Climate Resilience 101

Just Transition Working Group Meeting, Maryland Commission on Climate Change

March 21, 2025

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Climate Resilience Consulting

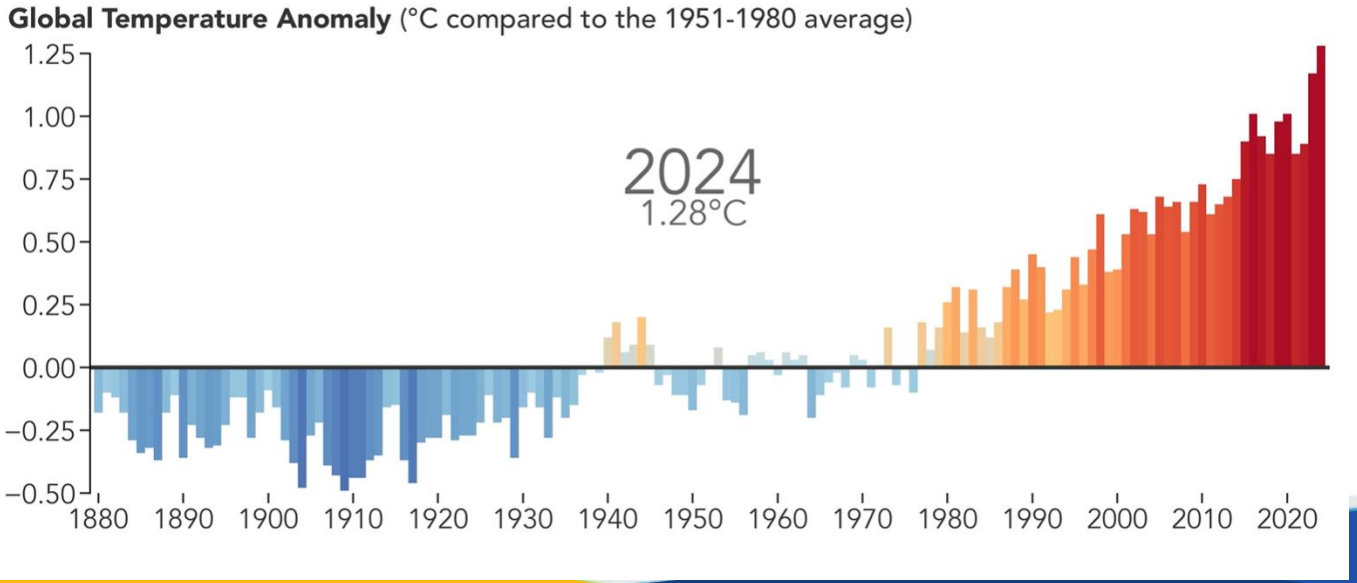
Climate Change – Establishing a shared language

Climate Change	The various ways in which climate will change and its effects
Climate Mitigation	Actions to reduce greenhouse gas emissions (also called climate action and greenhouse gas mitigation)
Climate Adaptation	Actions to prepare for the types of climate changes already underway and those projected in the future
Climate Resilience	The ability to withstand and adapt to a disturbance

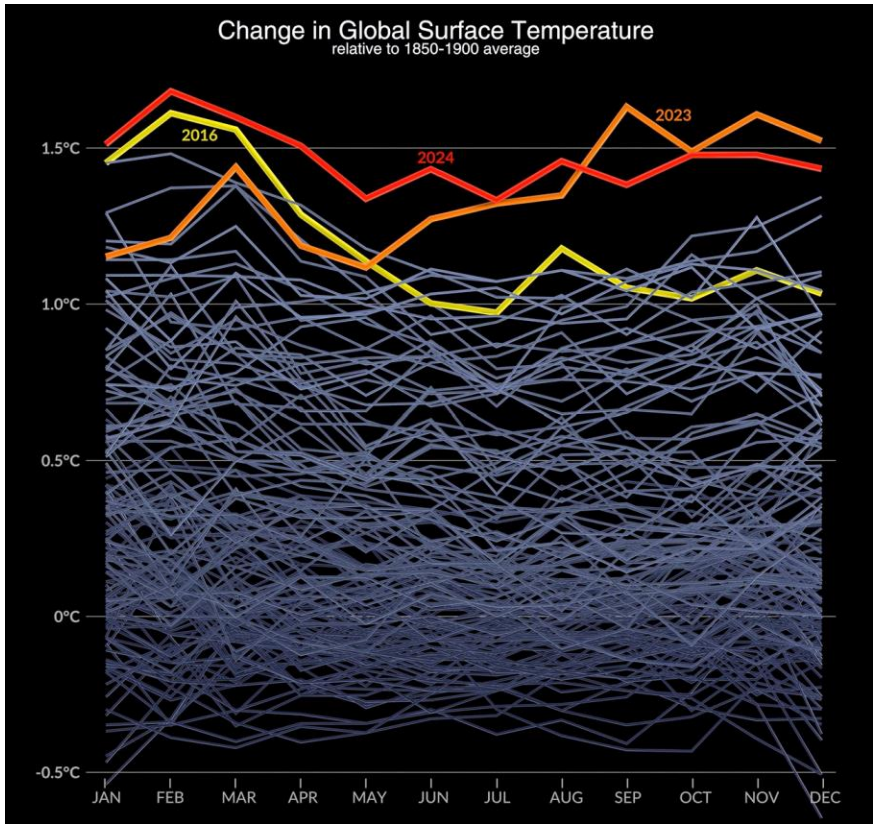
CRC's definition: saving lives, enhancing livelihoods, and saving money amid climate disruption

Climate Change – Where are we at?

- Global temperatures have risen ~2°F (1.3°C) since 1880.
- 2024 surpassed 2023 as the warmest year ever.
- Earth warmed faster since 1970 is faster than any period in the last 2,000 years.
- Each of the past four decades was warmer than any previous decade since 1850.



Monthly T compared to averages 1850-1900



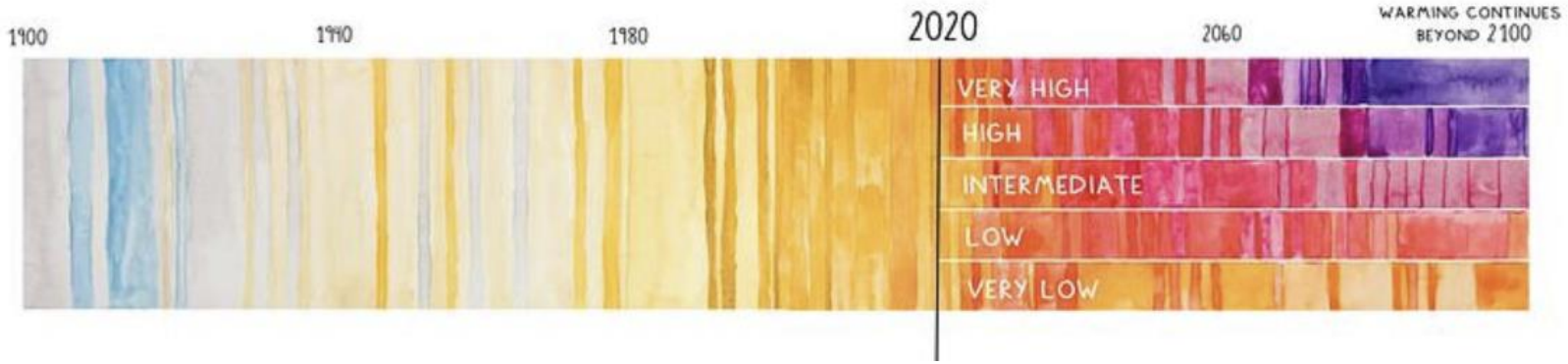
Source: NASA global temperature

Climate Change – What does it mean for us?

"Even if global climate mitigation efforts are successful and greenhouse gas (GHG) emissions are stabilized or radically reduced, harmful effects from climate change will continue to occur due to the GHG emissions we, as humans, have already released into our atmosphere."

Source: USGCRP, Draft 5th National Climate Assessment

Introductory sentence to Chapter 31: Adaptation, from the draft 5th National Climate Assessment

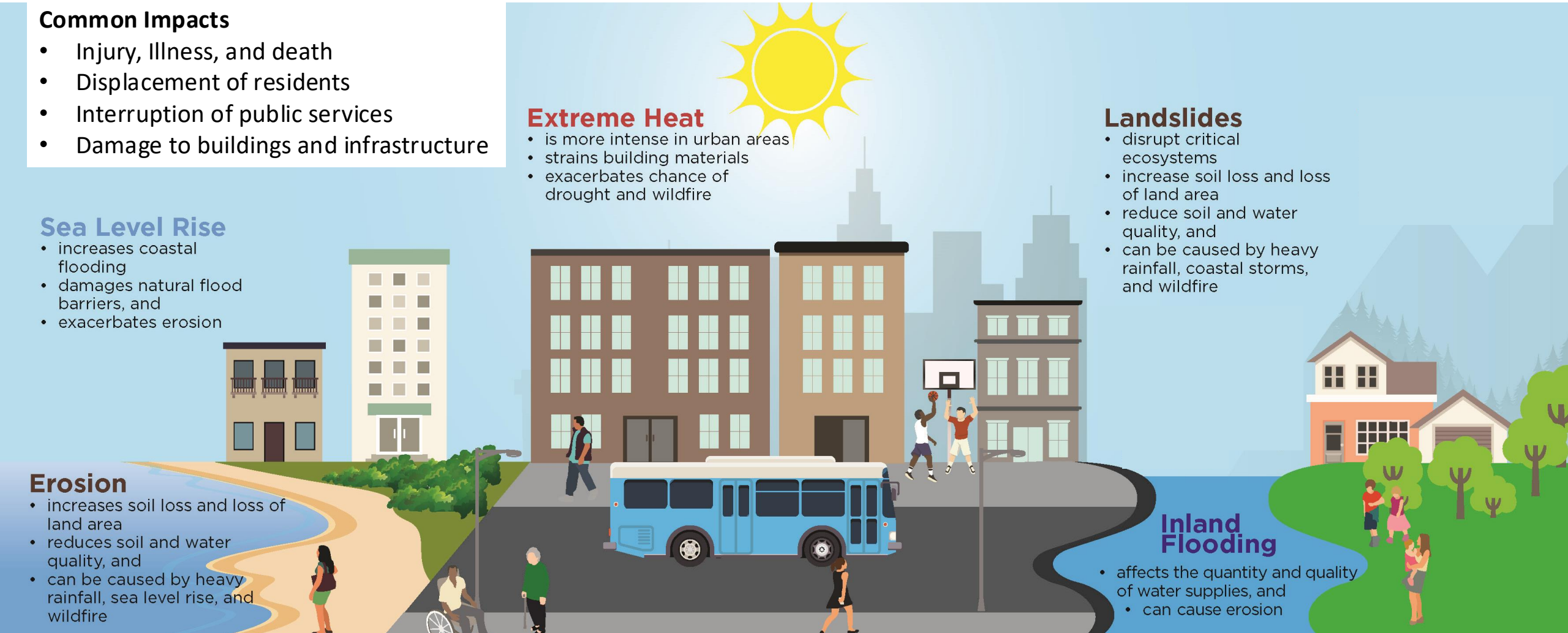


Source: Nicole Kelner, using data from IPCC 2023 Report

Climate Change - Impacts on Maryland's Communities

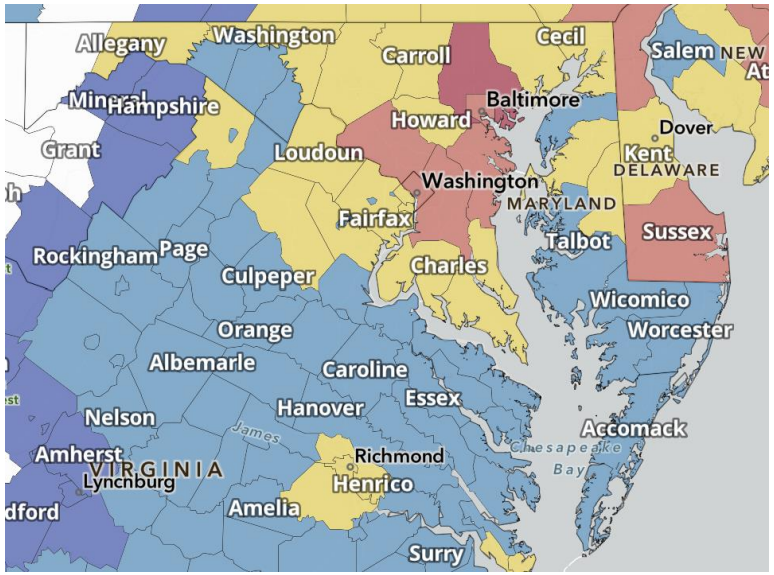
Common Impacts

- Injury, Illness, and death
- Displacement of residents
- Interruption of public services
- Damage to buildings and infrastructure



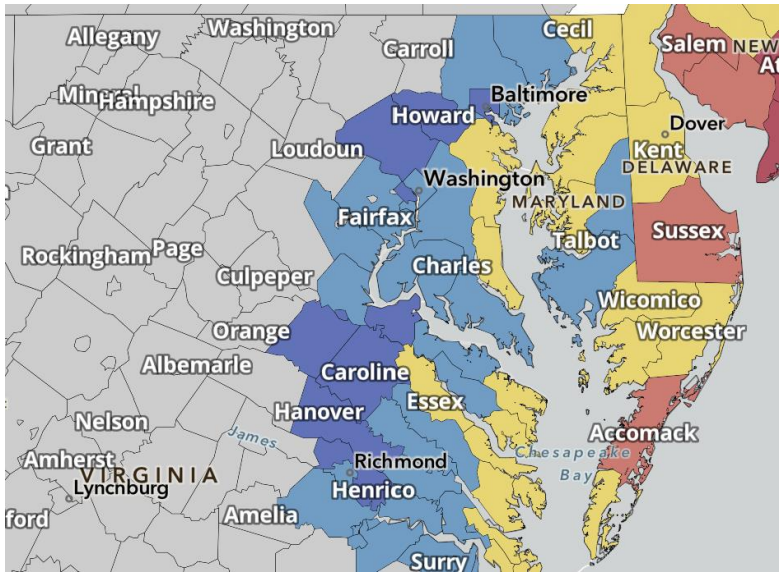
Climate Impacts – Regional variations

Extreme heat risk



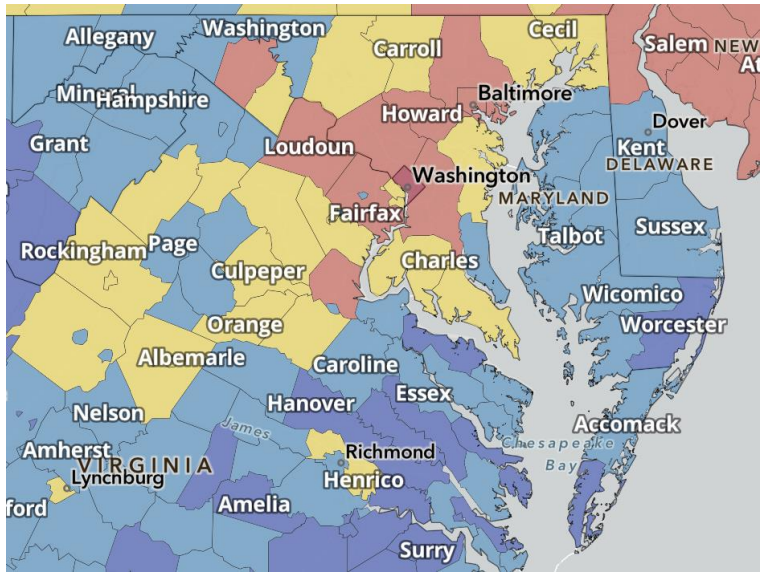
Baltimore County: **99.6** percentile

Coastal flooding risk



Worcester: **93.4** percentile

Strong wind risk



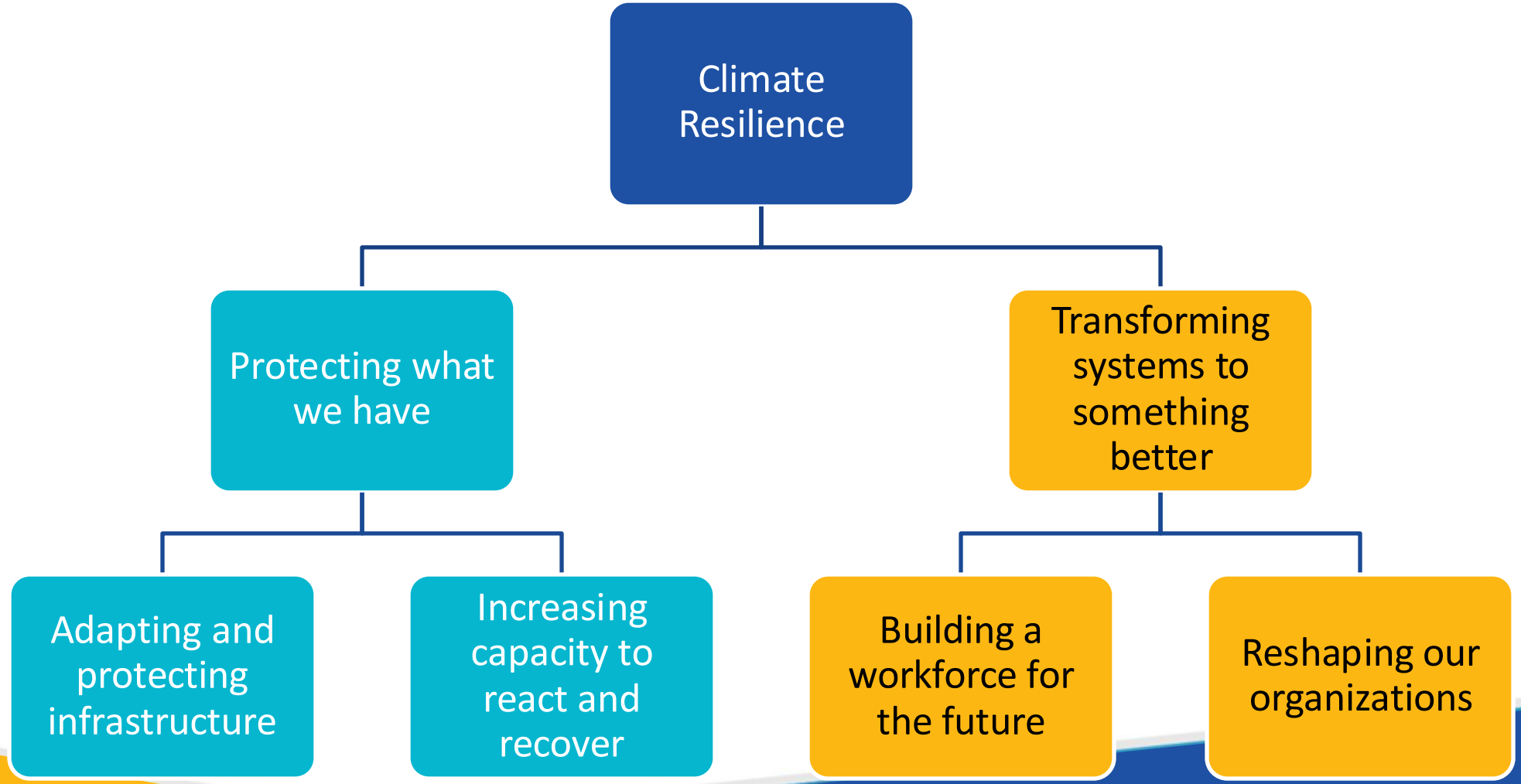
Baltimore City: **96.6** percentile

Very High
Relatively High
Relatively Moderate
Relatively Low
Very Low

https://hazards.fema.gov/nri/map

Relative risk (according to FEMA National Risk Index)= expected annual loss x vulnerability / community resilience

Approaches to Creating Climate Resilience



Climate Resilience – Community centered approaches

Purpose

- Reduce exposure to hazards
- Educate community members how to prepare for and respond to climate hazards
- Multisolve! Address systemic challenges

Approaches

- **Physical infrastructure projects**: Green infrastructure, nature Based Solutions
- **Emergency resources**: Emergency shelters/equipment
- **Education and services**: Community outreach, access to home-based solutions
- **Training**: Programs to create new routes to employment and a bigger workforce

Outcomes

- Reduced risk to climate hazards
- Stronger, more connected communities
- Economic growth and prosperity

Climate Resilience – Planning and design examples

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Bethlehem Lutheran Church | St. Louis, Missouri

Bethlehem Lutheran Church

Food security through development of an urban farm, providing access to fresh, healthy food to residents

Reduced **urban heat island** and flooding using green infrastructure

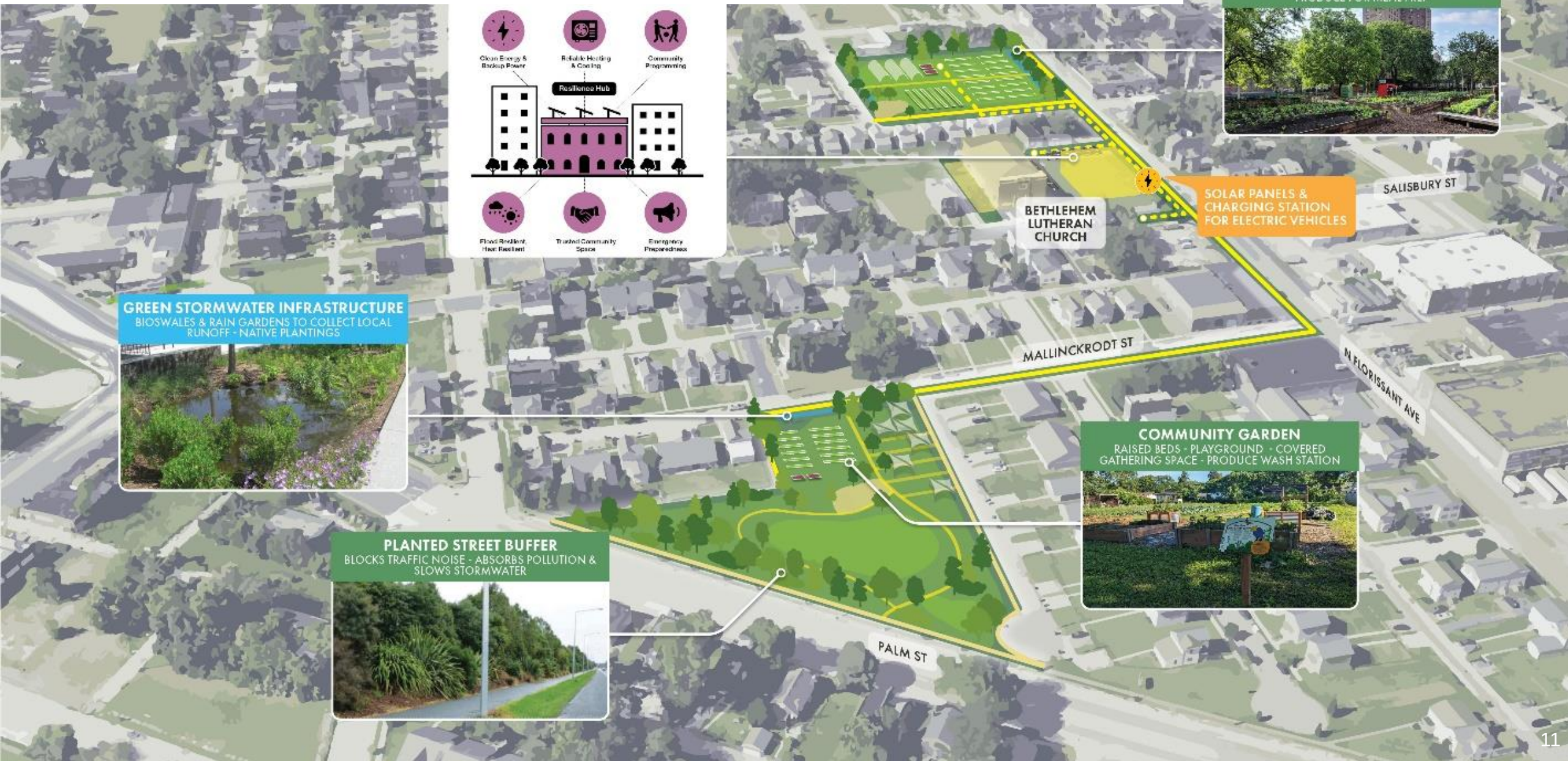
Social cohesion enhanced by outdoor community spaces

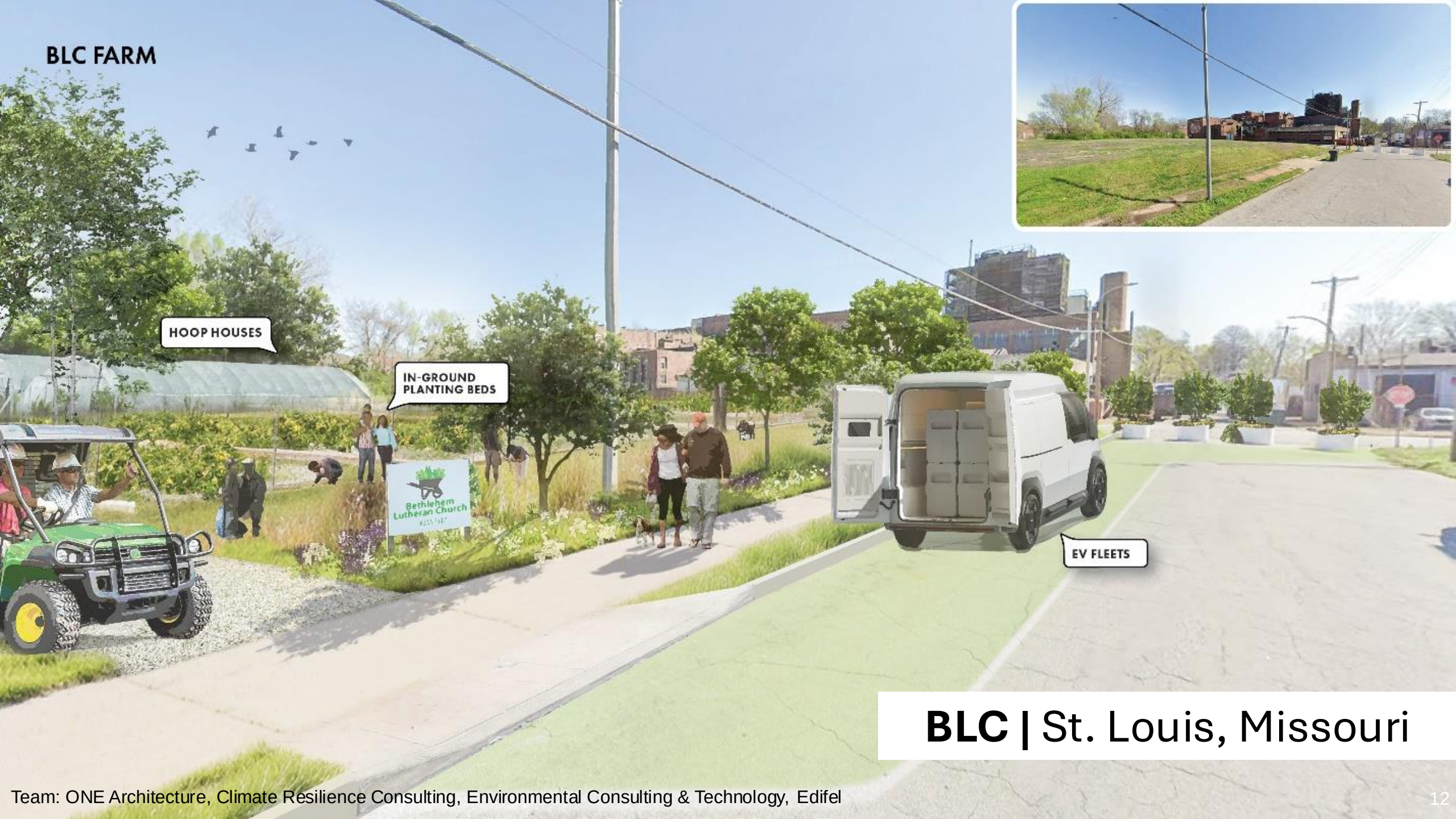
Education and job opportunities through a resilience hub offering training and courses in farming and food preparation

Refuge from heat and storms in a new multipurpose energy efficient building

Resilience Hub and Multi-solving | St. Louis, Missouri

Growing Health & Resilience in North St. Louis

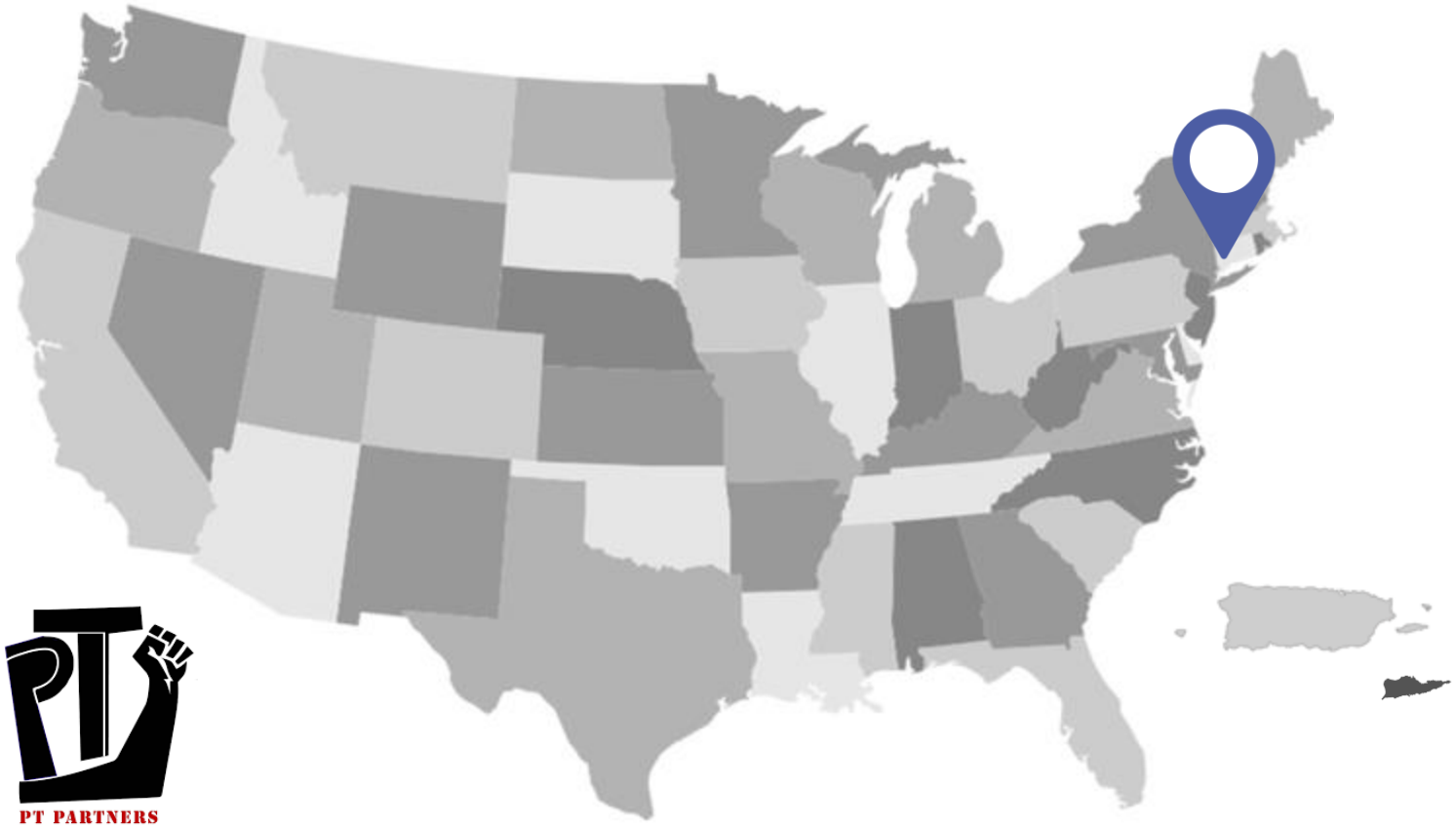




BLC | St. Louis, Missouri

Team: ONE Architecture, Climate Resilience Consulting, Environmental Consulting & Technology, Edifel

PT Partners | Bridgeport, Connecticut



PT PARTNERS

Shoreline restoration to lower risk of coastal flooding

Green infrastructure to reduce **stormwater runoff**

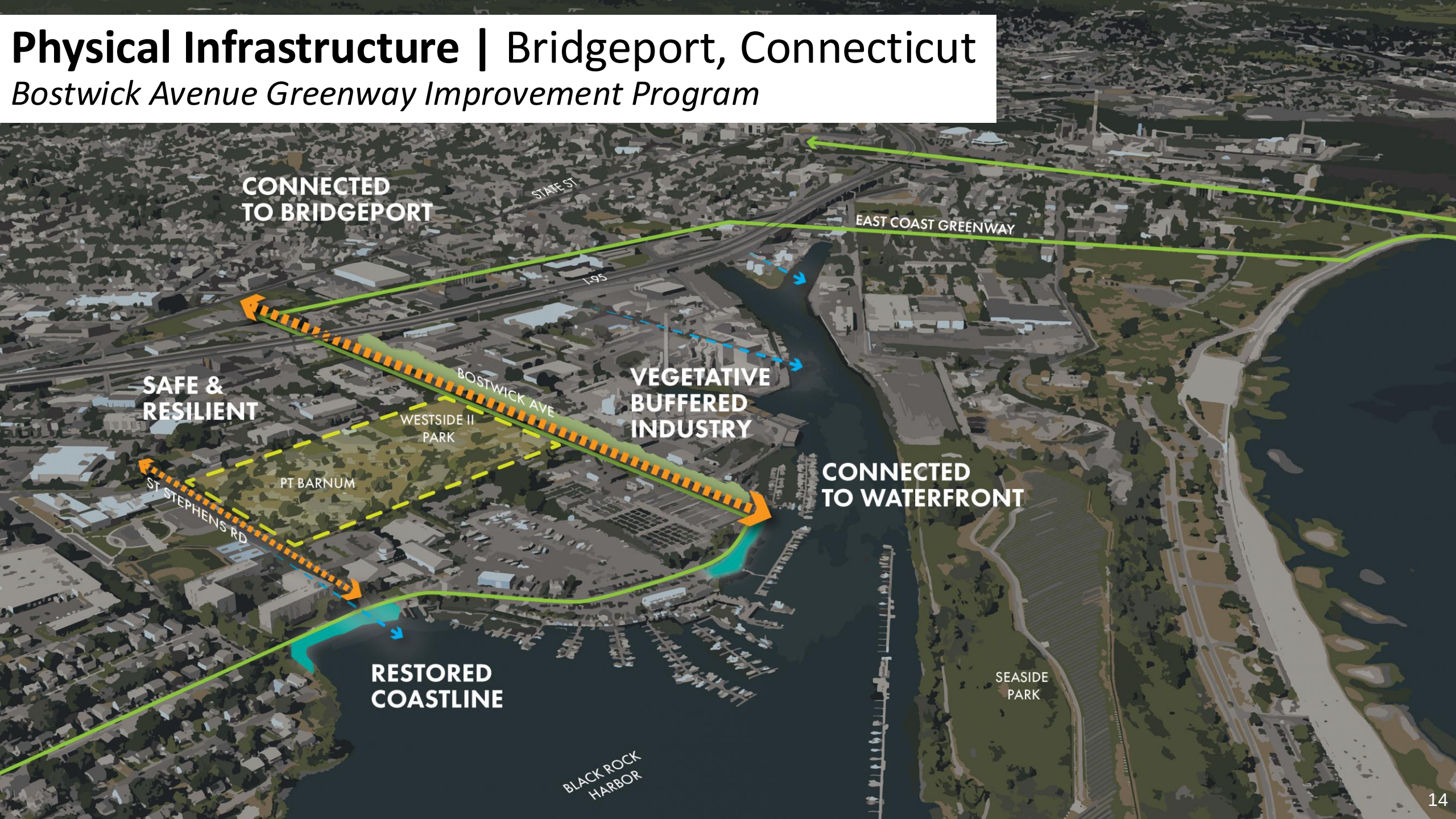
Alternative transport connectivity improvements

Improved **public footpaths and bike lanes**

Vegetative barrier to reduce air pollution

Physical Infrastructure | Bridgeport, Connecticut

Bostwick Avenue Greenway Improvement Program



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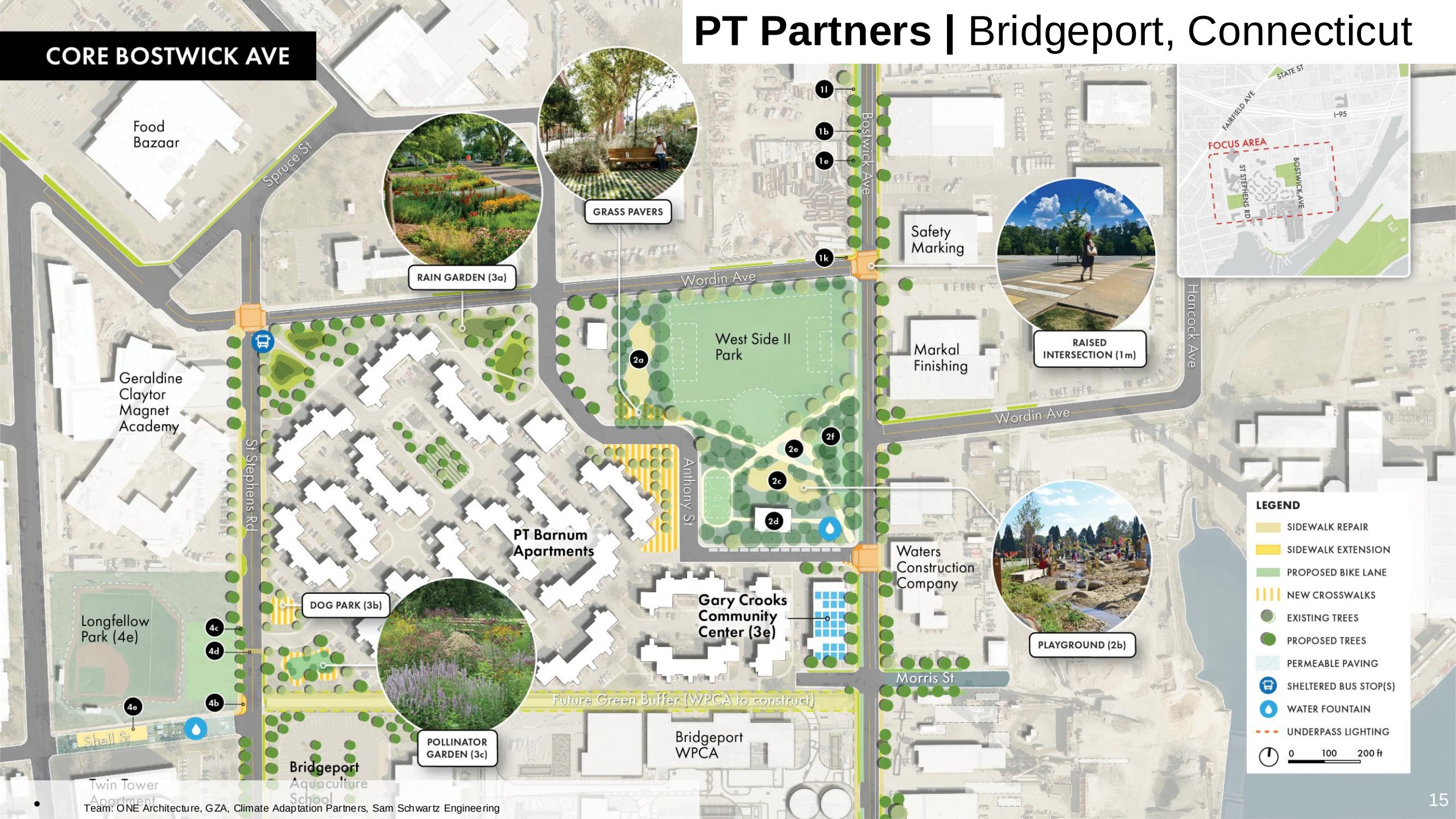
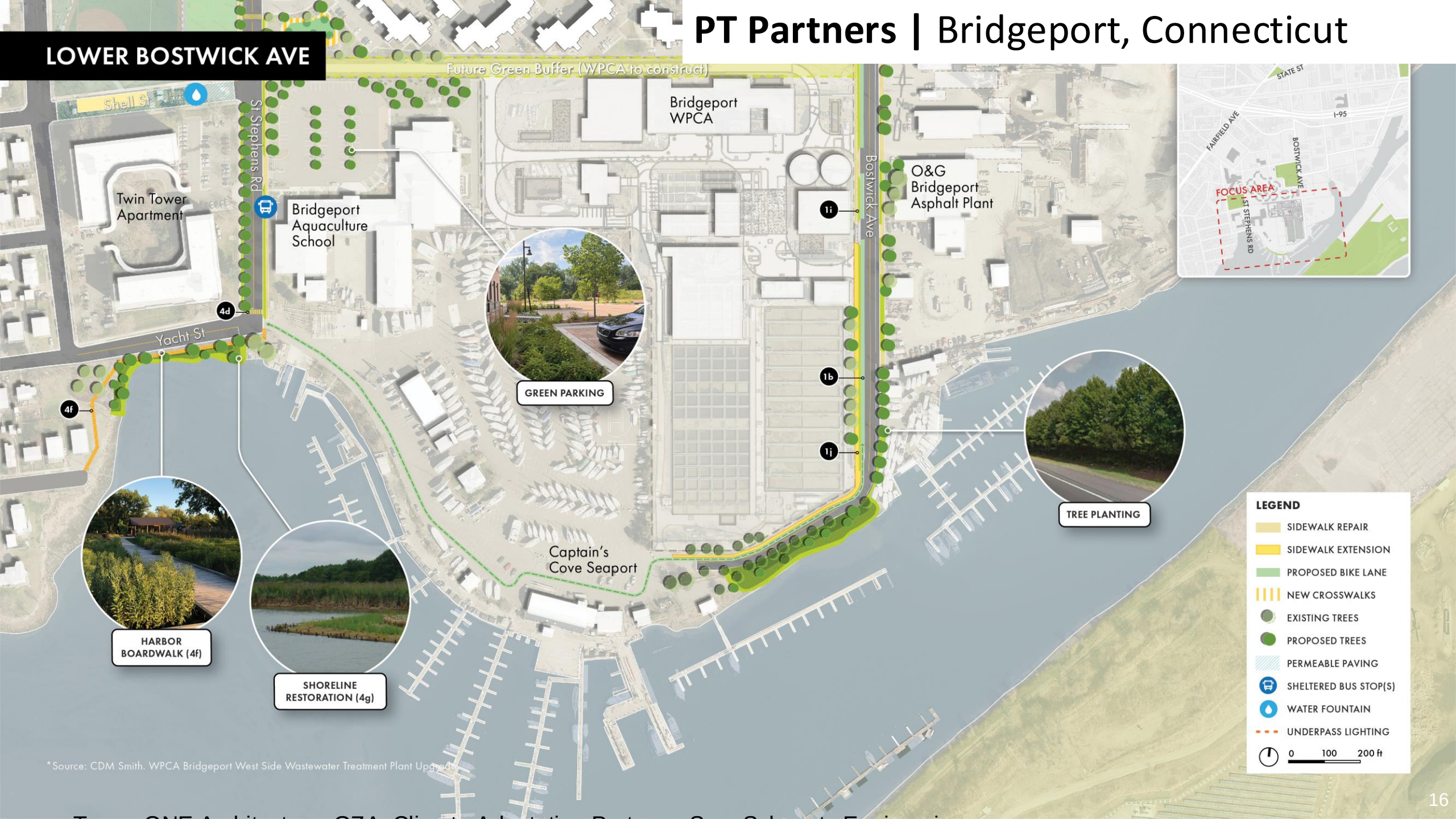
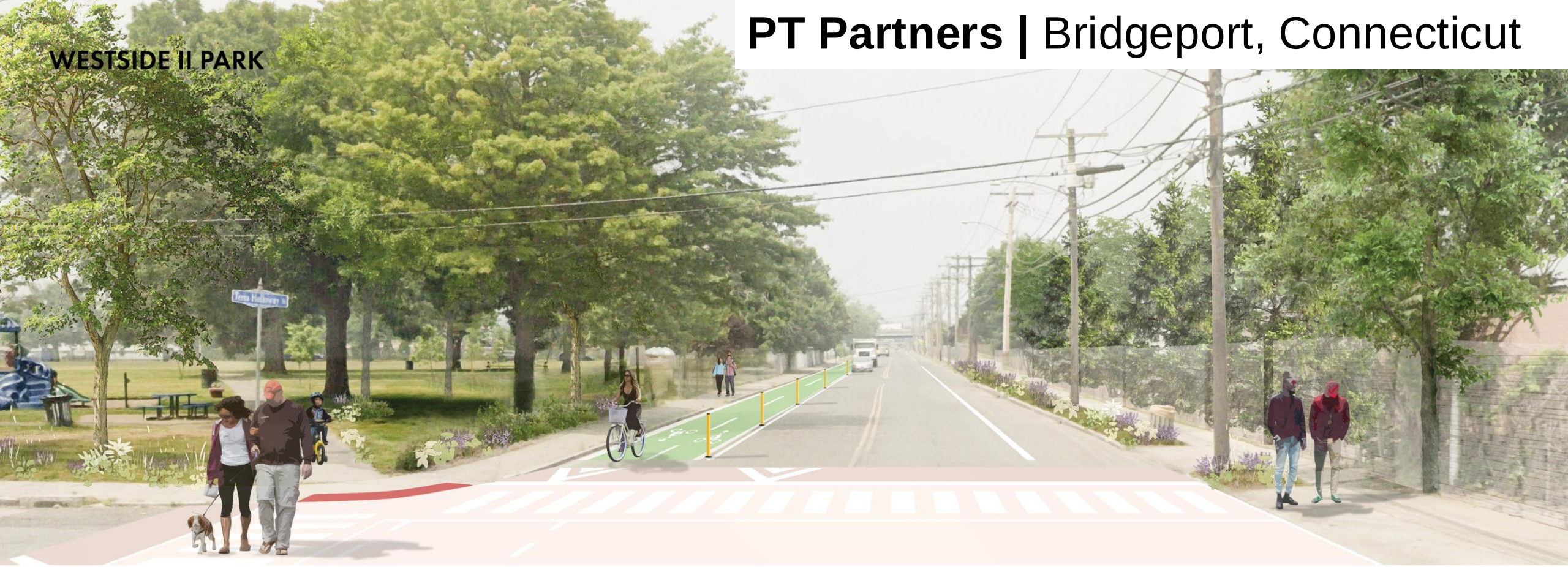


- Team: ONE Architecture, GZA, Climate Adaptation Partners, Sam Schwartz Engineering

PT Partners | Bridgeport, Connecticut

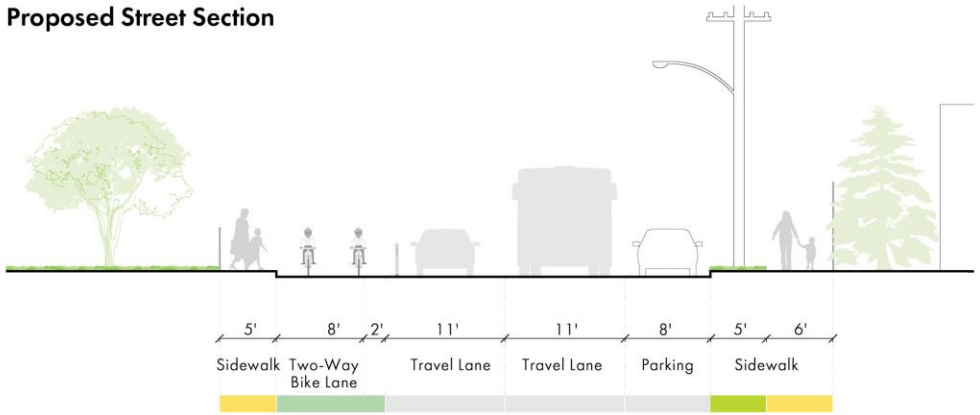


PT Partners | Bridgeport, Connecticut

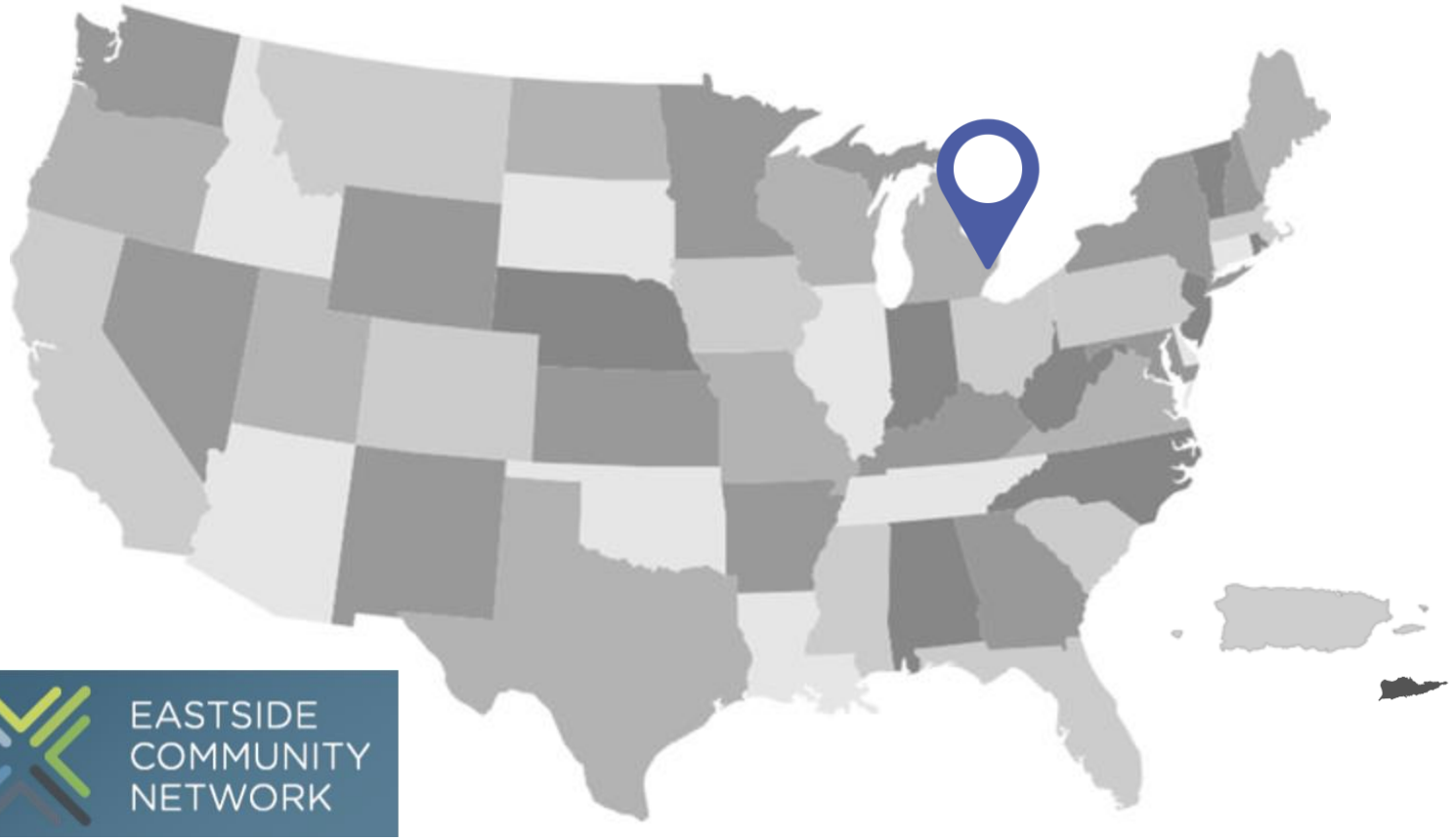


Existing Street Section

Proposed Street Section



Eastside Community Network | Detroit, Michigan



EASTSIDE COMMUNITY NETWORK

Community **Resilience Hub Network**

Energy efficient community and residential buildings

Workforce training in green technologies and farming

Solar panels and backup generators, reducing reliance on the grid

Improved outdoor safety (lighting, wayfinding) building social cohesion

Services, Education, Training | Detroit, Michigan

Resilient Eastside Initiative

EASTSIDE COMMUNITY NETWORK

Detroit, MI

Key Features

NETWORK-WIDE FEATURES

- Full solar installation with backups
- Roof improvements and upgraded water heaters
- Shuttle services for community access
- Way finding, branding, and signage
- Emergency independence with portable generators

INDIVIDUAL HUBS

- What About Us Inc.: Modular building with a deck for expanded programming, collapsible tents for events.
- Georgia St. Collective: Urban farm with pollinator garden, and life skills training for youth.

EASTSIDE COMMUNITY NETWORK

Detroit, MI

Impact

- Establishes a network of 12 trusted community spaces for resource sharing and programming.
- Enhances food security and life skills through urban farming and pollinator gardens.
- Reduces reliance on the grid with renewable energy, battery backups, and decarbonization.
- Improves neighborhood mental health, safety, and resilience through accessible, sustainable hubs.

Climate Resilience – Resources

Community Climate Resilience Design Ideas: Short video of CRC's community climate resilience design projects

Resilience Hub Compendium: CRC and partners' guide to planning and designing resilience hubs

HUD Community Resilience Toolkit: An overview of common climate-related hazards

FEMA National Risk Index: A comprehensive online mapping tool showing natural hazard risks to guide community planning and resource allocation.

Risk Factor: An online platform providing property-level risk assessments for climate hazards ('Freemium' model)

Ready to Fund Resilience Toolkit: A practical guide to identifying, developing, and funding local resilience projects, tailored for community leaders and decision-makers.

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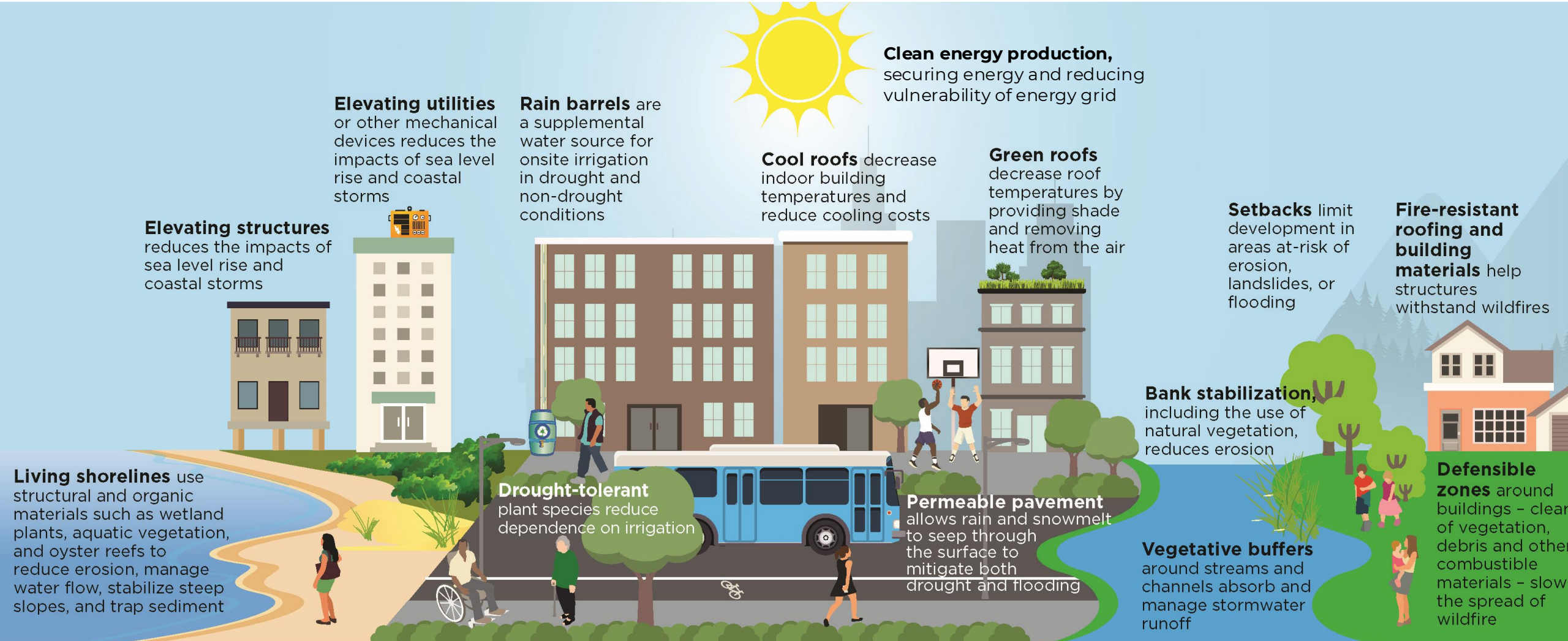
What Does a Resilient Community Look Like?



Thank You!

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