

# RESILIENT FAIR HAVEN

## CITIZEN + TECHNICAL ADVISORY COMMITTEE MEETING #4



FUSS & O'NEILL

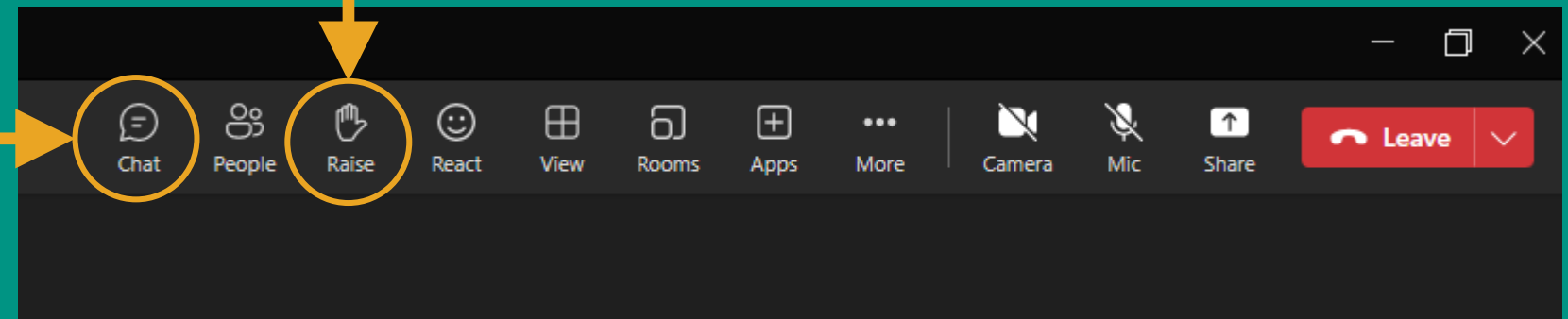


**Dewberry**



## HOUSEKEEPING

- MS Teams
  - “Raise Hand”
  - Put Questions in “Chat Box”



- Discussion / Q&A at the end
- Meeting will be recorded

# MEETING AGENDA

# RESILIENT FAIR HAVEN

TEAM UPDATE

5 mins

DRAFT PROJECT REPORT

30 mins

FINAL STEPS

5 mins

DISCUSSION / Q&A

20 mins

# FUSS & O'NEILL + DEWBERRY TEAM

# RESILIENT FAIR HAVEN



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Resilience



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Heat Analysis / BCA



Xochitl Garcia  
Fair Haven Community Liaison

## TEAM UPDATE

- Completed design concepts and cost estimates
- Completed Benefit-Cost Analysis
- Finalized recommendations related to Resilience Hubs and Evacuation Routes
- Developed other non-structural, policy recommendations
- Developed Draft Report
- Incorporating feedback from CIRCA and the City

**Looking for additional feedback from CTAC and the Fair Haven community before finalizing the report**



## DRAFT PROJECT REPORT

- Integrates all elements of the project into a “plan”
- Summarizes the project and planning process
- Documents the outcomes and results of the process
- Provides a roadmap of next steps for reducing flood and heat risks for Fair Haven through identified resilience strategies and actions



# RESILIENT FAIR HAVEN

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# RESILIENT FAIR HAVEN EXECUTIVE SUMMARY

## SPANISH:

### What is the purpose of this plan?

Resilient Fair Haven builds on prior planning and assessment of flood and extreme heat vulnerabilities by the Connecticut Institute for Resilience and Climate Adaptation (CIRCA) for the Fair Haven neighborhood completed as part of Phases I and II of Resilient Connecticut. This project (Phase III of Resilient Connecticut) focuses on developing adaptation strategies to mitigate current and future climate induced impacts to community assets and transportation corridors in Fair Haven, as well as developing strategies to help mitigate the impacts of extreme heat for community residents. This plan is a culmination of these efforts. The plan:

- Summarizes the Resilient Fair Haven project and planning process undertaken
- Shares the outcomes and results of the process
- Provides a roadmap for reducing flood and heat risks for Fair Haven through identified resilience strategies and actions.

### What does this plan recommend?

A broad range of resilience strategies and actions should be leveraged to realize the vision of a more resilient Fair Haven. For neighborhood-scale plans to be successful, even high-level visions need to be grounded in reality. The recommendations provided in this report aim to bring tangible flood risk reduction and extreme heat resilience benefits to this community over time. The most exciting, innovative, and aspirational designs cannot benefit the City if they cannot be realized. The strategies developed by the project team – representing a diverse group of stakeholders – are both feasible and implementable. Achieving the vision of a more resilient Fair Haven will require a comprehensive strategy with hybrid solutions that includes a careful balance between flood and heat resilience and community enhancement.

## ENGLISH:

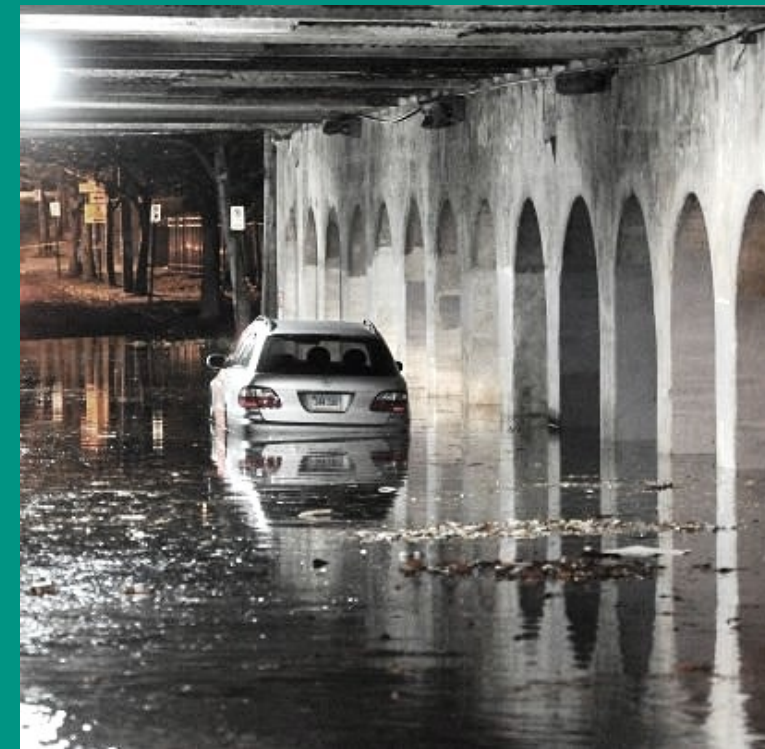
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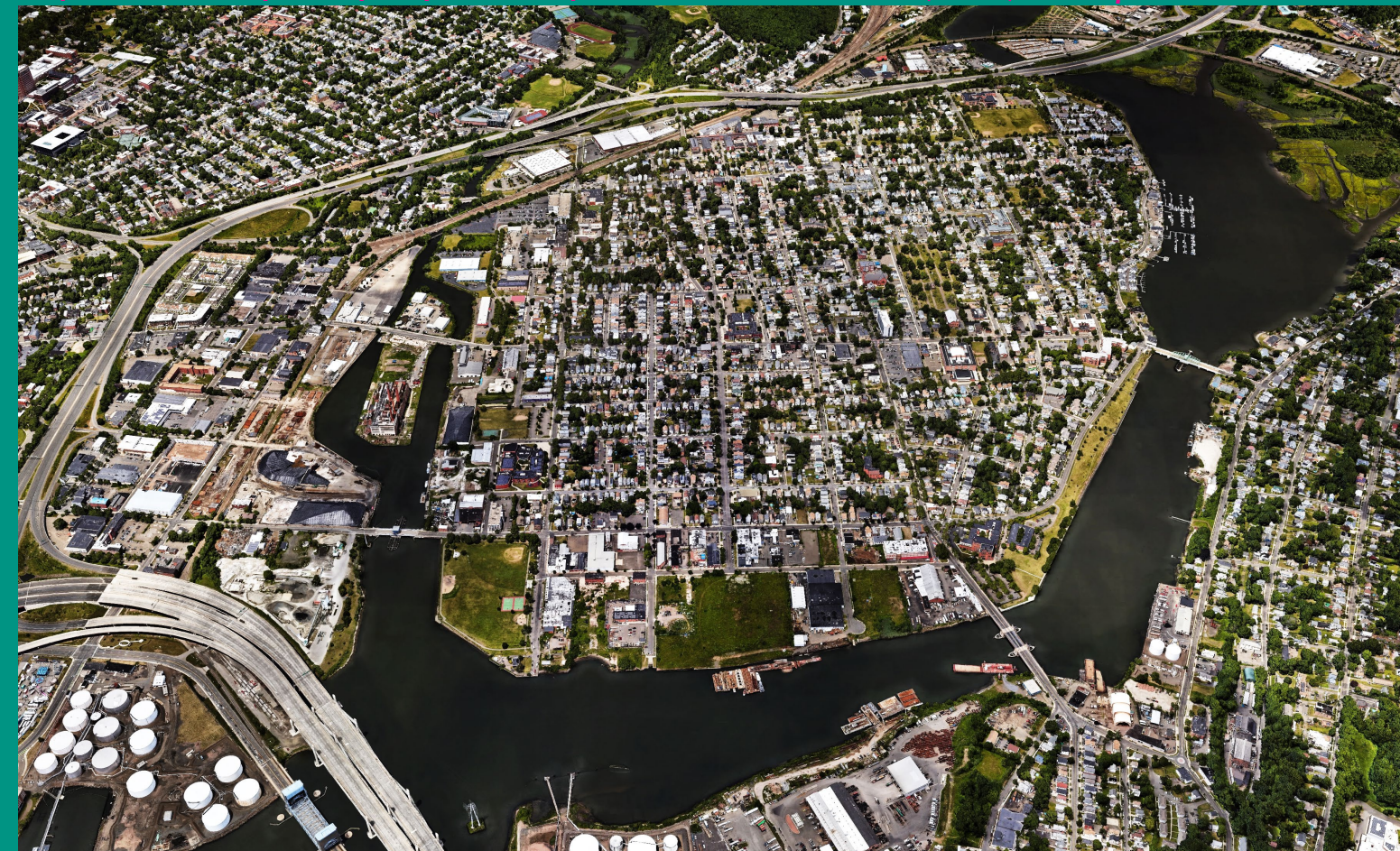
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Superstorm Sandy, Humphrey St. Underpass /  
Superstorm Sandy, Humphrey St. Underpass



December 23, 2022, Quinnipiac River Park /  
December 23, 2022, Quinnipiac River Park



Fair Haven Peninsula / Fair Haven Peninsula



# RESILIENT FAIR HAVEN PLANNING APPROACH

The planning process began in September 2022 with a project kick-off meeting where project stakeholders from CIRCA, the City of New Haven, and the project consultant team met to discuss the phased approach being implemented to develop the plan (see right), and ways to get critical community stakeholder involved in the planning process.

## PHASE 1: CURRENT + FUTURE CONDITIONS ANALYSIS

During the first phase of the project, the project team completed an existing and future conditions analysis that consisted of:

- Review of previous plans for the neighborhood, City, and region
- Compiling mapping data and information from past studies on the existing conditions of the Fair Haven neighborhood
- Review coastal flood and storm surge analyses conducted by CIRCA
- Review of drainage system schematics and CIRCA provided flood elevations for critical intersections and underpasses
- Application of future projections of sea level to the existing conditions to analyze which areas will be subject to increasing frequencies of flooding by 2050
- Evaluate extreme heat risks throughout Fair Haven

## PHASE 2: ADAPTATION OPTIONS + CONCEPT DESIGN

The second phase of the project built upon Phase 1 identify priority locations and problem areas to inform the development of strategies. With the support of the Citizen + Technical Advisory Committee, the project team narrowed in on two priority focus areas (the John W Murphy Drive Area and the Clinton Park Area) to develop realistic and implementable alternatives that are supported by stakeholders.

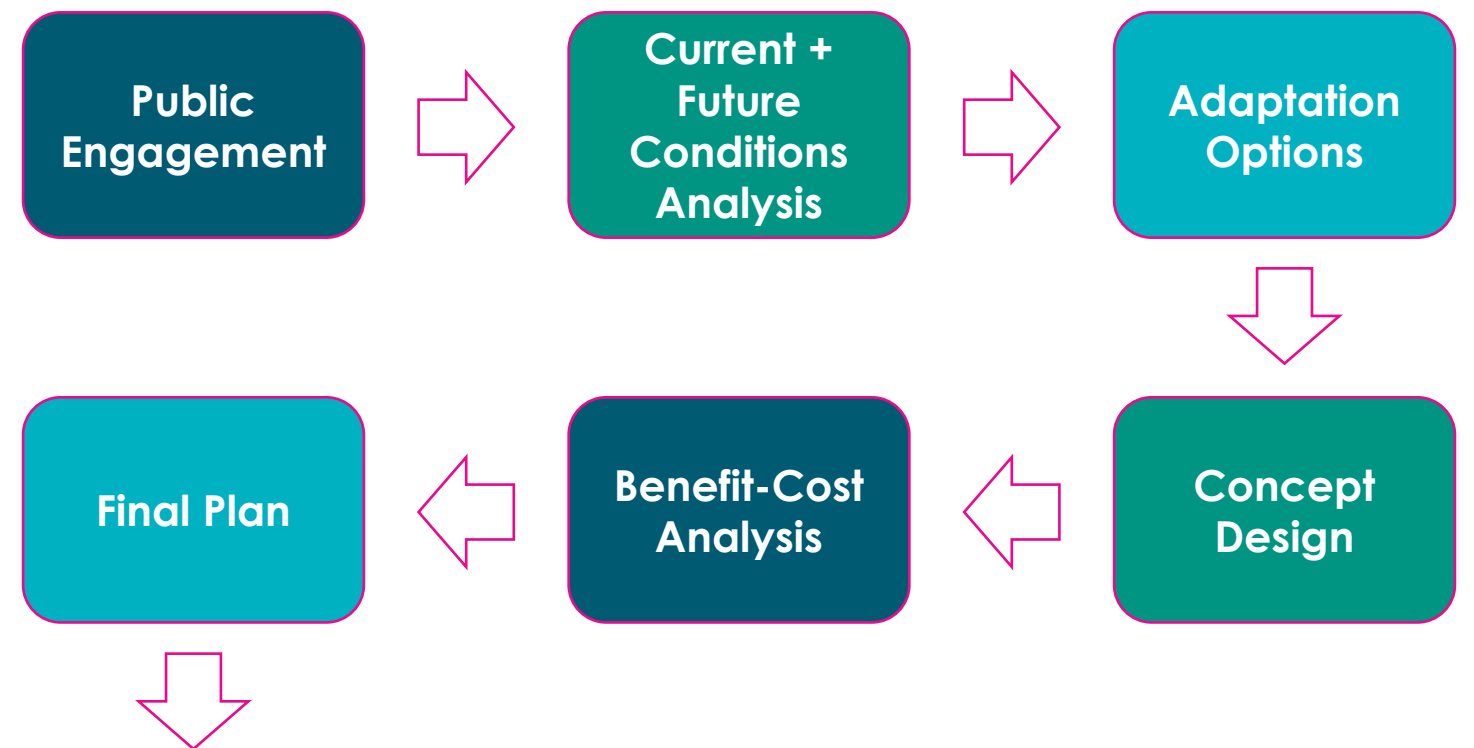
Adaptation options considered include but are not limited to: potential road elevations for dry egress, segments of flood protection systems, site-scale flood protection or accommodation strategies for critical community lifelines, green infrastructure for stormwater management, increasing tree canopy, reducing impervious cover for heat and flood mitigation, building retrofits for heat mitigation, developing community resilience hubs, and others and do consider the Resilient Connecticut PERSISTS decision support criteria.

## PHASE 3: BENEFIT/COST ANALYSIS

During this phase, the project team developed itemized opinions of probable cost for proposed project concepts in the two priority focus areas that were used to develop benefit/cost analysis. An initial calculation of costs and benefits were prepared for the preferred project concepts and strategies and aligned the methodology applied potential funding sources such as FEMA FMA and BRIC.

## PHASE 4: FINAL PLAN

Following the first two phases, the project team developed this final report to summarize the planning process and outcomes from the engagement process. The final report also provides information on next steps for preferred actions connected to timelines and funding sources which should be included.



# RESILIENT FAIR HAVEN COMMUNITY ENGAGEMENT

Community engagement was an essential part of the planning process as the residents and community stakeholders are the foremost experts on their community. The project team actively sought community feedback during the planning process, working to identify, reach out to, and incorporate feedback from diverse groups of people throughout the community.

With help from CIRCA and New Haven City staff, a Citizen + Technical Advisory Committee was also formed towards the start of the project to help guide the development of the plan. The committee was comprised of community members Board of Alders representatives, and local organizations. Members included:

- |                  |  |
|------------------|--|
| Xochitl Garcia   | Project Community Liaison              |
| Claudia Herrera  | Board of Alders (9-D)                  |
| Sarah Miller     | Board of Alders (14-D)                 |
| Chris Ozyck      | Urban Resources Initiative             |
| Dominic Seraphin | Fair Haven Community Clinic            |
| Janine Davey     | Grand Avenue Special Services District |
| Nicole Davis     | Save the Sound                         |
| Melissa Pappas   | Save the Sound                         |
| Lys Gant         | Save the Sound                         |
| J.R. Logan       | Mill River Trail                       |
| Laura Bozzi      | Yale School of Public Health           |
|                  | Center on Climate Change and Health    |

Throughout the planning process, the support of the Citizen + Technical Advisory Committee has been critical for the project team in collecting valuable community feedback. In coordination with the Committee and our Community Liaison, Xochitl Garcia, the project team reached out to potential partner organizations to ensure the engagement effectively reached and spoke to a broader audience. Flyers (see right) and other notices were also used throughout the project to make community members aware of the plan and related activities (e.g., flood risk mapping, community surveys, etc.).

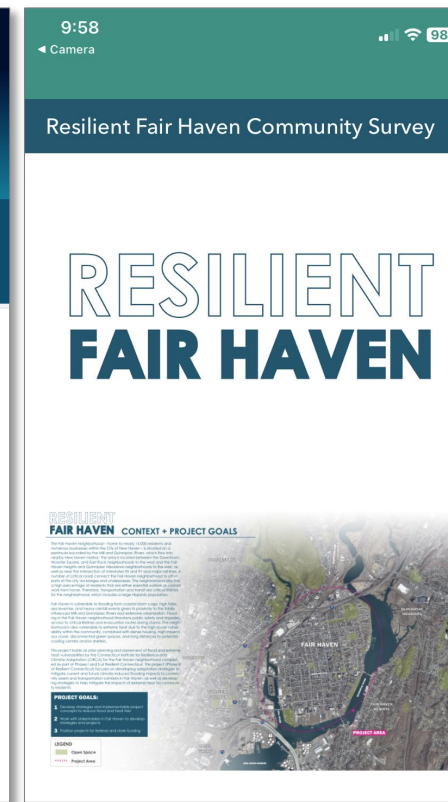
The project team set up a table at several community events throughout the duration of the project, including festivals and other events that brought out large numbers of community members. At these events, the project team spoke with community members about their experiences with flooding and heat in Fair Haven, shared project information, and led activities with community youth to help them understand critical issues like flooding and water quality.

- Events attended included:
- Fair Haven Day
  - Quinnipiac Riverfest
  - Junta for Progressive Action Back to School Event

CIRCA maintains a project website with information accessible by the public and includes links to the community survey that anyone can access to share their feedback on the deliverables, flooding concerns, or any other concerns or questions they may have.



CIRCA Project Website



Community Survey



Project team at Community Events

**RESILIENT FAIR HAVEN**

¿TE AFECTAN LAS INUNDACIONES O EL CALOR?

Nosotros queremos tu entrada

¿QUÉ CAMBIOS QUIERES VER PARA TUS NIETOS?

¿A DÓNDE VA TU FAMILIA PARA SALIR DEL CALOR?

ESCANEA PARA REALIZAR ENCUESTA!

¿NO ESCAPAR DEL CALOR?

¿LA INFRAESTRUCTURA VERDE PUEDE REFRESCARTE!

CONTACTÉNOS [john.truscinski@uconn.edu](mailto:john.truscinski@uconn.edu)

CONOZCA MÁS SOBRE EL PROYECTO EN [resilientconnecticut.uconn.edu/resilient-fair-haven/](http://resilientconnecticut.uconn.edu/resilient-fair-haven/)

**RESILIENT FAIR HAVEN**

Fair Haven está rodeado por agua por tres lados con las principales autopistas y líneas de ferrocarril en el cuartelado del barrio. Es el hogar de una gran población de trabajadores esenciales que hacen transporte y tránsito importante para el barrio.

Dado que Fair Haven está rodeada de agua y muy urbanizada, el área es vulnerable a diferentes tipos de inundación. Las inundaciones en el vecindario de Fair Haven amenazan la seguridad pública y las rutas de evacuación durante las tormentas. El vecindario también es vulnerable al calor extremo debido a la densa vivienda, alta cantidad de pavimentación, espacios verdes desconectados y largas distancias a posibles centros de enfriamiento.

Este proyecto (Fase III de Resilient Connecticut) se enfoca en desarrollar estrategias para reducir la impactos de las inundaciones y el calor extremo para la comunidad.

**OBJETIVOS DEL PROYECTO**

- Reducir los riesgos de inundaciones y calor intenso
- Reflejar los comentarios de la comunidad en las recomendaciones
- Posicionar proyectos para financiamiento estatal y federal

¡QUEREMOS ESCUCHAR DE TI! ESCANEA PARA REALIZAR NUESTRA ENCUESTA

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CONOZCA MÁS SOBRE EL PROYECTO EN [resilientconnecticut.uconn.edu/resilient-fair-haven/](http://resilientconnecticut.uconn.edu/resilient-fair-haven/)

Project Flyers were produced in both English and Spanish to reach a broader audience






An aerial photograph of a residential neighborhood, showing a dense arrangement of houses and trees. The image is overlaid with a semi-transparent teal color. In the center, the text "ADAPTATION OPTIONS + RECOMMENDED ACTIONS" is written in a large, bold, white, sans-serif font.

# ADAPTATION OPTIONS + RECOMMENDED ACTIONS

# RESILIENT FAIR HAVEN FOCUS AREAS

- 1. Underpasses** – drainage-related flooding at the railroad underpasses (Humphrey Street and James Street) and at the I-91 underpasses (Clinton Avenue and Front Street), which are critical connections to and from Fair Haven
- 2. John W. Murphy Drive Area** – low-lying road and adjacent industrial, commercial, and residential areas and buildings along the lower Mill River susceptible to coastal and drainage-related flooding
- 3. Grand Avenue & Mill River Bridges** – major gateway/connection between Fair Haven and Downtown, Wooster Square, and Mill River impacted by existing and future coastal flooding
- 4. River Street Area** – heavily industrialized area along lower Mill River and Quinnipiac River; vulnerable to coastal flooding and characterized by legacy contamination and ongoing cleanup and redevelopment
- 5. Quinnipiac River Park Area** – flood prone park along Quinnipiac River between Ferry Street and Grand Avenue
- 6. Front Street North** – low-lying road and adjacent commercial and residential areas at risk of coastal flooding
- 7. Clinton Park Area** – area encompassing Clinton Avenue School, Clinton Park, and adjacent public housing, as well as flood prone connection along Middletown Avenue to nearby shopping and commercial areas east of the Quinnipiac River

**LEGEND**

-  Cooling Corridors
-  Community Connectors
-  Critical Community Connection Area
-  Shoreline Focus Areas
-  Projected Future Flooding (100-Yr + 20" SLR)
-  FEMA Zone AE



# RESILIENT FAIR HAVEN FOCUS AREAS - SUMMARY

## FOCUS AREA 1 UNDERPASSES



### CRITICAL ASSETS

- Impacted by Coastal and Drainage Flooding: Critical neighborhood connections and egress during storm events (Humphrey Street, James Street, Clinton Avenue, and Front Street)

### GOALS / NEEDS

- Improve access to critical facilities during flood events
- Reduce risks to residents during flood events

### POTENTIAL BENEFITS / SOLUTIONS

- Upon more detailed analysis, drainage system could possibly be improved to reduce flooding at underpasses
- Improvement to the flood conditions here would result in safer travel during storm events
- Road closures and automated temporary traffic barriers to reduce the incidence of stranded vehicles and the need for rescues

### STATUS / NEXT STEP

- This report provides short term recommendations to keep residents safe in present day flood events
- It is recommended that the City perform detailed drainage analysis and engineering at these locations to better evaluate potential long-term solutions

## FOCUS AREA 2 JOHN W. MURPHY DRIVE AREA



### CRITICAL ASSETS

- Impacted by Coastal, Riverine, and Drainage Flooding as well as Extreme Heat: Concentra Urgent Care, Dept of Social Services, Pump Station, Mill River Trail, Street Grid, Businesses, Residences, Family Academy

### GOALS / NEEDS

- Improve access to critical facilities during flood events
- Reduce risks to residents during flood events
- Improve connections to waterfront from residential areas
- Reduce risk from extreme heat

### POTENTIAL BENEFITS / SOLUTIONS

- Improvement to the flood conditions here could result in reduced risk from flooding, enhanced recreational space, ecological benefits, increased tree canopy and cooling opportunities

### STATUS / NEXT STEP

- This report provides a concept level design for this area

## FOCUS AREA 3 GRAND AVENUE & BRIDGES



### CRITICAL ASSETS

- Impacted by Coastal Flooding: Passage across the Mill River is impacted by flooding in the present and future condition. Critical connection to Downtown New Haven

### GOALS / NEEDS

- Improve access to critical facilities during flood events
- Reduce risks to residents during flood events

### POTENTIAL BENEFITS / SOLUTIONS

- Improvement to this transportation asset would enable critical neighborhood connections during storm events now and in the future

### STATUS / NEXT STEP

- This report provides a concept level design for this area

## FOCUS AREA 4 RIVER STREET AREA



### CRITICAL ASSETS

- Impacted by Coastal, Riverine, and Drainage Flooding as well as Extreme Heat: Chapel Street and bus routes, John Martinez School, Cold Spring School, Criscuolo Park, contaminated parcels

### GOALS / NEEDS

- Separate combined sewers
- Absorb and/or mitigate coastal surge
- Enhance resiliency of public open spaces
- Reduce risk from extreme heat
- Provide opportunities for resilient redevelopment opportunities for the City

### POTENTIAL BENEFITS / SOLUTIONS

- Improvement to this area would support the City's initiative to mitigate industrial land barriers to coastal access, increase water access, and potentially reclaim large parcels for open space and/or redevelopment

### STATUS / NEXT STEP

- Redevelopment plans for this area are active with the City currently. It is recommended that the City consider detailed projections of future flood risk and rising groundwater levels in this area to better inform redevelopment decisions and resilient design strategies

# RESILIENT FAIR HAVEN FOCUS AREAS - SUMMARY

## FOCUS AREA 5 QUINNIPIAC RIVER PARK AREA



### CRITICAL ASSETS

- Impacted by Coastal, Riverine, and Drainage Flooding as well as Extreme Heat: Street flooding, Quinnipiac River Park

### GOALS / NEEDS

- Absorb and/or mitigate coastal surge
- Enhance accessible riverfront access

### POTENTIAL BENEFITS / SOLUTIONS

- Improvement to this area would support the quality of life for nearby residents by providing enhanced recreational spaces, enhanced habitat, as well as cooling opportunities along riverfront

### STATUS / NEXT STEP

- The City of New Haven recently received grant funding for improvements to Quinnipiac River Park including new site furniture, re-paving, electrical and signage, stone dust paths, and water service
- The City should implement other resilience improvements, like those proposed for Dover Beach to the north, consistent with recent community input for the Quinnipiac River Park improvements including living shoreline elements and enhanced tree canopy for shade and habitat

## FOCUS AREA 6 FRONT STREET NORTH



### CRITICAL ASSETS

- Impacted by Coastal, Riverine, and Drainage Flooding as well as Extreme Heat: Private residences, businesses, marina, and access to river

### GOALS / NEEDS

- Many private residences need building scale solutions
- Reduce street flooding

### POTENTIAL BENEFITS / SOLUTIONS

- Voluntary buyouts could be a solution that the City should discuss for some of the riverfront properties
- Floodproofing at the building scale could also be beneficial

### STATUS / NEXT STEP

- This area was not developed to concept level plans in this study
- Neighborhood scale outreach and discussions with property owners would be the next step to move this forward

## FOCUS AREA 7 CLINTON PARK AREA



### CRITICAL ASSETS

- Impacted by Coastal, Riverine, and Drainage Flooding as well as Extreme Heat: affordable housing, Clinton Avenue School, Dover Beach. Extreme heat is the driving risk in this area.

### GOALS / NEEDS

- Provide cooling opportunities
- Enhance habitat and open spaces for affordable housing area
- Provide neighborhood connections and manage stormwater
- Enhance school parcels and introduce elements to reduce extreme heat impacts

### POTENTIAL BENEFITS / SOLUTIONS

- Improvement to this area could result in a more resilient community through strengthening community corridors and providing gathering spaces to escape the heat
- Ecological enhancements in Dover beach could benefit both habitat and water quality as well as provide a more diverse experience for park visitors

### STATUS / NEXT STEP

- This report provides a concept level design for this area

## COOLING CORRIDORS / COMMUNITY CONNECTORS



### CRITICAL ASSETS

- Impacted by Extreme Heat: Critical community connections for pedestrians, bicyclists, and public transportation users

### GOALS / NEEDS

- Increase shade canopy
- Reduce drainage related flooding

### POTENTIAL BENEFITS / SOLUTIONS

- Improvements along these corridors would reduce the risks associated with urban heat island
- Enhance urban habitat and water quality
- Provide cool connections to the various cooling shelters, resilience hubs, and critical facilities around the neighborhood

### STATUS / NEXT STEP

- Elements of the cooling corridors and community connectors are incorporated into the concept level designs in this report







# RESILIENT FAIR HAVEN

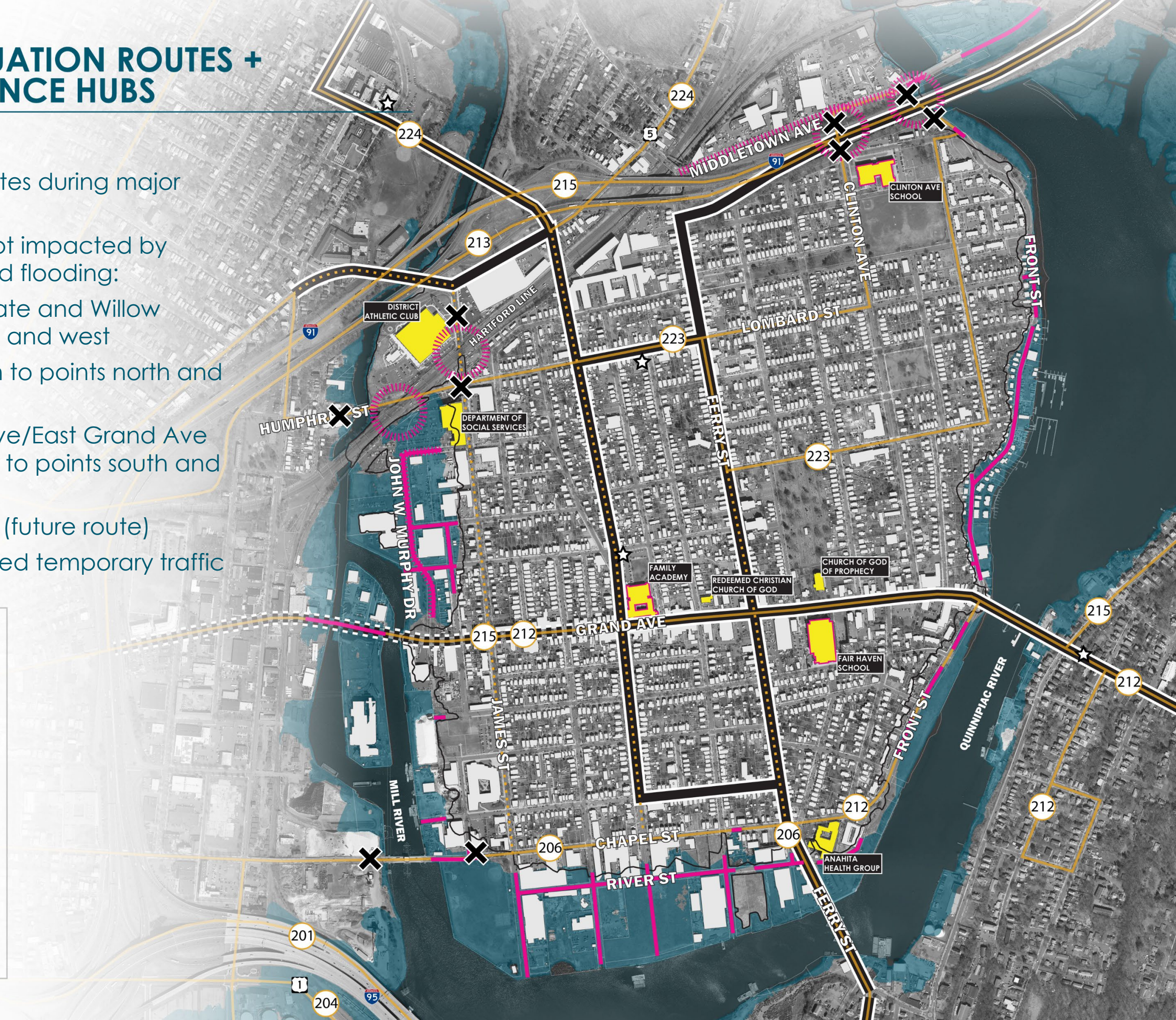
## EVACUATION ROUTES + RESILIENCE HUBS

### EVACUATION ROUTES

- Proposed evacuation routes during major flooding events
- Existing critical linkages not impacted by existing or future projected flooding:
  - Blatchley Ave and State and Willow Streets to points north and west
  - Ferry St and I-91 North to points north and east
  - Ferry St and Grand Ave/East Grand Ave over Quinnipiac River to points south and east
- Grand Ave over Mill River (future route)
- Road closures & automated temporary traffic barriers, signage

#### LEGEND

-  Projected Future Flooding (100-Yr + 20" SLR)
-  Bus Route
-  Proposed Bus Route
-  Streets with Coastal Flood Risk
-  Closed Road During Flooding (Observed Drainage and Potential Coastal Flooding)
-  Proposed Evacuation Route
-  Potential Future Evacuation Route
-  Potential Resilience Hub Location
-  Potential Cooling Center Network
-  Emergency Response (Police, Fire Department, EMS)
-  FEMA Zone AE

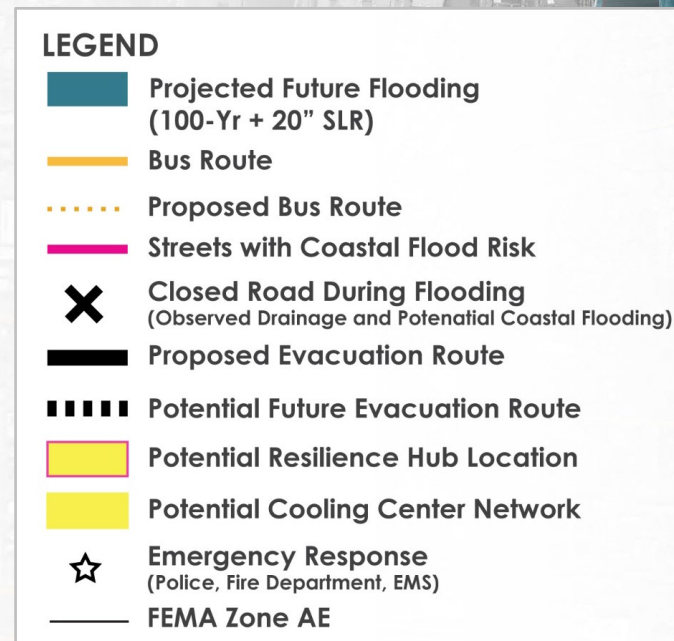


# RESILIENT FAIR HAVEN

## EVACUATION ROUTES + RESILIENCE HUBS

### RESILIENCE HUBS

- Community-serving facilities, augmented to support residents and coordinate and supplement resource distribution and services before, during, and after a natural hazard event
  - Flexible back-up power systems, emergency shelter, cooling center, clean air, communication, supply distribution, and logistical support
- City currently busses residents to emergency shelters in other parts of the City
- Designate one or more facilities in Fair Haven as Resilience Hubs
  - FAME School
  - Fair Haven School
  - Clinton Avenue School
  - Other facilities



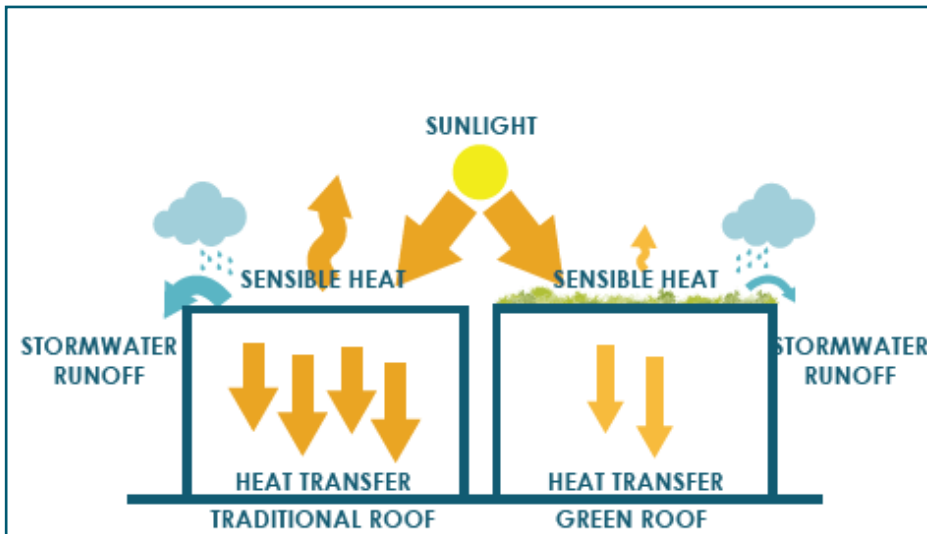


# ADAPTATION TOOLKIT

# RESILIENT FAIR HAVEN

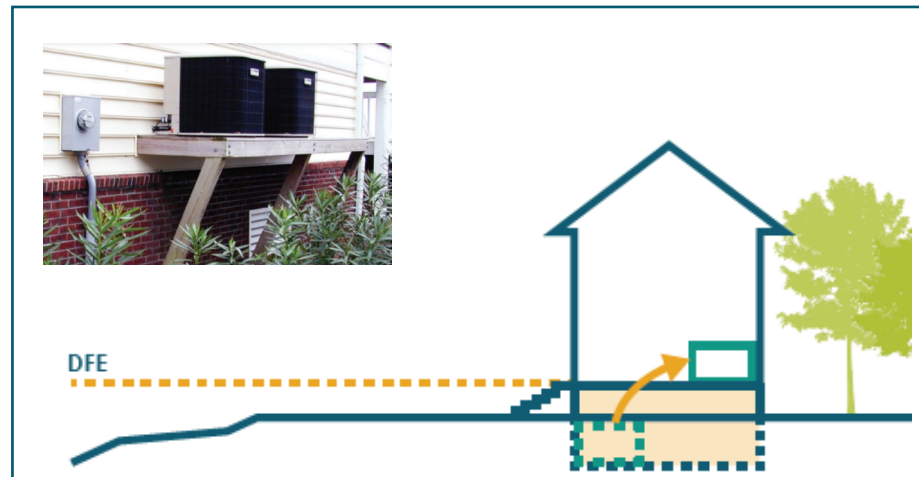
## PHYSICAL STRATEGIES CONSIDERED

### GREEN ROOF



A green roof is a layer of growing medium for vegetation installed over a waterproofing system, slowing down runoff by retaining rainwater and gradually releasing it back into the atmosphere through condensation and transpiration. Blue roofs provide temporary water storage systems that allow for the gradual release or evaporation of stored water.

### ELEVATE CRITICAL SYSTEMS



Relocating critical systems to higher floors within structures reduces the impacts of flooding on critical services and reduces recovery times. This tool increases the resilience of essential services to homes and businesses.

### FLOODPROOF LEVELS BELOW DFE



Wetproofing involves sealing susceptible levels to water infiltration. This allows for flood water to move into and through these levels while limiting infiltration to the rest of the structure. Dryproofing involves fully blocking out floodwaters with both permanent and deployable structures.

### STRATEGIC ACQUISITION



Strategic acquisition is the voluntary acquisition of parcels to reduce long-term flood damage and implement targeted flood protection projects at key flood pathway locations. This strategy can be selectively considered where perimeter protection or adaptation are not feasible, too costly, or detract from other essential aspects of resilience.

# RESILIENT FAIR HAVEN NON-STRUCTURAL RECOMMENDATIONS

## RESILIENCE STRATEGIES FOR FUTURE CONSIDERATION

### GOVERNANCE + POLICY TOOLS

#### LAND USE PLANNING + ZONING

Explore opportunities to include higher design standards in City ordinances such as the requirement of an elevation certificate, limited outdoor storage of materials in flood hazard areas, standards for cumulative substantial improvements and/or lower substantial improvement threshold, and/or application of standards in the 0.2% annual chance floodplain.

#### CREATE FUNDING PROGRAMS CITYWIDE

Develop funding programs including loans and grants that can be provided to property owners (residential, multi-family, and commercial) to support building scale mitigation through floodproofing, elevations, buyouts, green infrastructure retrofits, and energy efficiency.

#### REVISIT A STORMWATER AUTHORITY

A stormwater utility creates the ability to assess fees, based on a fair and equitable approximation of the contribution of stormwater runoff from a real property, which can then be used to fund stormwater programs within the governing body. A stormwater utility operates similarly to any other utility, such as a water or electric utility. This is an especially valuable tool as part of a watershed approach for flood resilience, as it facilitates implementation of stormwater management practices for new and redeveloped areas, creates incentives for retrofits on private property, and provides dedicated funding for beneficial public stormwater projects and maintenance activities. With the increasing impact of extreme rainfall events, it is recommended that the City of New Haven revisit this idea.

#### IMPLEMENT PUBLIC EDUCATION CAMPAIGN ON STORM SAFETY

This campaign should include both education about drainage and coastal storm risks as well as what community members should do during storms, specifically in Fair Haven detailing evacuation routes, road closures, and resilience hub locations.

#### WATERSHED/CITYWIDE PROBABALISTIC MODEL FOR COMPREHENSIVE FLOOD RISK ANALYSIS

The development of a fully probabilistic physics-based hydrodynamic model of the Mill and Quinnipiac watersheds (City of New Haven), which would include a complete Monte Carlo based assessment of flood risk would provide more refined AEP level conditions as well as enable the City to develop dynamic adaptation planning pathways (DAPP). DAPP's can provide a powerful adaptive and visual management tool to guide a community through the process of adapting to changing climate conditions over time. This type of probabilistic model considers pluvial, fluvial, coastal and coastal flooding as well as incorporates groundwater conditions and stormwater infrastructure systems.

#### PERFORM CLOUDBURST MASTERPLANNING STUDY

A cloudburst resiliency planning study analyzes best-available data related to rainfall, recommends methodologies for incorporating findings into ongoing resiliency planning initiatives, and identifies best practices for considering climate change in future neighborhood-specific planning studies. As an outcome of the study, opportunities for intervention are identified within the designated study area to provide retention and conveyance for extreme conditions, while also offering community and environmental benefits in normal conditions.

### INDIVIDUAL / COMMUNITY-BASED ACTIONS

#### DEVELOPMENT OF CITYWIDE RESILIENCE HUBS

Resilience centers, or "Resilience hubs" are community-serving facilities, augmented to support residents and coordinate and supplement resource distribution and services before, during, and after a natural hazard event. Resilience hubs can increase bottom-up community-led resilience efforts by leveraging existing or newly designated community-trusted spaces or facilities.

#### EMERGENCY PREPAREDNESS

Emergency preparedness efforts include the dissemination of emergency alerts and guidance to residents and community leaders and supporting community-based emergency preparedness programs through partnerships with community organizations and faith-based institutions. Outreach in multiple languages and through trusted local leaders is key.

#### COMMUNITY PLANNING

One way to build adaptive capacity is to work in close collaboration with neighborhood residents and community-based organizations to identify community needs and develop strategies for improving access to necessary resources. This could include improving access to open space, improving community mobility and connectivity, or addressing food deserts—all things that help a community adapt to changing climate hazards and thrive every day.

#### COMMUNITY STEWARDSHIP OF GREEN SPACES

Community co-creation and stewardship of green spaces is a way to partner with community-based organizations to maintain green spaces that support community resilience while supporting education, job training, and providing volunteer opportunities.

#### NEIGHBORHOOD WIDE STUDY ON AIR QUALITY

Partner with the academic community, such as Yale School of Public Health Center on Climate Change and Health, and community-based organizations to conduct localized studies and public health screenings of present-day vulnerabilities to and impacts of extreme heat and poor air quality. Poor air quality in Fair haven is not merely a future issue, but rather an immediate concern of its residents now. The community is already experiencing the effects of poor air quality, especially the elderly and children

#### PUBLIC EDUCATION CAMPAIGNS

Start a regional education campaign with resources for individual mitigation and to promote advocacy related to additional hazards. Should involve developing and distributing accessible, multilingual information and educational materials designed to reach as many communities as possible

# RESILIENT FAIR HAVEN NON-STRUCTURAL RECOMMENDATIONS



*Developing design guidelines at the City level takes a proactive approach to ensuring a healthy and robust urban forest. This guide was created to highlight solutions which may be employed to plant and retain healthy trees and provide accessible, walkable surfaces throughout the City of Providence and presents potential tools, solutions, and recommendations to reduce conflicts between tree roots and sidewalks.*



*Bus stops in Lexington, Kentucky, using solar technology for lighting enhancing public safety as well as public health*



*Green roof bus shelter in Columbus, Ohio*

## HEAT SPECIFIC STRATEGIES FOR FUTURE CONSIDERATION

### STAYING COOL AND SAFE IN PUBLIC SPACES

#### COMMUNITY HEAT RELIEF NETWORK

Organize and activate a network of local institutions, businesses, and community organizations who can respond during extreme heat events by offering cooling spaces and resources to residents

#### COOL + SAFE TRANSPORTATION

Improve access to cool, safe, and accessible routes for walking, biking or using public transit in extreme heat, including:

- More bus shelters along popular routes
- Offering free bus transportation on certain routes during Heat Health Emergencies
- Creating safer routes and traffic crossings to the waterfront and public open spaces
- Reducing idling and vehicle exhaust (which impacts air quality) by rerouting truck traffic out of residential areas

#### EFFICIENT AIR CONDITIONING IN SCHOOLS, LIBRARIES, AND COMMUNITY CENTERS

Improve access to air conditioning and healthy energy repairs at public schools, libraries, and recreation centers in Fair Haven and City-wide

#### COOLER OPEN PUBLIC SPACES

Improve access to resources that will help residents stay cool outside:

- Better lighting in park spaces to make it more accessible in the evening
- Providing cold water, shade structures, and misting fans/tents for block clean-ups and other outdoor community events
- Increase tree canopy along designated cooling corridors

### STAYING COOL AND SAFE AT HOME

#### ENERGY EFFICIENT APPLIANCES + HOME REPAIRS

- Improve access to efficient air conditioning units and appliances
- Improve access to healthy home energy repairs and weatherization
- Explore a neighborhood/citywide program which can complete energy upgrades and repairs to homes to prevent displacement and reduce energy burden in low-income homes, including cool roof coatings and insulation installation

#### STRATEGIC + INCLUSIVE HEAT OUTREACH

- Improve access to information about existing utility assistance programs and resources about how to stay cool and safe during extreme heat events, including information about City-operated cooling centers, heat health tips, and Resilience Hubs
- Pilot system for alerting and checking-in on vulnerable residents during extreme heat events in Fair Haven
- Create centralized City Heat website and a schedule of social media posts to send to community-based partners to post throughout the summer

#### YEAR-ROUND UTILITY ASSISTANCE

Work to develop services to enable Utility Assistance to be available for the full year (and not just the winter season) to qualifying residents in low-income areas

### URBAN FOREST ENHANCEMENT

#### TREE PLANTING + CARE

Improving access to tree plantings and education about tree care and maintenance for residents in Fair Haven, including:

- Recruiting neighborhood organizations to partner with the City to host yard tree giveaways
- Expanding bilingual training and recruiting resident volunteers for street tree plantings around Fair Haven
- Increasing street trees and perimeter plantings around large industrial sites
- Providing information about tree care and street tree program applications in Spanish

#### EXPANDED CITY STREET TREE LIST

Update the City of New Haven Approved Street Tree List to include recommended soil volume, rooting and truck characteristics, minimum allowable tree pit size/strip size, moisture tolerance, and other helpful information to make choosing the right tree for the right place easier.

#### NEIGHBORHOOD GREENING

Improving access to greening and open space throughout Fair Haven, including

- Creating more gardens and parks on vacant lots that exist near residential blocks
- Targeting green stormwater infrastructure projects—such as rain gardens, tree boxes, and bioswales—on the hottest blocks in Fair Haven
- Targeting green stormwater infrastructure projects on and around industrial sites, commercial sites, and schoolyards, such as: FAME School, Fair Haven School, and Clinton Avenue School

#### FORMATION OF GREENCORPS

Creating a local job training program for young adults in Fair Haven to engage in leadership development, community organizing, and environmental resilience projects, including:

- Tree maintenance
- Green space enhancement
- Heat outreach
- Neighborhood clean-ups







# CONCEPT ALTERNATIVES + RECOMMENDED ACTIONS

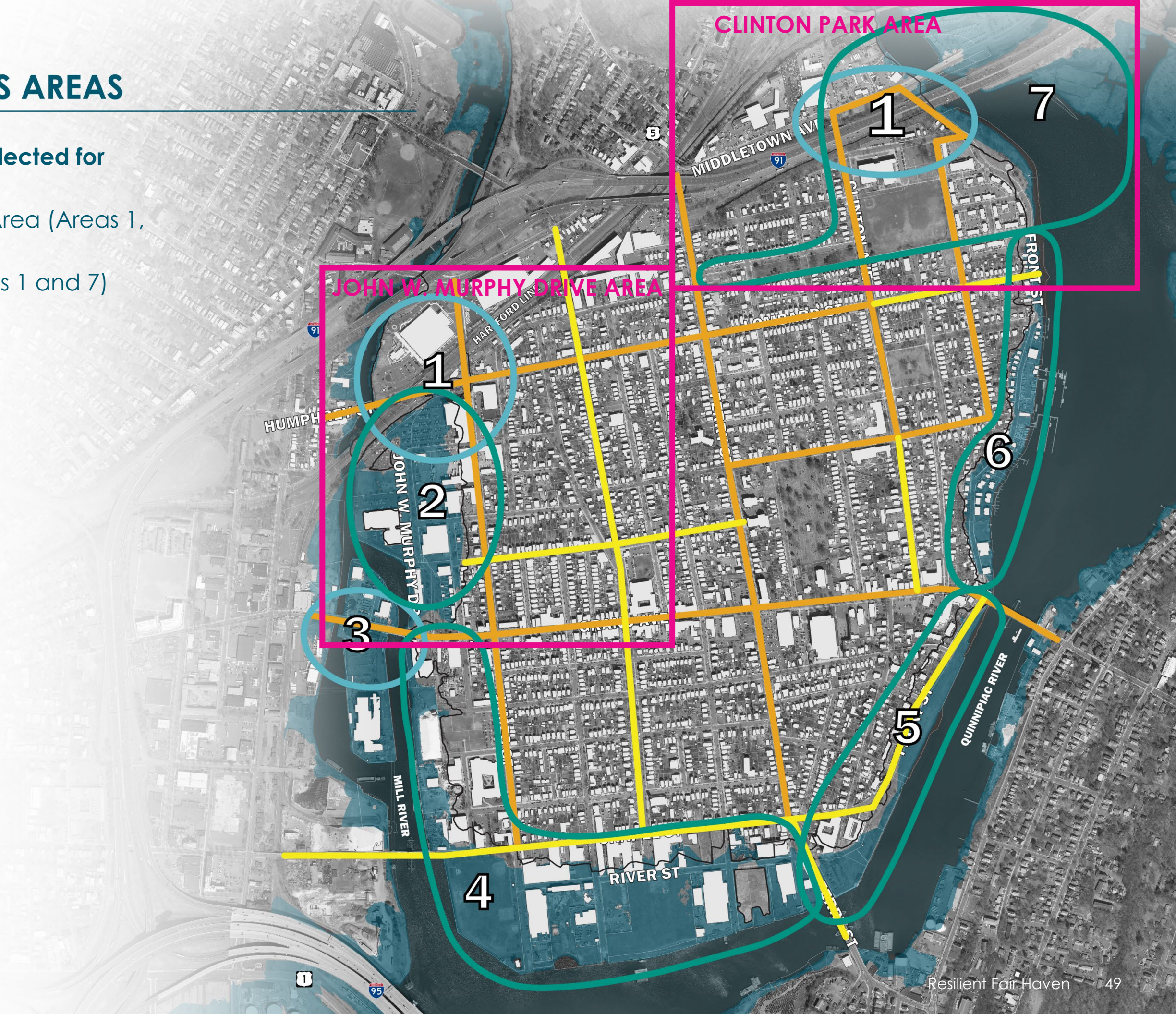
# RESILIENT FAIR HAVEN FOCUS AREAS

Two overall focus areas were selected for concept development

- John W. Murphy Drive Area (Areas 1, 2, and 3)
- Clinton Park Area (Areas 1 and 7)

**LEGEND**

-  Cooling Corridors
-  Community Connectors
-  Critical Community Connection Area
-  Shoreline Focus Areas
-  Projected Future Flooding (100-Yr + 20" SLR)
-  FEMA Zone AE



# RESILIENT FAIR HAVEN JOHN W. MURPHY DRIVE AREA

## GOALS

- Reduce flood risk along Mill River and address extreme heat risk
- Reduce impervious surfaces and soften shoreline
- Enhance access to Mill River
- Create cooling/resilience corridors
- Provide shading of school parking lot and outdoor classroom space as pilot project



# RESILIENT FAIR HAVEN

## RECOMMENDED ACTIONS



- ① **370 James Street Parking Lot & Urban Cooling Center** - Shade trees, parking garage, walking path, natural restoration area, plantings  
Estimated Cost: \$17,500,000
- ② **Mill River Trail** - Overlooks, shade trees, walking paths  
Estimated Cost: \$2,000,000
- ③ **Outfall Improvements** - Check valve/backflow retrofit, daylighting and new headwall  
Estimated Cost: \$1,000,000
- ④ **Floodable Park and Gateway Property** - Acquisition and demolition of building at 451 Grand Avenue (and re-location of existing business), shade trees, floodable park development  
Estimated Cost: \$4,600,000
- ⑤ **John W. Murphy Drive Elevation and Flood Barrier** - Road raising and flood berm/sheet pile, interior drainage/pump station, utility relocation, shade trees, paving, fencing/guide rail, side street connections  
Estimated Cost: \$25,000,000
- ⑥ **Grand Avenue Road and Bridge Elevation** - Road raising, utility relocation, paving, retaining walls, bridge elevation/replacement  
Estimated Cost: \$19,900,000
- ⑦ **Cooling/Resilience Corridors** - Tree plantings, green stormwater infrastructure  
Estimated Cost: \$6,000,000
- ⑧ **Family Academy of Multilingual Exploration (FAME) School Parking Lot Cooling Improvements** - Shade structure and green roof, shade trees, plantings in existing play yard  
Estimated Cost: \$2,600,000

**TOTAL COST (-30% TO +50% ROUNDED) \$55,000,000 - \$117,900,000**



RESILIENT  
FAIR HAVEN

EXISTING CONDITIONS



# RESILIENT FAIR HAVEN



COOLING CORRIDOR  
CLAY STREET

COOLING CORRIDOR  
GRAND AVENUE

POTENTIAL  
REDEVELOPMENT AREA

ELEVATED JOHN W.  
MURPHY DRIVE AS FLOOD  
RISK REDUCTION

FLOODABLE PARK

OUTFALL IMPROVEMENTS  
/ DAYLIGHTING

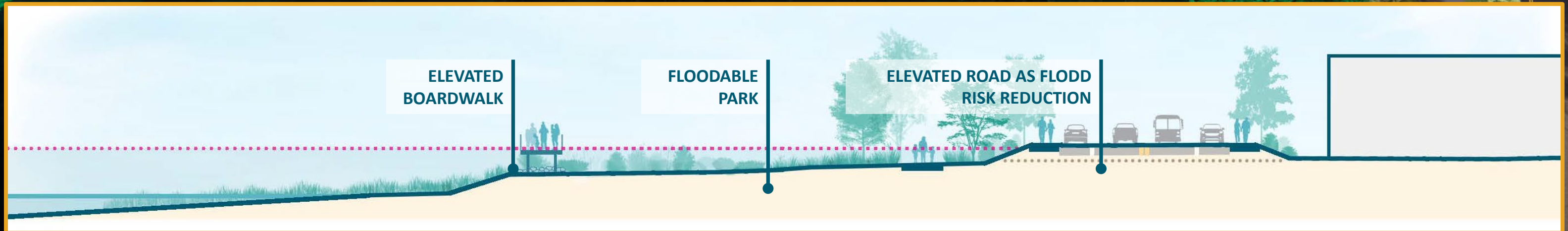
NEIGHBORHOOD  
GATEWAY

MILL RIVER TRAIL

ELEVATED BOARDWALK

LIVING SHORELINES

ELEVATED GRAND  
AVE + BRIDGES

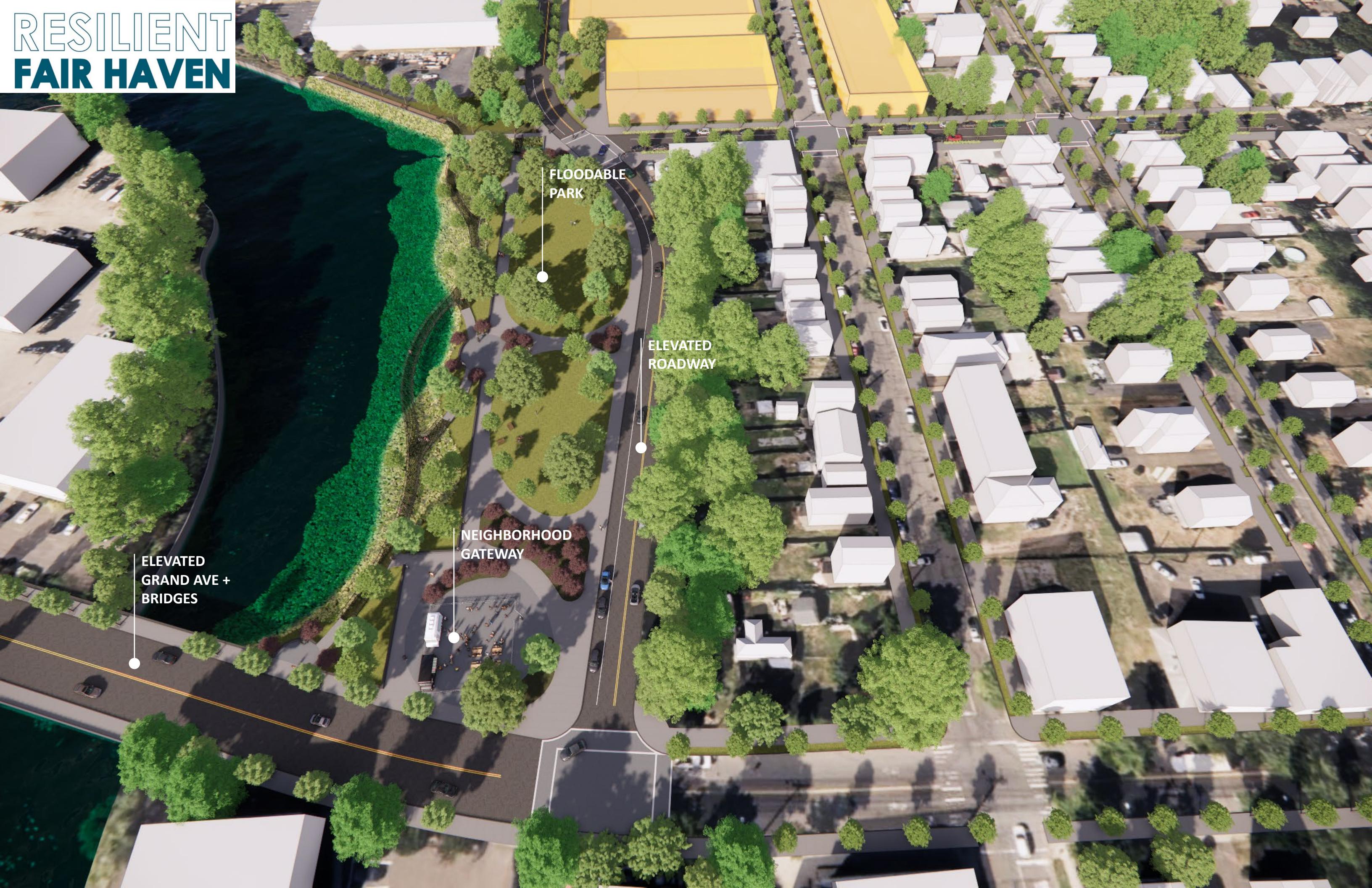


ELEVATED  
BOARDWALK

FLOODABLE  
PARK

ELEVATED ROAD AS FLOOD  
RISK REDUCTION

# RESILIENT FAIR HAVEN



ELEVATED  
GRAND AVE +  
BRIDGES

NEIGHBORHOOD  
GATEWAY

ELEVATED  
ROADWAY

FLOODABLE  
PARK

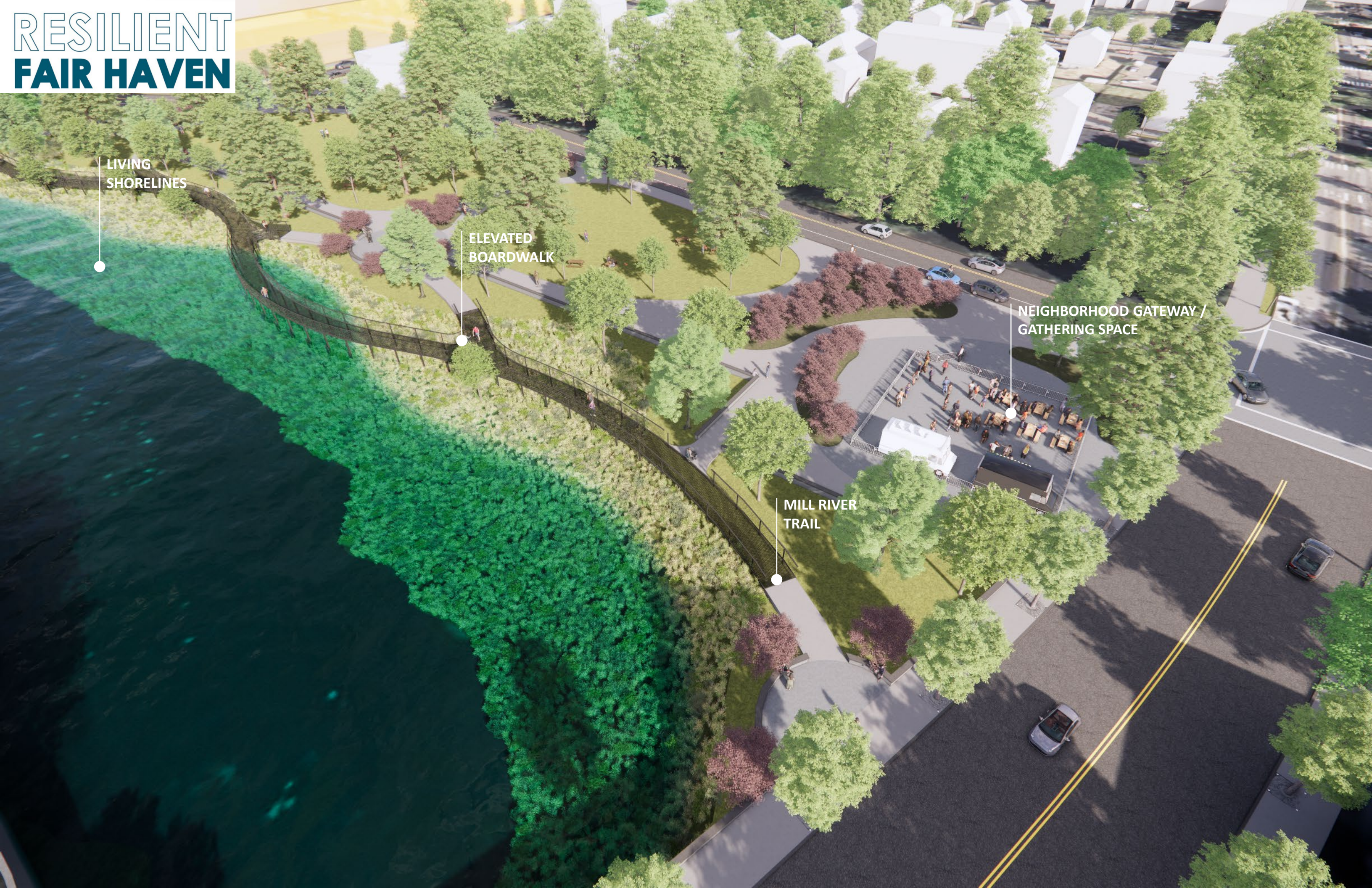
# RESILIENT FAIR HAVEN

LIVING  
SHORELINES

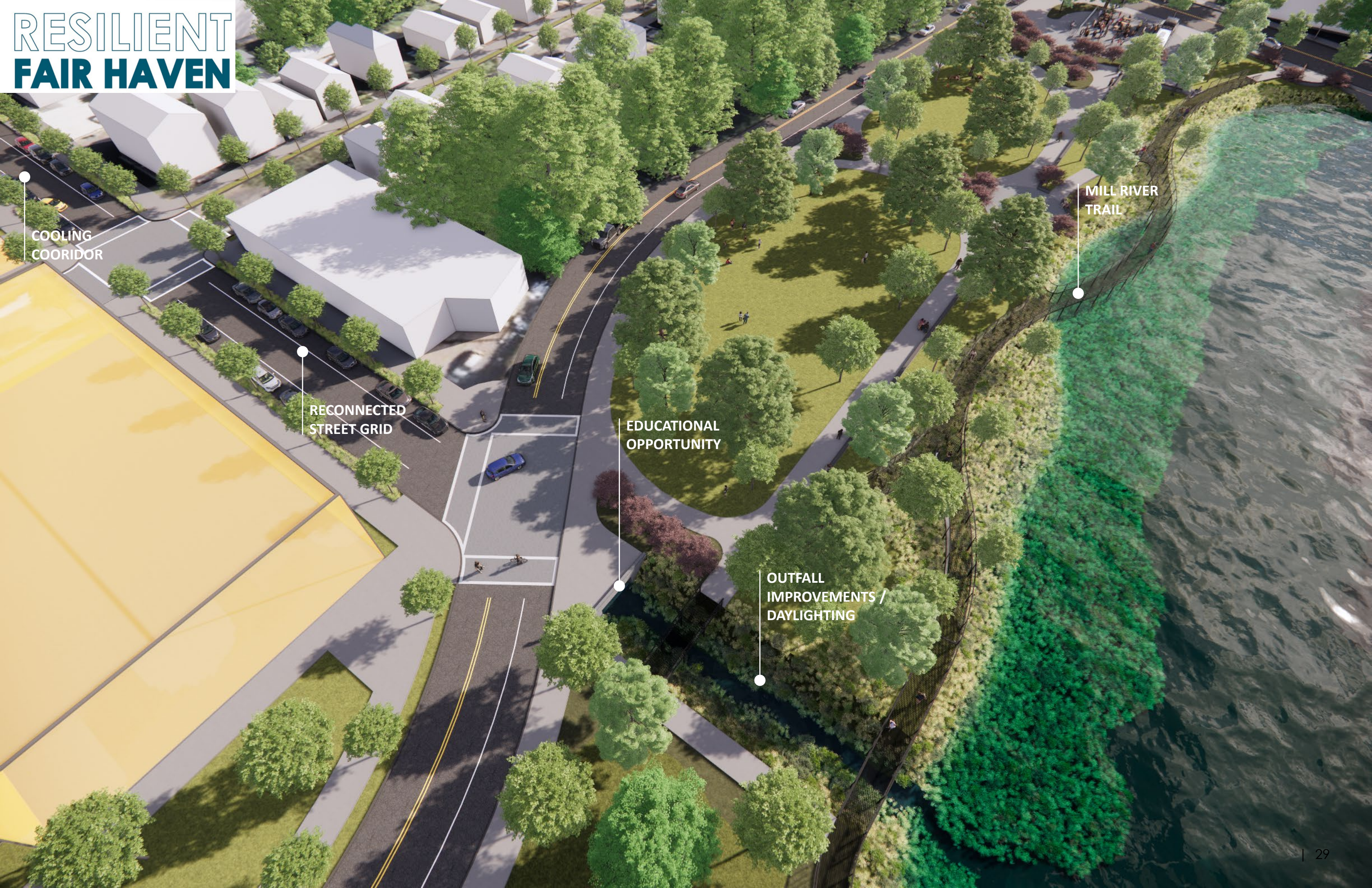
ELEVATED  
BOARDWALK

NEIGHBORHOOD GATEWAY /  
GATHERING SPACE

MILL RIVER  
TRAIL



# RESILIENT FAIR HAVEN



COOLING  
CORRIDOR

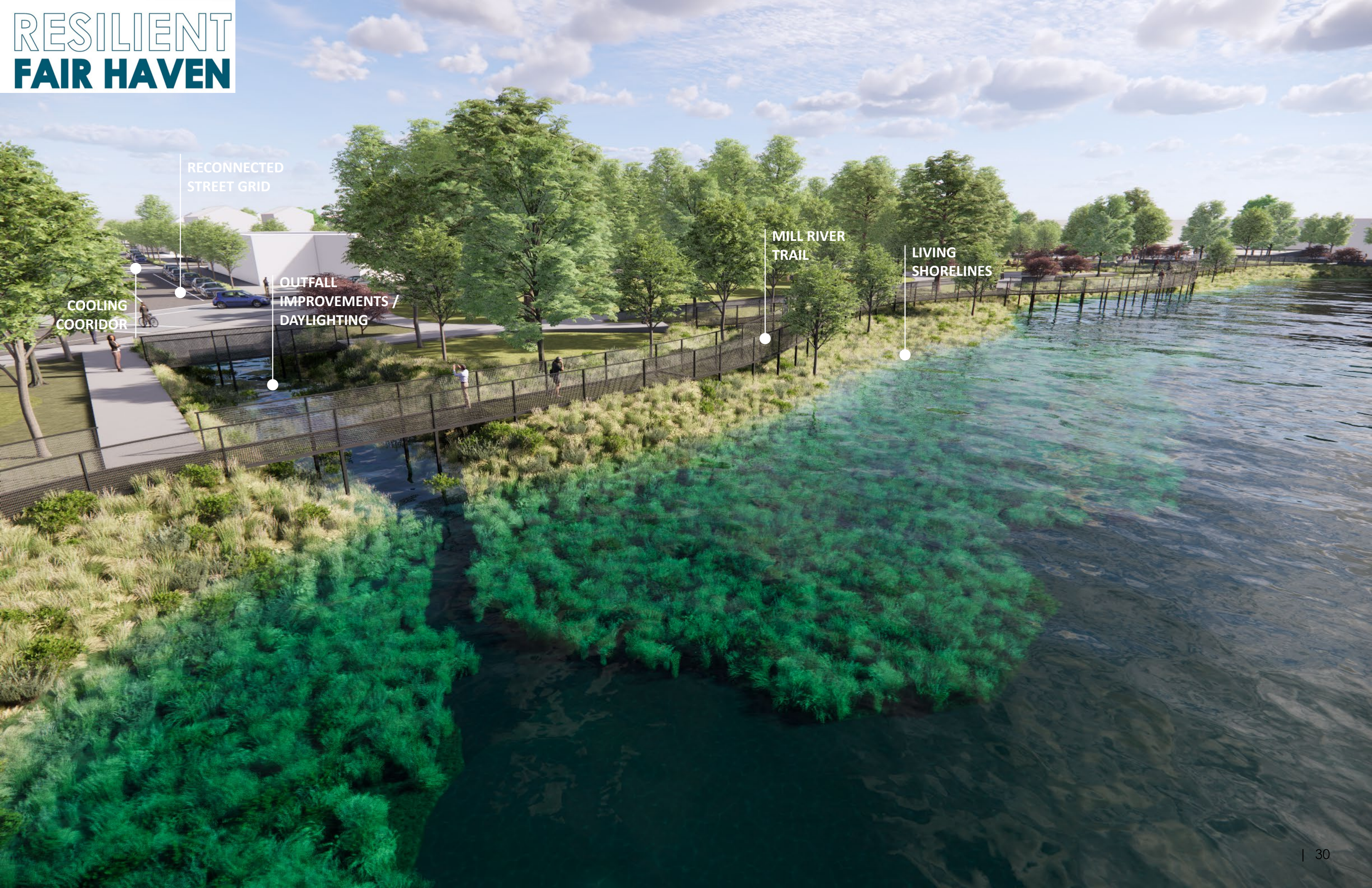
RECONNECTED  
STREET GRID

EDUCATIONAL  
OPPORTUNITY

OUTFALL  
IMPROVEMENTS /  
DAYLIGHTING

MILL RIVER  
TRAIL

# RESILIENT FAIR HAVEN



RECONNECTED  
STREET GRID

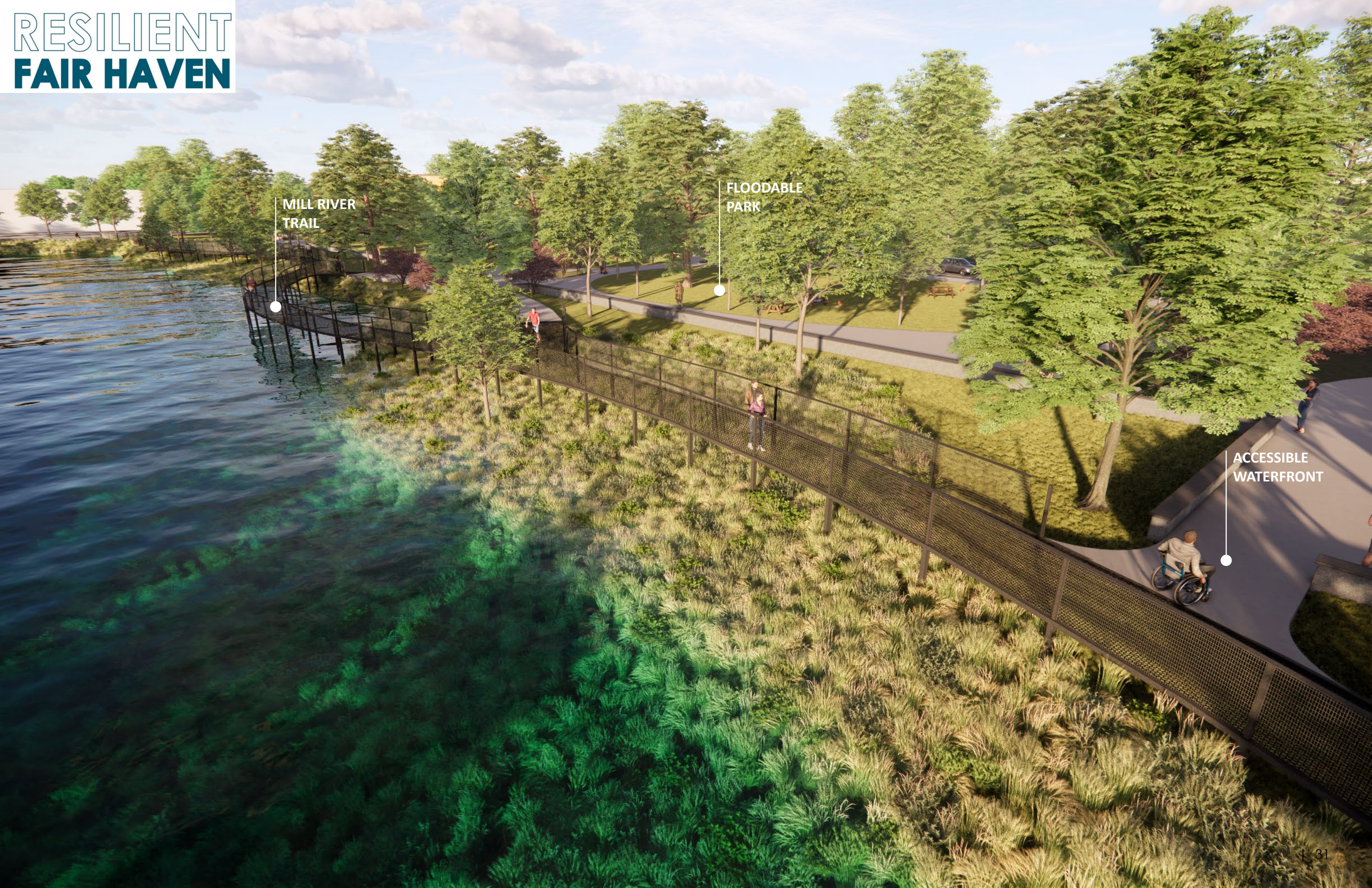
COOLING  
CORRIDOR

OUTFALL  
IMPROVEMENTS /  
DAYLIGHTING

MILL RIVER  
TRAIL

LIVING  
SHORELINES

# RESILIENT FAIR HAVEN



MILL RIVER  
TRAIL

FLOODABLE  
PARK

ACCESSIBLE  
WATERFRONT

RESILIENT  
FAIR HAVEN

EXISTING CONDITIONS





# RESILIENT FAIR HAVEN

SCHOOL GARDEN

PARKING SHADE STRUCTURE  
+ GREEN ROOF FOR SCHOOL

OUTDOOR LEARNING SPACES

COOLING CORRIDOR  
CLAY STREET

STORMWATER  
MANAGEMENT

STORMWATER  
MANAGEMENT

ENHANCED  
URBAN FOREST

SCHOOL GARDEN

OUTDOOR LEARNING SPACES

COOLING CORRIDOR +  
STORMWATER MANAGEMENT  
BLATCHLEY AVENUE



# RESILIENT FAIR HAVEN



OUTDOOR LIVING  
LAB

OUTDOOR  
LEARNING SPACE

SHADED PARKING  
AREA

SHADED PLAY  
SPACES

COOLING  
CORRIDOR

# RESILIENT FAIR HAVEN



OUTDOOR  
LEARNING SPACES

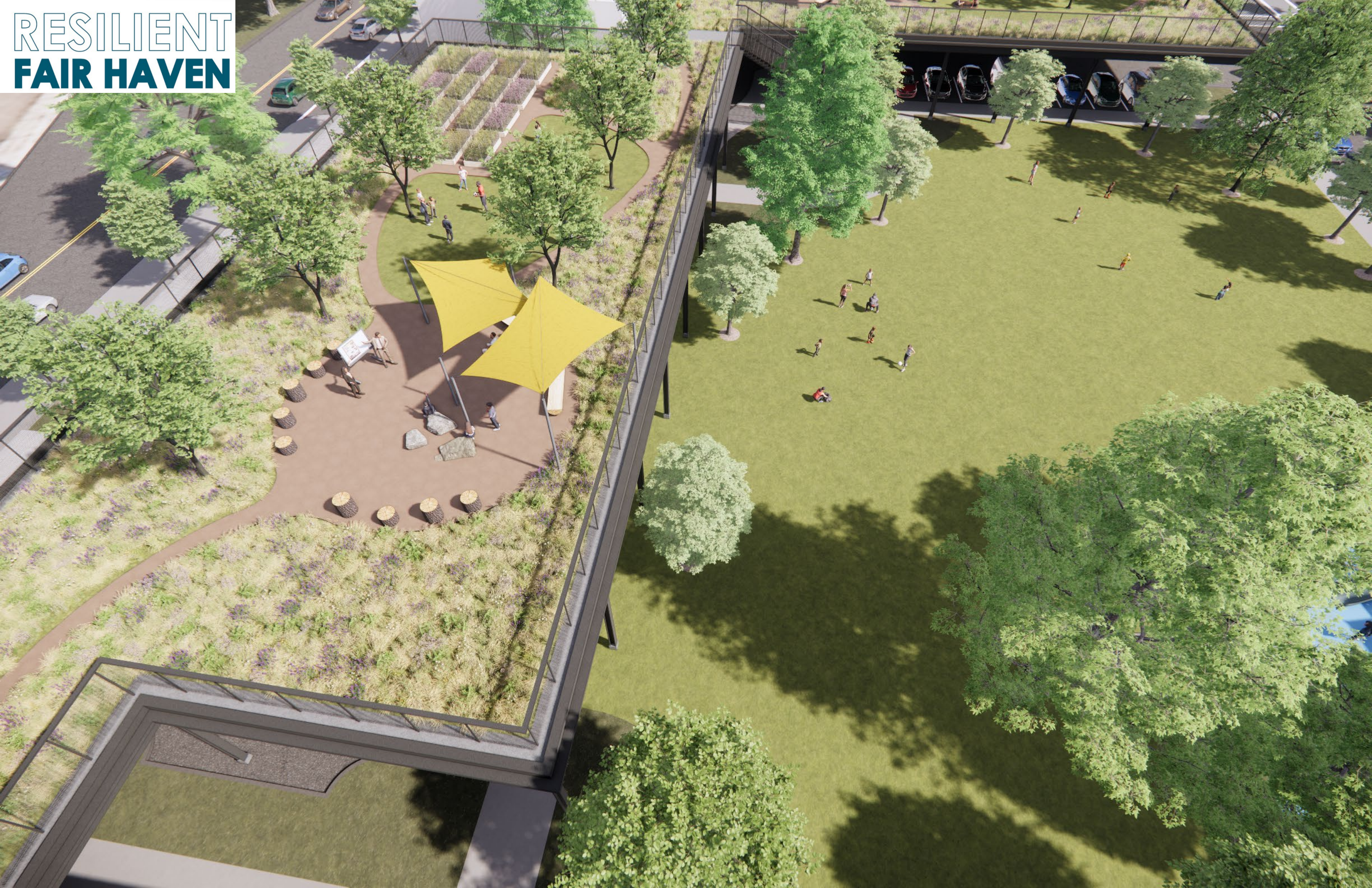
ROBUST URBAN  
CANOPY

OUTDOOR LIVING  
LAB

# RESILIENT FAIR HAVEN



# RESILIENT FAIR HAVEN



# RESILIENT FAIR HAVEN

## IMPLEMENTATION ROADMAP: JOHN W. MURPHY DRIVE AREA

### IMPLEMENTATION CHALLENGES

- Agreements needed with private property owners
- Legacy contamination of industrial properties along Mill River
- Technical feasibility of John W. Murphy Drive elevation/flood barrier and integration with existing road network & neighborhood
- Technical feasibility of Grand Avenue elevation and potential conflict with at-grade rail line west of Mill River

### REGULATORY FEASIBILITY

- Remediation/management of contaminated soil and groundwater
- CT DEEP and US Army Corps of Engineers permitting for proposed shoreline improvements along Mill River

### POTENTIAL FUNDING SOURCES

- CT DEEP Climate Resilience Fund (DCRF)
- CT DECD Community Investment Fund (CIF)
- FEMA Building Resilient Infrastructure and Communities (BRIC)
- NOAA Climate Resilience Regional Challenge Grant (NOAA)
- USFS Urban and Community Forestry Grants (USFS) –New Haven received a 2023 grant award for \$362,000 to expand its urban forestry program

RECOMMENDATIONS	ORGANIZATIONS	ACTIONS	NEAR TERM 0-3 YEARS	MID TERM 3-10 YEARS	LONG TERM 10+ YEARS
<b>730 James Street Parking Lot &amp; Urban Cooling Center</b> \$17,500,000	City of New Haven, Private Property Owner, Fair Haven CMT	Public private partnership between City and property owner Conduct detailed planning & refine concept Secure funding Design, permitting, and construction			
<b>Mill River Trail, Outfall Improvements, Floodable Park and Gateway Property</b> \$7,600,000	City of New Haven, Mill River Trail & Watershed Association, Private Property Owner, Fair Haven CMT	Property acquisition (451 Grand Avenue) and remediation Conduct detailed planning & refine concept Secure funding Design, permitting, and construction			
<b>John W. Murphy Drive Elevation and Flood Barrier</b> \$25,000,000	City of New Haven, Fair Haven CMT	Conduct detailed planning & refine concept Secure funding Design, permitting, and construction			
<b>Grand Avenue Road and Bridge Elevation</b> \$19,900,000	City of New Haven, CTDOT, Fair Haven CMT	Conduct detailed planning & refine concept Secure funding Design, permitting, and construction			
<b>Cooling/Resilience Corridors</b> \$6,000,000	City of New Haven, CTDOT (CT transit), Fair Haven CMT	Secure funding Design, permitting, and construction			
<b>Family Academy of Multilingual Exploration (FAME) School Parking Lot Cooling Improvements</b> \$2,600,000	City of New Haven, New Haven Public Schools, Fair Haven CMT	Conduct detailed planning & refine concept Secure funding Design, permitting, and construction			

# RESILIENT FAIR HAVEN CLINTON PARK AREA

## GOALS

- Address extreme heat risk and drainage-related flood risk
- Improve and enhance existing open space and recreational areas (maximize multi-use landscape)
- Soften shoreline along Quinnipiac River
- Enhance access to Quinnipiac River
- Create new and enhance existing cooling/resilience corridors
- Provide shading of school parking lot and play areas as pilot project



# RESILIENT FAIR HAVEN

## RECOMMENDED ACTIONS

- ① **Dover Beach** - Trail, shade tree plantings, playground area, water play area, living shoreline, boat ramp and fishing access, plantings  
Estimated Cost: \$4,300,000
  - ② **Public Housing Open Space Improvements** - Community orchard, small park, shade tree plantings, park redevelopment and green infrastructure in southeast open space  
Estimated Cost: \$600,000
  - ③ **Clinton Avenue School and Clinton Park** - Clinton Avenue School natural playground and green infrastructure, recreation field plantings, shade tree plantings, Clinton Park baseball and soccer fields, green infrastructure, and walking path  
Estimated Cost: \$4,500,000
  - ④ **English Mall** - Plantings (shrubs, perennials), shade tree plantings, trail, green infrastructure  
Estimated Cost: \$2,100,000
  - ⑤ **Cooling/Resilience Corridors** - Tree plantings and green stormwater infrastructure  
Estimated Cost: \$1,200,000
- TOTAL COST (-30% TO +50% ROUNDED) \$8,900,000 - \$19,100,000**





# RESILIENT FAIR HAVEN

# EXISTING CONDITIONS



# RESILIENT FAIR HAVEN



ENHANCED RECREATION +  
ENHANCED URBAN FOREST

COOLING CORRIDOR

COOLING CORRIDOR

STORMWATER  
MANAGEMENT

PASSIVE COMMUNITY  
GATHERING SPACE

NATURE PLAYGROUND

NEW SHADE STRUCTURES

COOLING WATER PLAY

COMMUNITY ORCHARD

WATERFRONT ACCESS

LIVING SHORELINE

FLOODABLE LANDSCAPE

WATERFRONT ACCESS

# RESILIENT FAIR HAVEN



ELEVATED  
WATERFRONT PATH

# RESILIENT FAIR HAVEN

SAFE FISHING  
OPPORTUNITIES

ENHANCED TREE CANOPY  
SURROUNDING PLAY SPACES

# RESILIENT FAIR HAVEN



ROBUST URBAN CANOPY

INCREASED SHADE OPPORTUNITIES

LIVING SHORELINES

IMPROVED WATERFRONT ACCESS

# RESILIENT FAIR HAVEN



NATURE  
PLAYGROUND

COMMUNITY  
CONNECTOR

GREEN  
STORMWATER  
INFRASTRUCTURE

COOLING  
CORRIDOR

INCREASED SHADE  
OPPORTUNITIES

COOLING  
CORRIDOR

# RESILIENT FAIR HAVEN



COOLING  
CORRIDOR

COOLING  
CORRIDOR

COMMUNITY  
CONNECTOR

NATURE  
PLAYGROUND

COMMUNITY  
ORCHARD

# RESILIENT FAIR HAVEN





# RESILIENT FAIR HAVEN



COOLING  
CORRIDOR

GREEN  
STORMWATER  
INFRASTRUCTURE

COOLING  
CORRIDOR

GREEN  
STORMWATER  
INFRASTRUCTURE

ENHANCED  
RECREATIONAL  
OPPORTUNITIES

# RESILIENT FAIR HAVEN

## IMPLEMENTATION ROADMAP: CLINTON PARK AREA

### IMPLEMENTATION CHALLENGES

- City and community acceptance of proposed changes to parks and recreational facilities (Clinton Park, Dover Beach, etc.)
- Public health and safety (water quality, flow velocities near I-91 bridge) associated with enhanced public access and use of Dover Beach and the Quinnipiac River

### REGULATORY FEASIBILITY

- CT DEEP and US Army Corps of Engineers permitting for proposed shoreline improvements at Dover Beach

### POTENTIAL FUNDING SOURCES

- CT DEEP Climate Resilience Fund (DCRF)
- CT DECD Community Investment Fund (CIF)
- FEMA Building Resilient Infrastructure and Communities (BRIC) – preliminary indicates cost-effectiveness of the proposed mitigation actions (BCR of 1.0 or greater), making these projects eligible for BRIC funding
- NOAA Climate Resilience Regional Challenge Grant (NOAA)
- USFS Urban and Community Forestry Grants (USFS) – New Haven received a 2023 grant award for \$362,000 to expand its urban forestry program.

RECOMMENDATIONS	ORGANIZATIONS	ACTIONS	NEAR TERM 0-3 YEARS	MID TERM 3-10 YEARS	LONG TERM 10+ YEARS
<b>Dover Beach Improvements</b> \$4,300,000	City of New Haven, Fair Haven CMT	Conduct detailed planning & refine concept Secure funding Design, permitting, and construction			
<b>Public Housing Open Space Improvements</b> \$600,000	Housing Authority of New Haven, Fair Haven CMT	Conduct detailed planning & refine concept Secure funding Design, permitting, and construction			
<b>Clinton Avenue School and Clinton Park</b> \$4,500,000	City of New Haven, New Haven Public Schools, Fair Haven CMT	Conduct detailed planning & refine concept Secure funding Design, permitting, and construction			
<b>English Mall Improvements</b> \$2,100,000	City of New Haven, Fair Haven CMT	Conduct detailed planning & refine concept Secure funding Design, permitting, and construction			
<b>Cooling/Resilience Corridors</b> \$1,200,00	City of New Haven, CTDOT (CT transit), Fair Haven CMT	Secure funding Design, permitting, and construction			

# FINAL STEPS

# RESILIENT FAIR HAVEN

## OUTREACH, COMMENTING + FINAL REPORT

- Fair Haven CMT Meeting – early December (CIRCA)
- Provide comments on draft report by December 8
- Submit final report by December 15 (project completion)

## STAY IN TOUCH

Sara Morrison, MLA, WEDG  
[smorrison@fando.com](mailto:smorrison@fando.com)

Erik Mas, PE  
[emas@fando.com](mailto:emas@fando.com)

## PROJECT WEBSITE

<https://resilientconnecticut.uconn.edu/resilient-fair-haven/>

## DRAFT REPORT

<https://acrobat.adobe.com/link/review?uri=urn:aaid:scds:US:ea63055b-d197-460b-9e92-a4b7a7cc0609>



# RESILIENT FAIR HAVEN

# QUESTIONS?



FUSS & O'NEILL



**Dewberry**