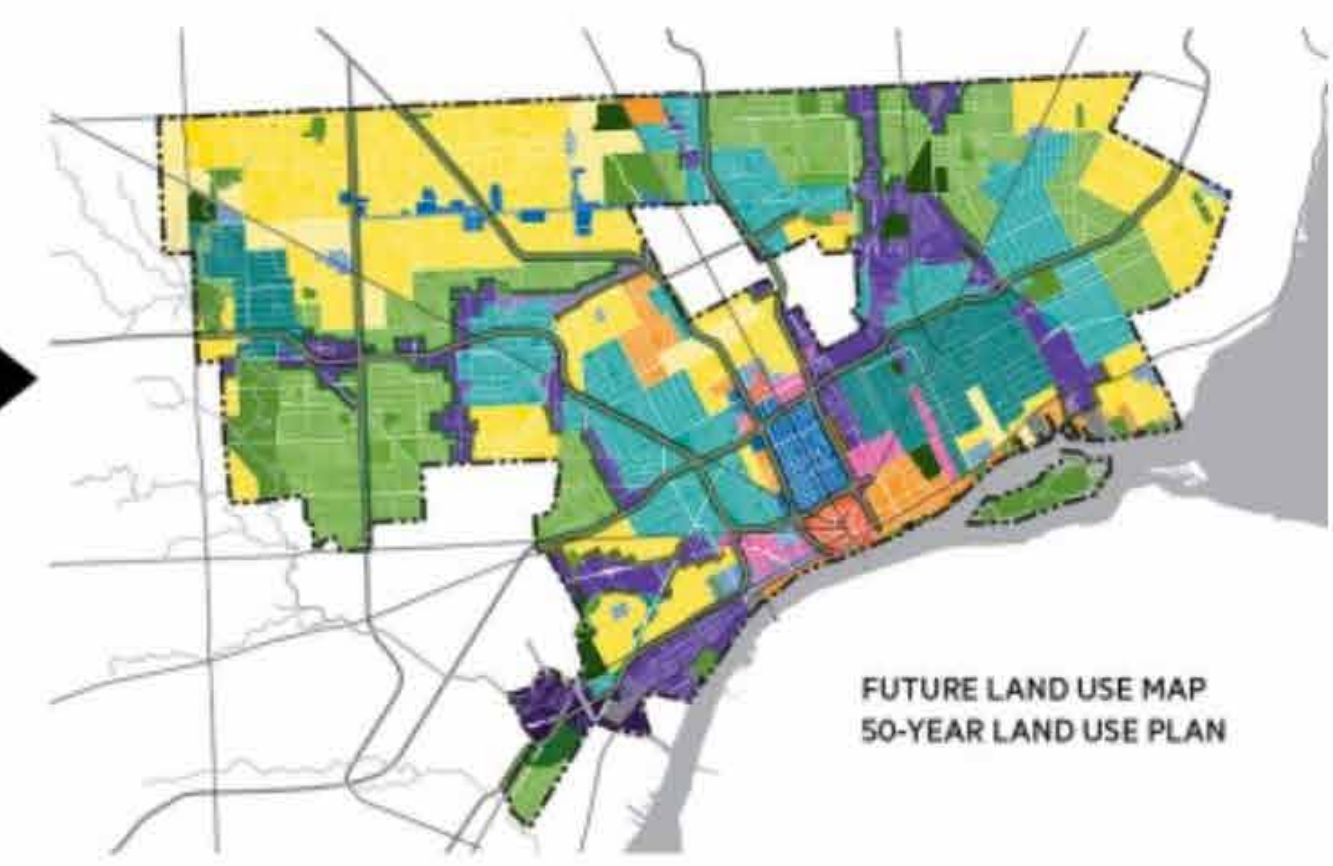
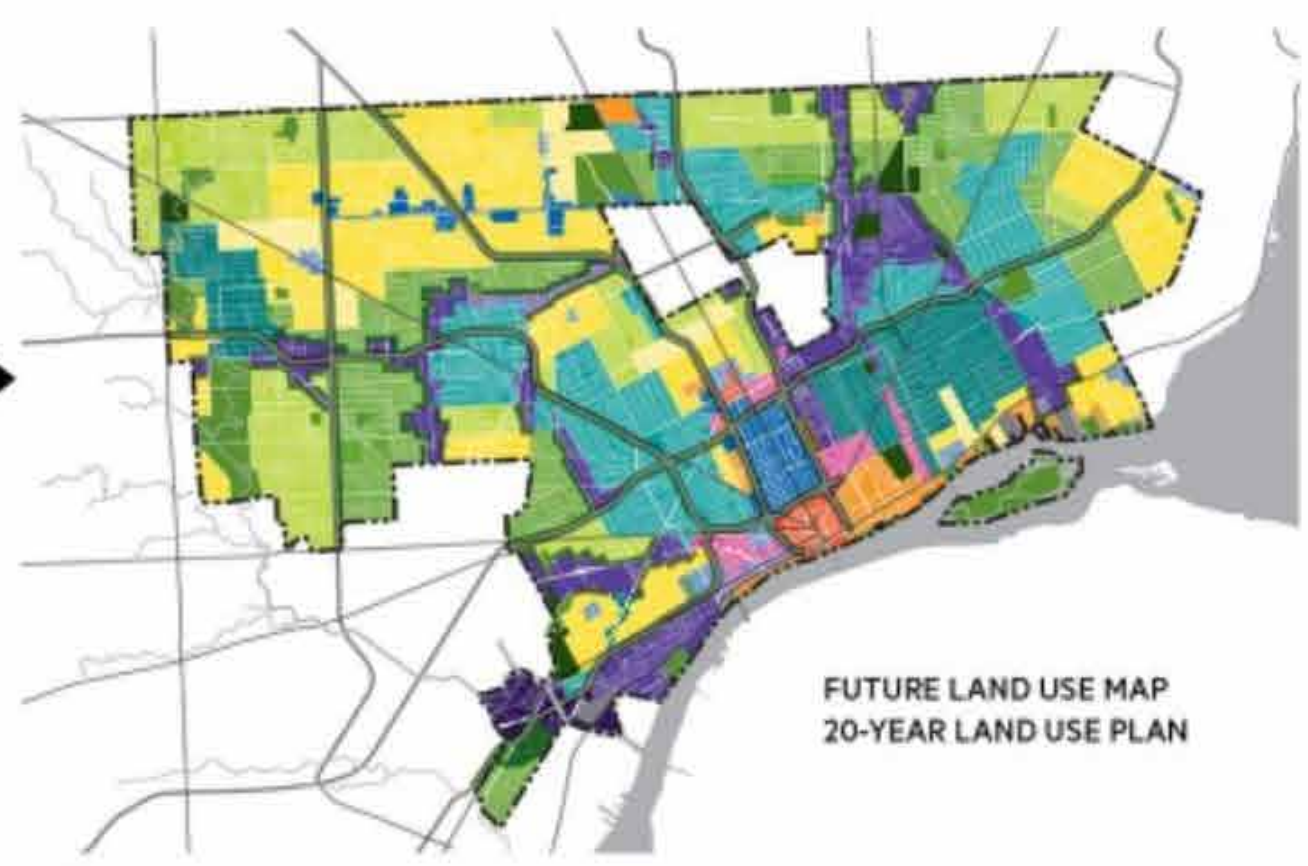
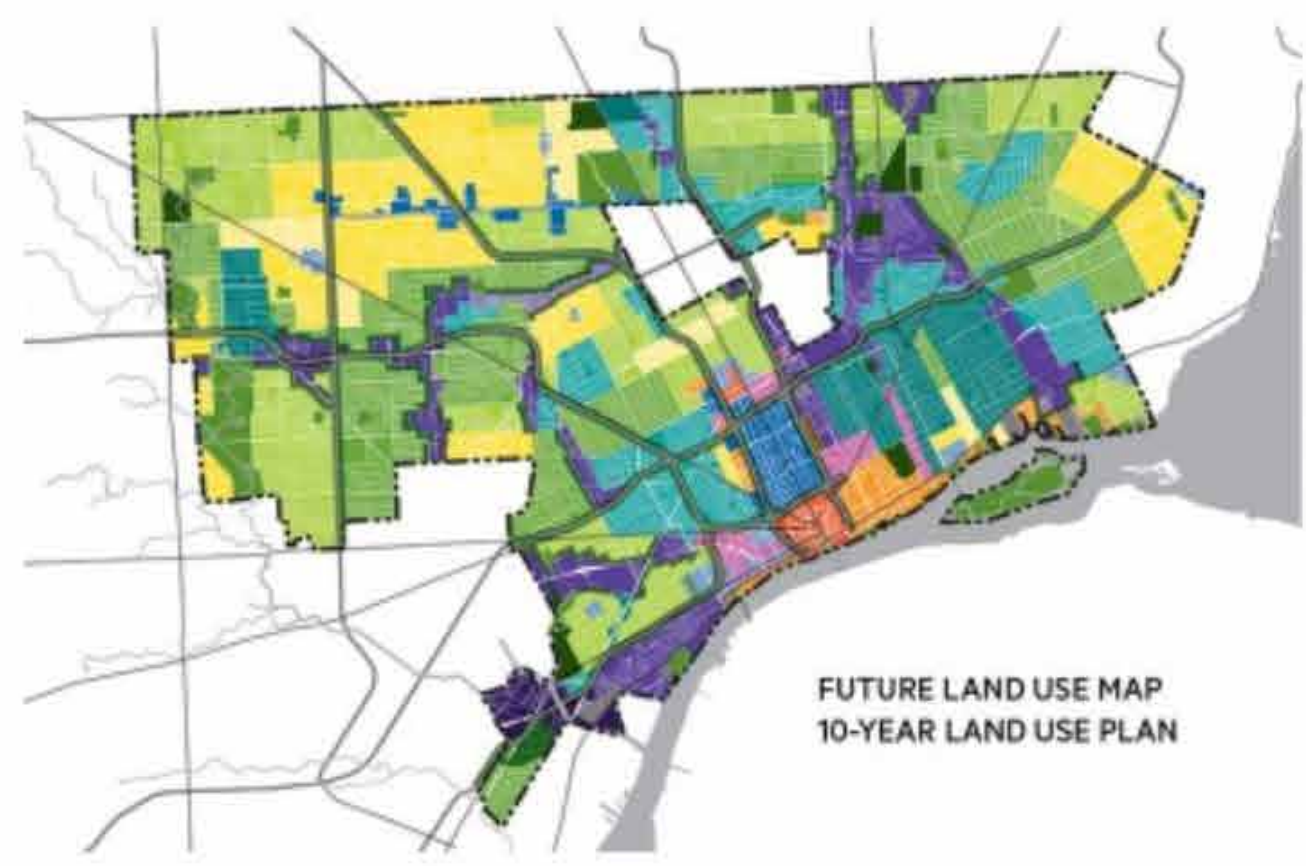
INFRASTRUCTURE

SURFACE

Desarrollo Urbano Y Comunitario
 Detroit Future City, Detroit, MI - Stoss LU

Design for the
 Planning, Urban Design)
 Community (ICIC) (Economics)
 Industrial Land)
 (e)
 Public Land)
 ar (Community
 Community
 Planning)

Plan is a
 roadmap for decision-
 life and business in



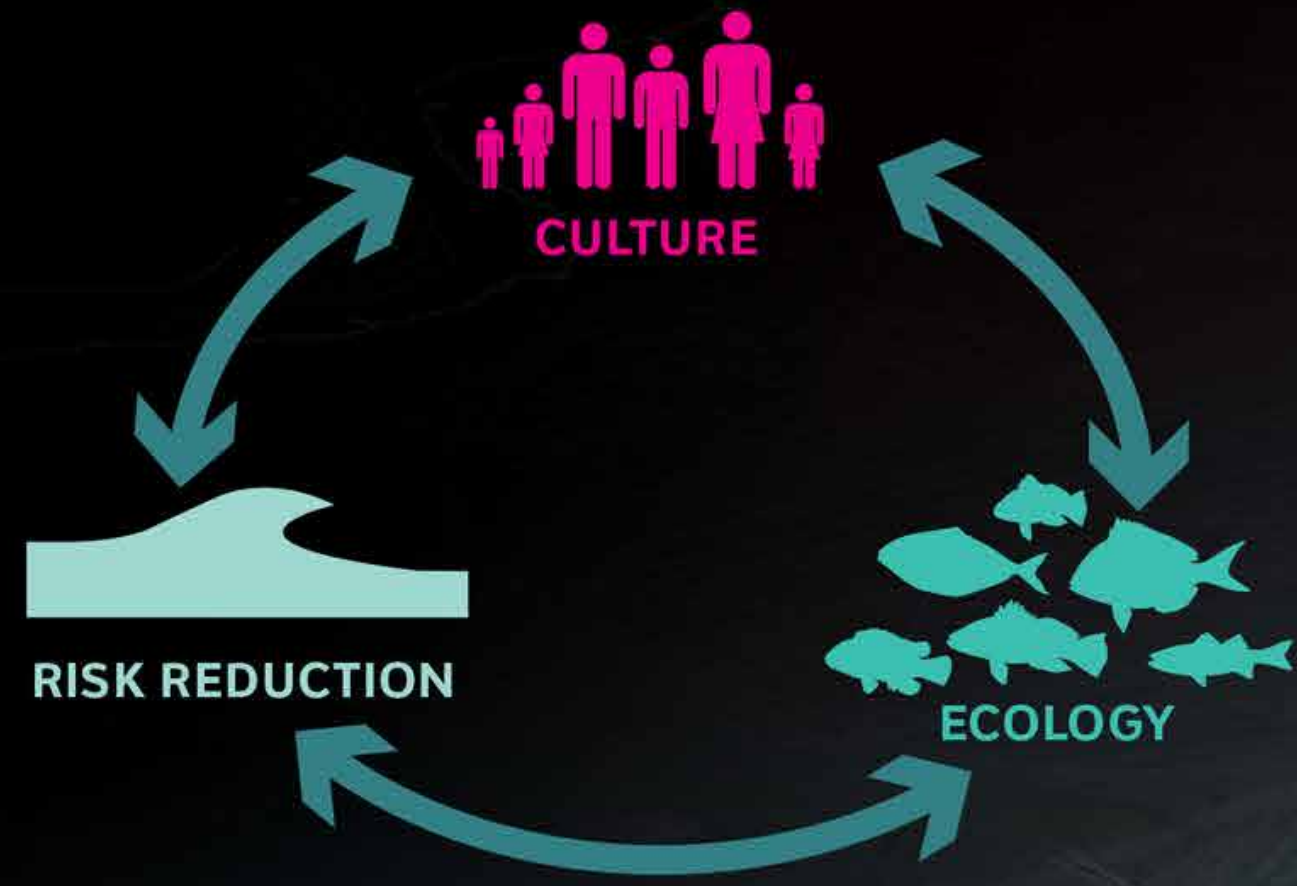
Desarrollo Urbano Y Comunitario

Detroit Future City, Detroit, MI - Stoss LU



Desarrollo Urbano / Comunitario

Casco Urbano Rio Piedras



Marinas hold the potential to cultivate educational opportunities as well as economic gains for the South Shore as valuable water access points.



Great Kills Harbor
Crescent Beach water hub



Our community outreach events engaged the entire island. Here, Staten Islanders built an interactive oyster reef for future educational events, and teachers discussed the potentials of the Billion Oyster Project curriculum.



Spat sanctuary

Lemon Creek water hub



Staten Island clambers actively helped to shape and inform the placement of the breakwaters to avoid critical shellfish habitat.



Recreational and charter fishing have the potential to benefit hugely from these breakwaters, strengthening shoreline economies.



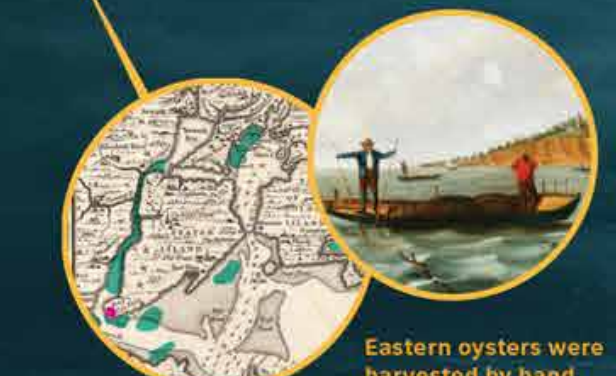
Prince's Bay

Living shoreline

Exposed breakwaters

Enhanced fishing grounds

Navigation channel



Eastern oysters were harvested by hand from native beds in Raritan Bay. Oyster leases were granted and farmed in the 1800s.

Tottenville—"The town the oyster built"—was founded on a thriving oyster economy and a rich maritime industry.



Coastal maritime forest restoration

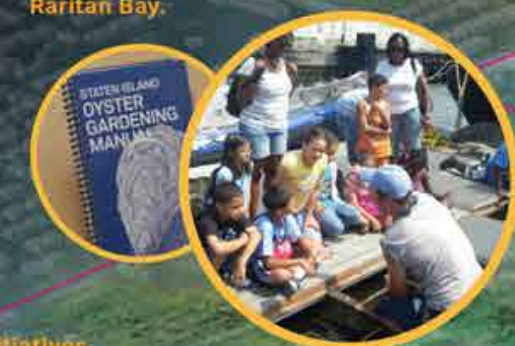
Tottenville

Historically, the South Shore had a vibrant shoreline culture. Encouraging recreation and education will help to rekindle this historical linkage to the water.



Protective dune

Linking Initiatives underway at Conference House Park to the larger breakwater system is key for efficient coastal protection in the future.



BOP's Oyster Gardening Manual will provide information how to actively engage students with oyster restoration in Raritan Bay.

Active oyster restoration and monitoring

Underwater scuba trail



Biogenic buildup of marine species creates a thriving ecosystem and serves to structurally reinforce the breakwaters.

Infraestructura Híbrida

Living Breakwaters, New Jersey - SCAPE



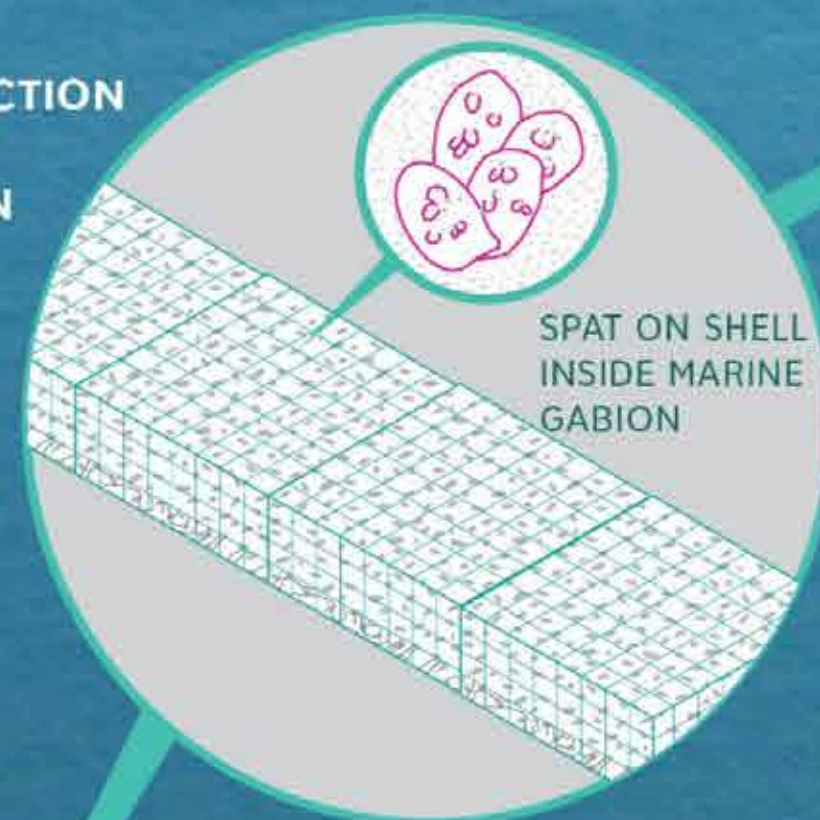
Infraestructura Híbrida

Living Breakwaters, New Jersey - SCAPE

OYSTER RESTORATION TECHNIQUES

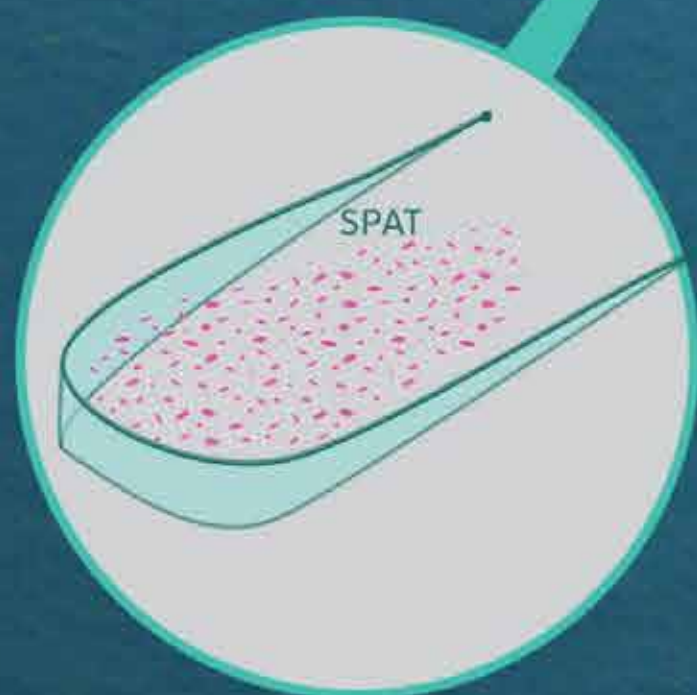
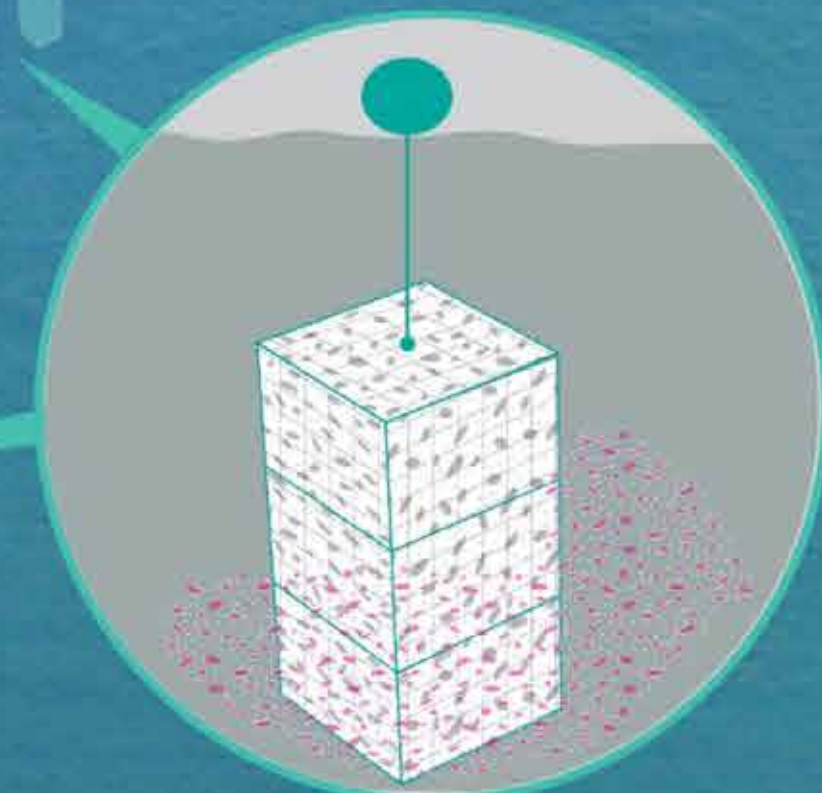
NO ACCESSIBLE OYSTER RESTORATION AT OCCUPYABLE BREAKWATERS

REEF CONSTRUCTION TECHNIQUE: OYSTER GABION



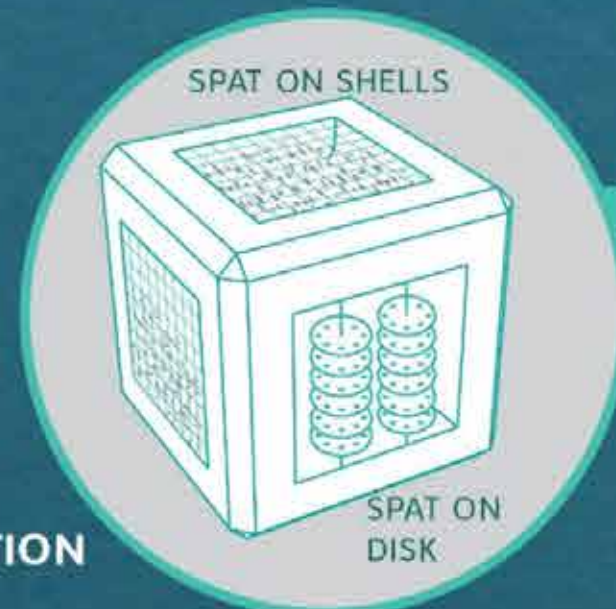
MARINE PIERS

LIVING SHORELINE

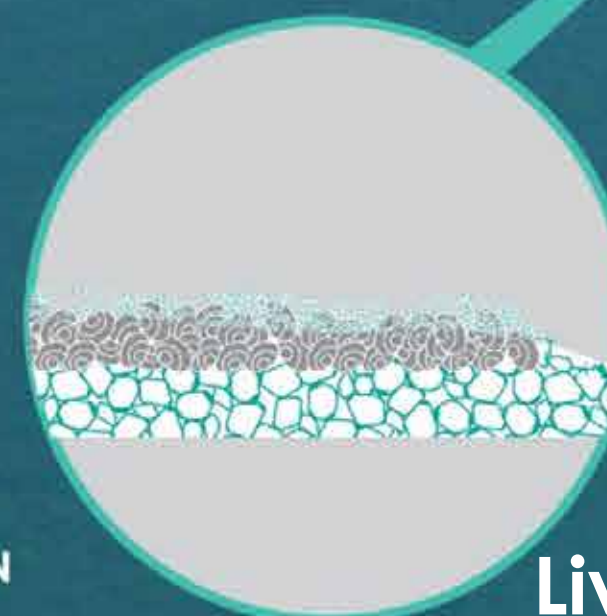


REEF CONSTRUCTION TECHNIQUE: IN SITU SETTING

SPAT ON SHELLS



REEF CONSTRUCTION TECHNIQUE: BIO-ENHANCING CONCRETE UNITS WITH "OYSTER DISKS"



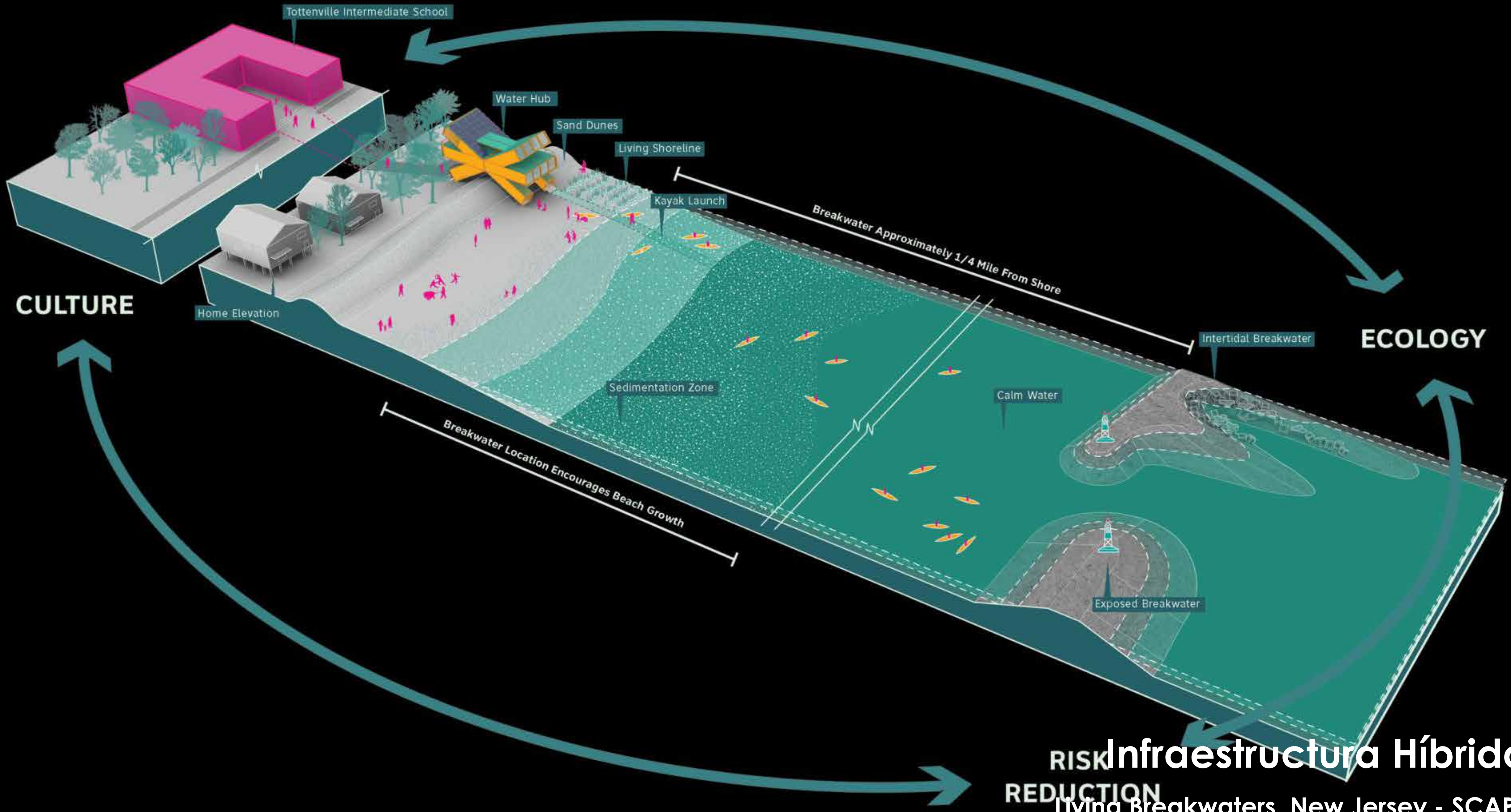
OYSTER CAM



Infraestructura Híbrida

Living Breakwaters, New Jersey - SCAPE

NAVIGATIONAL GUIDE AND MONITORING CAMERA TO PREVENT POACHING



CULTURE

ECOLOGY

RISK REDUCTION
Infraestructura Híbrida
 Living Breakwaters, New Jersey - SCAPE

Tottenville Intermediate School

Water Hub

Sand Dunes

Living Shoreline

Kayak Launch

Breakwater Approximately 1/4 Mile From Shore

Home Elevation

Intertidal Breakwater

Sedimentation Zone

Calm Water

Breakwater Location Encourages Beach Growth

Exposed Breakwater



Infraestructura Híbrida
Living Breakwaters, New Jersey - SCAPE



Infraestructura Híbrida

Costa Isla Verde y Condado

THANKS!

Last Call

Post-María Puerto Rico and the need for a
Transformative Reconstruction

Edmundo R. Colón Izquierdo, ASLA
ECo-Principal
PUPR - ArqPoli - Dept. Landscape Architecture Coordinator
IAPPR - President