RESILIENT DANBURY

EXISTING DRAINAGE SYSTEM: FLOOD DEPTHS FOR CURRENT 100% (1-yr) ANNUAL CHANCE FLOOD EVENT

INSTRUCTIONS

1. Have you seen flooding in the project area?
   - Place a GREEN dot at the flooding location.

2. Has flooding impacted your ability to go somewhere?
   - Place a WHITE dot at the location you couldn't go.

3. What did you do to avoid flooding?
   - Use the BLUE marker to draw your route to avoid the flooding.

LEGEND

- Critical Parcels
- City of Danbury Parcels
- Watershed Boundary
- Roadways

Flooding Depth (ft)

- <.5
- <1
- <1.5
- <2
- <2.5
- <3
- <3.5
- <4
- <4.5
- <5
- <5.5
- <6

Critical Parcels

1. CONNECTICUT LIGHT & POWER CO
2. ICE RINK
3. PROPOSED AFFORDABLE HOUSING
4. ELMWOOD HALL SENIOR CENTER
5. CONNECTICUT INSTITUTE FOR COMMUNITIES INC
6. AFFORDABLE HOUSING
7. DANBURY REGIONAL WIC NUTRITION PROGRAM / OLD JAIL
8. STATE OF CONNECTICUT
9. AFFORDABLE HOUSING
10. CITY HALL
11. PUBLIC LIBRARY

STILL RIVER
IVES ST
RAILROAD PL
PATRIOT DR
PAHQUIOQUE AVE
E LIBERTY ST
DELAY ST
COMSTOCK ST
NICHOLS ST
MCDERMOTT ST
MAIN ST
KEELER ST
WEST ST
CENTER ST
TOWN HILL AVE
PROSPECT ST
BANK ST
STATE ST
STONE ST
FOSTER ST
BOUGHTON ST
MAIN ST
PARK PL
CLARK ST
WOOSTER ST
ROBINVIEW TER
ELMWOOD PL
DEER HILL AVE
WHITLOCK ST
GRAND ST
MAIN ST
GARFIELD AVE
PARKS POND BROOK

N

0 250 500 1,000 Feet

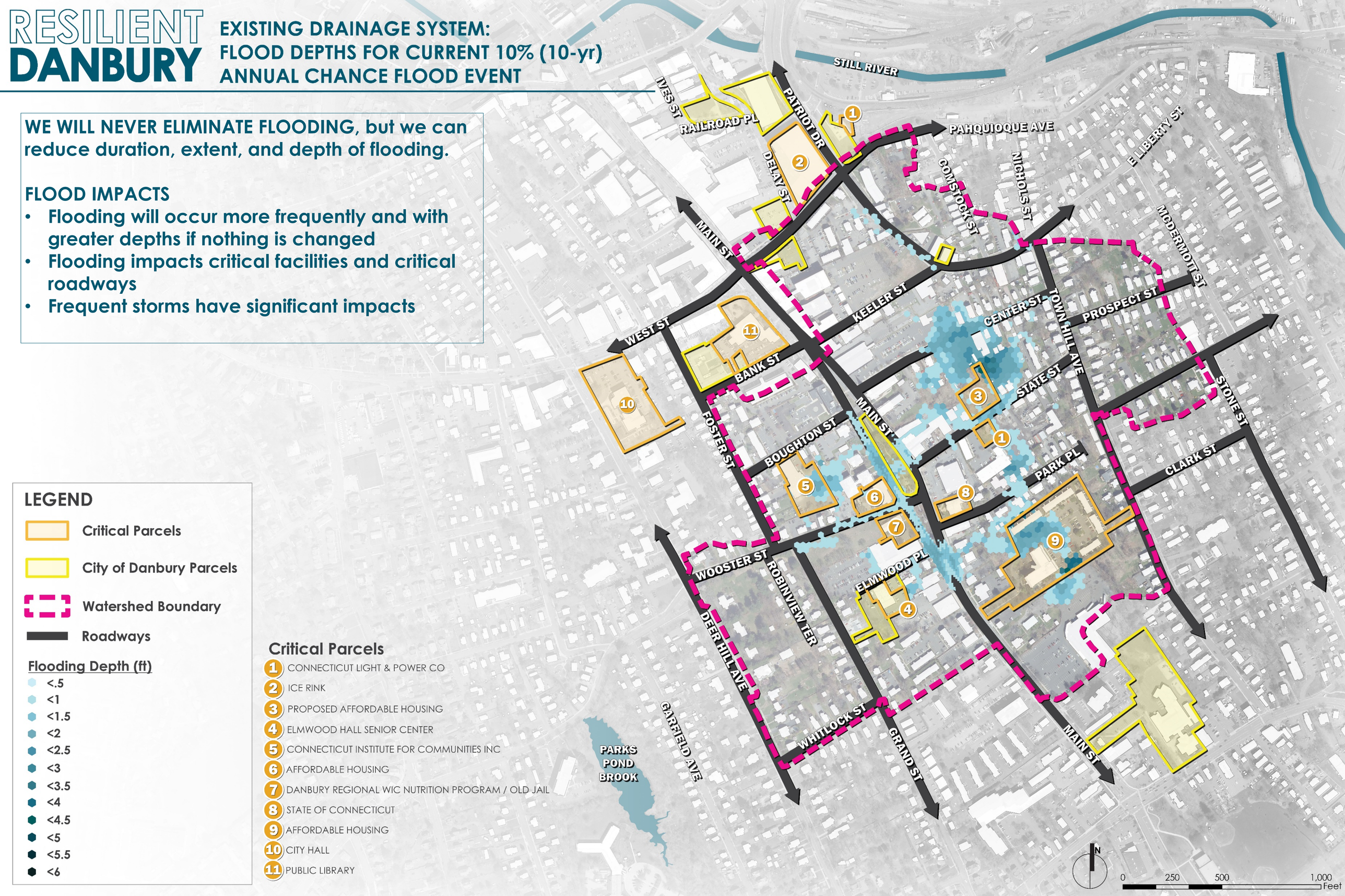
RESILIENT DANBURY

EXISTING DRAINAGE SYSTEM: FLOOD DEPTHS FOR CURRENT 10% (10-yr) ANNUAL CHANCE FLOOD EVENT

WE WILL NEVER ELIMINATE FLOODING, but we can reduce duration, extent, and depth of flooding.

FLOOD IMPACTS

- Flooding will occur more frequently and with greater depths if nothing is changed
- Flooding impacts critical facilities and critical roadways
- Frequent storms have significant impacts



LEGEND

- Critical Parcels
- City of Danbury Parcels
- Watershed Boundary
- Roadways

Flooding Depth (ft)

- <.5
- <1
- <1.5
- <2
- <2.5
- <3
- <3.5
- <4
- <4.5
- <5
- <5.5
- <6

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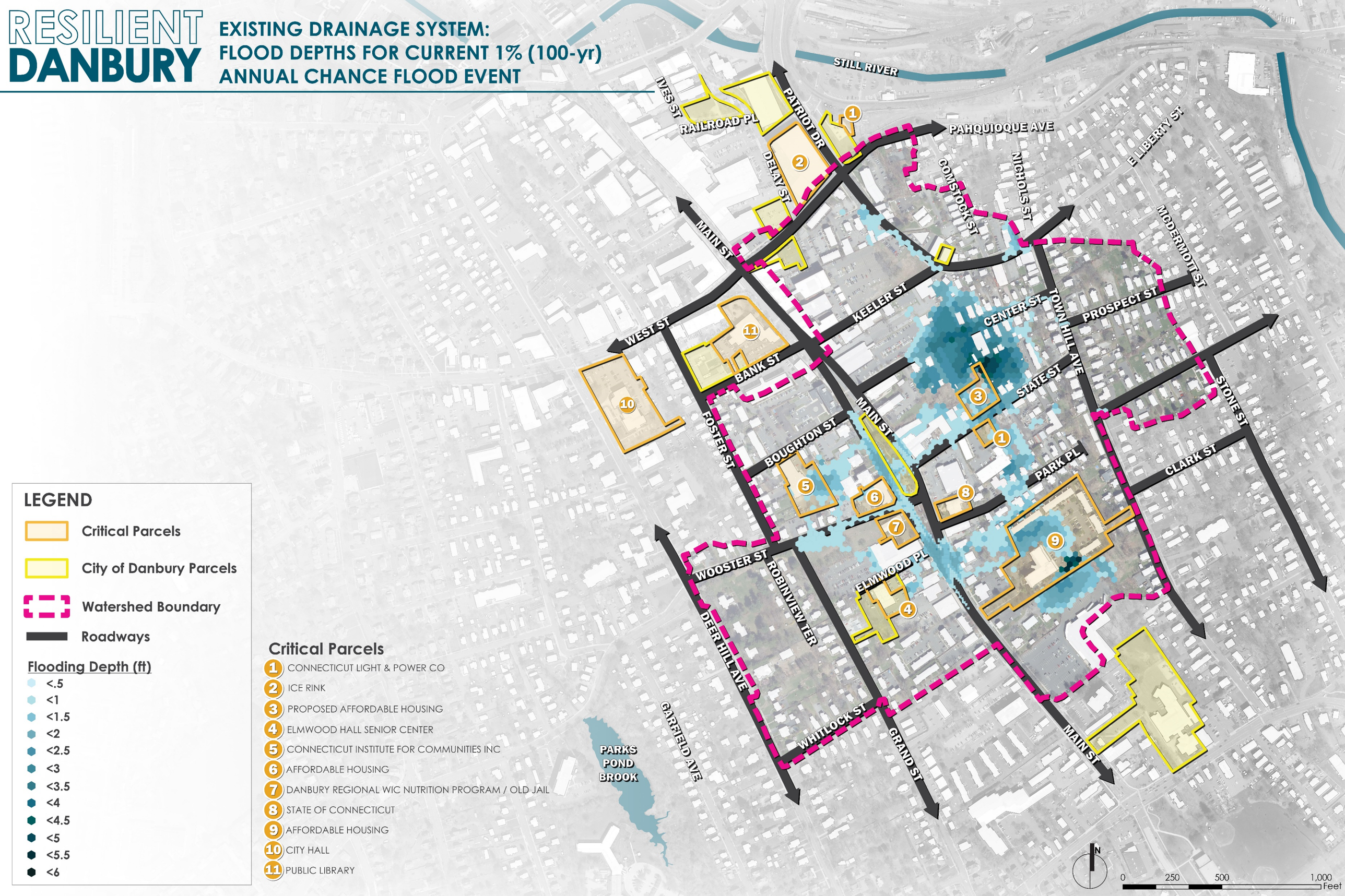
RESILIENT DANBURY

EXISTING DRAINAGE SYSTEM: FLOOD DEPTHS FOR CURRENT 1% (100-yr) ANNUAL CHANCE FLOOD EVENT



LEGEND

- Critical Parcels
- City of Danbury Parcels
- Watershed Boundary
- Roadways

Flooding Depth (ft)

- <.5
- <1
- <1.5
- <2
- <2.5
- <3
- <3.5
- <4
- <4.5
- <5
- <5.5
- <6

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RESILIENT DANBURY

EXISTING DRAINAGE SYSTEM: FLOOD EXTENTS FOR CURRENT 100% (1-yr), 10% (10-yr), & 1% (100-yr) ANNUAL CHANCE FLOOD EVENTS

Number of Inundated Buildings			
Scenario	% Annual Chance		
	100%	10%	1%
Existing Conditions	17	75	99
Future Climate Conditions	37	98	137

Library/ Post Office/City Hall
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2. PUBLIC LIBRARY
3. CITY HALL

Religious Center
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3. ST. JAMES EPISCOPAL CHURCH
4. TEMPLE BETHEL
5. STRONG GOD CHURCH
6. EMANUEL ASSEMBLY-GOD CHURCH
7. GREATER MERCY TEMPLE CHURCH
8. SACRED HEART CHURCH
9. SEVENTH DAY ADVENTIST CHURCH

Community Center
1. LEBANON-AMERICAN CLUB
2. ECUADORIAN CIVIC CENTER
3. DANBURY COMMUNITY CENTER
4. OUR LADY OF APARECIDA PARISH - BRAZILIAN COMMUNITY CENTER

Affordable Housing
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2. PROPOSED AFFORDABLE HOUSING

Healthcare Facility & Senior Center
1. COMMUNITY HEALTH CENTER OF DANBURY
2. PALACE VIEW SENIOR HOUSING
3. GREATER DANBURY COMMUNITY HEALTH CENTER
4. PHARMACY (WALGREENS)
5. PLANNED PARENTHOOD
6. GREATER DANBURY COMMUNITY HEALTH CENTER
7. ELMWOOD HALL SENIOR CENTER
8. DANBURY REGIONAL WIC NUTRITION PROGRAM / OLD JAIL

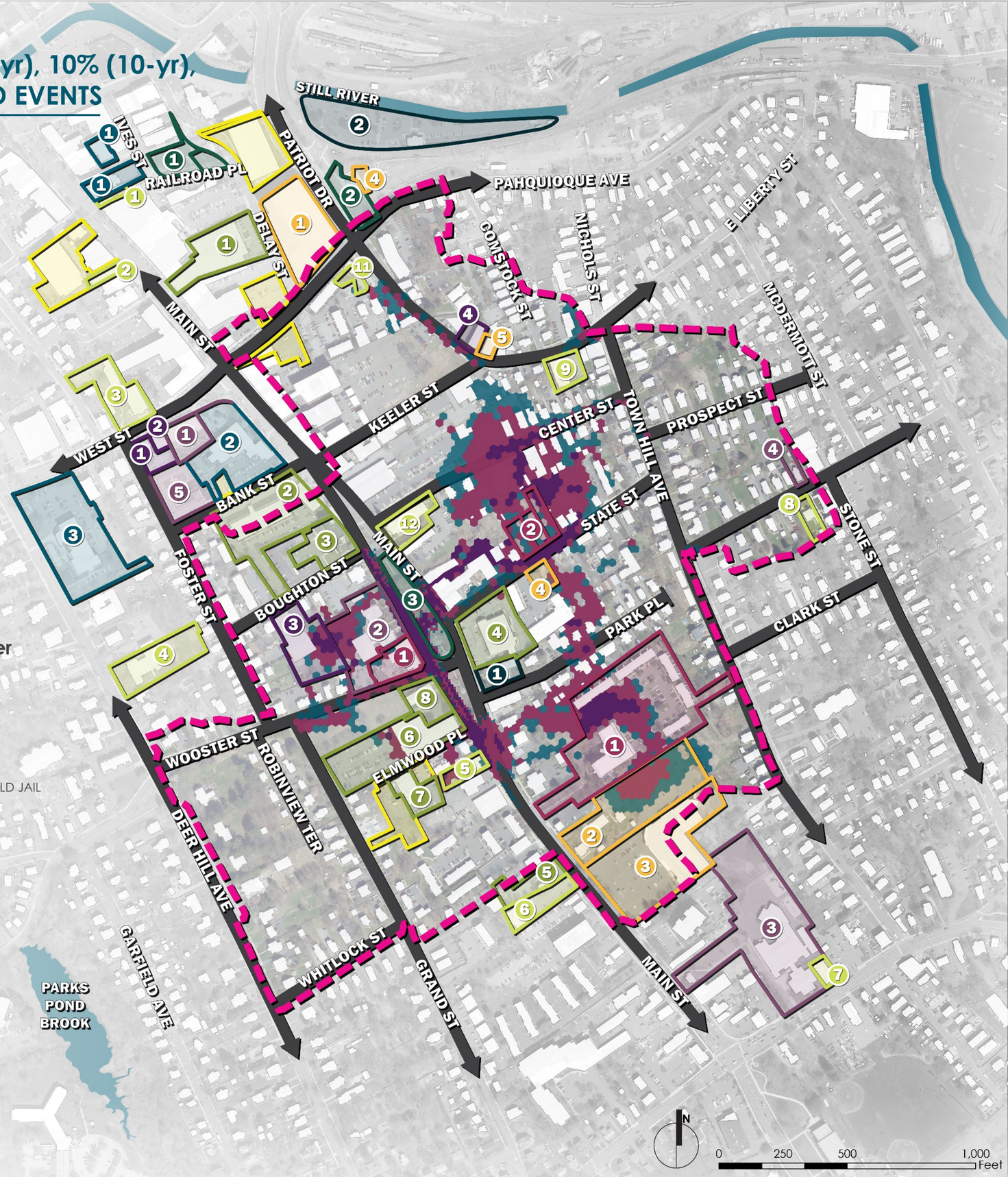
School/ Educational Centers
1. CENTER FOR EMPOWERMENT & EDUCATION
2. ST. PETER'S SCHOOL
3. SOUTH STREET SCHOOLS
4. SACRED HEART SCHOOL
5. HEAD START CENTER

Public Open Space
1. DANBURY CITY CENTER GREEN
2. DANBURY SKATE PARK
3. ELMWOOD PLACE

State of Connecticut
1. FAIRFIELD COUNTY COURTHOUSE
2. TRAIN STATION

Other
1. ICE RINK
2. MUSEUM AND HISTORICAL SOCIETY
3. GROCERY STORE (PRICE RITE)
4. CONNECTICUT LIGHT & POWER CO
5. BECKERIE & CO. FIRE ENGINE 9

LEGEND
- Current 1% Annual Chance Flood
- Current 10% Annual Chance Flood
- Current 100% Annual Chance Flood
- City of Danbury Parcels
- Watershed Boundary
- Roadways

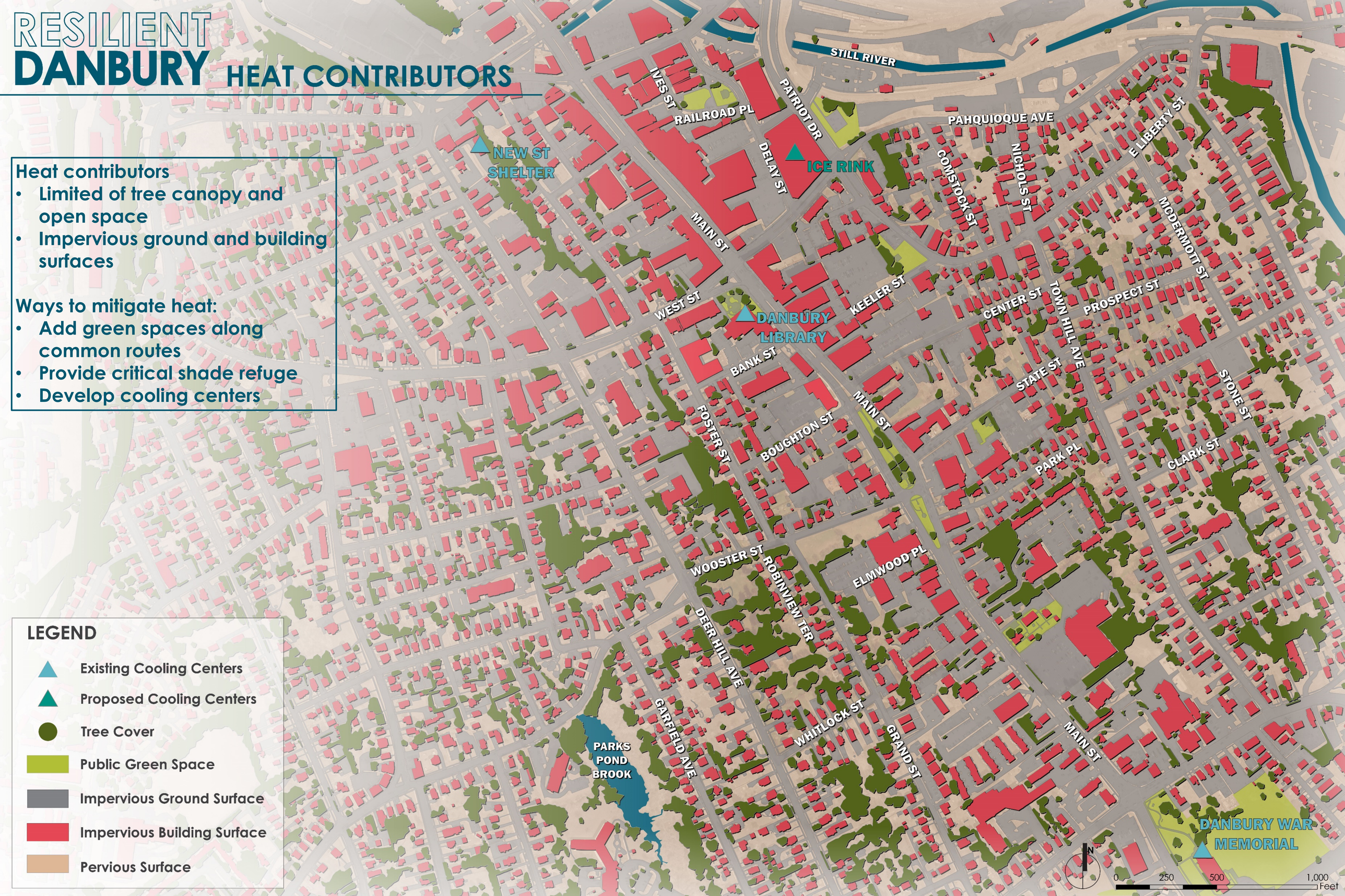


RESILIENT DANBURY

HEAT CONTRIBUTORS

Heat contributors
- Limited of tree canopy and open space
- Impervious ground and building surfaces

Ways to mitigate heat:
- Add green spaces along common routes
- Provide critical shade refuge
- Develop cooling centers



LEGEND

- Existing Cooling Centers
- Proposed Cooling Centers
- Tree Cover
- Public Green Space
- Impervious Ground Surface
- Impervious Building Surface
- Pervious Surface

RESILIENT DANBURY HEAT MAP

INSTRUCTIONS

1. Where do you go during extreme heat?

- Place a dot sticker for heat relief location
  - **RED** for first,
  - **BLUE** for second,
  - **WHITE** for third most common

2. How do you get there?

- Draw your route on map
  - **RED** for driving
  - **BLUE** for taking public transit (e.g. bus, train)
  - **GREEN** for walking

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LEGEND
- Existing Cooling Centers
- Proposed Cooling Centers
- City of Danbury Parcels
- Watershed Boundary
- Roadways

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ROBINVIEW TER
ELMWOOD PL
DEER HILL AVE
WHITLOCK ST
GRAND ST
GARFIELD AVE
PARKS POND BROOK

N
0 250 500 1,000 Feet

RESILIENT DANBURY WALKABILITY MAP

INSTRUCTIONS

1. What are your most common walking routes?

- *Draw walking routes on map and how often you walk it.*
  - **RED** for first,
  - **BLUE** for second,
  - **GREEN** for third most common route

2. Do you take the bus?

- Draw your bus route in SILVER
- Place a YELLOW dot sticker at your bus stop

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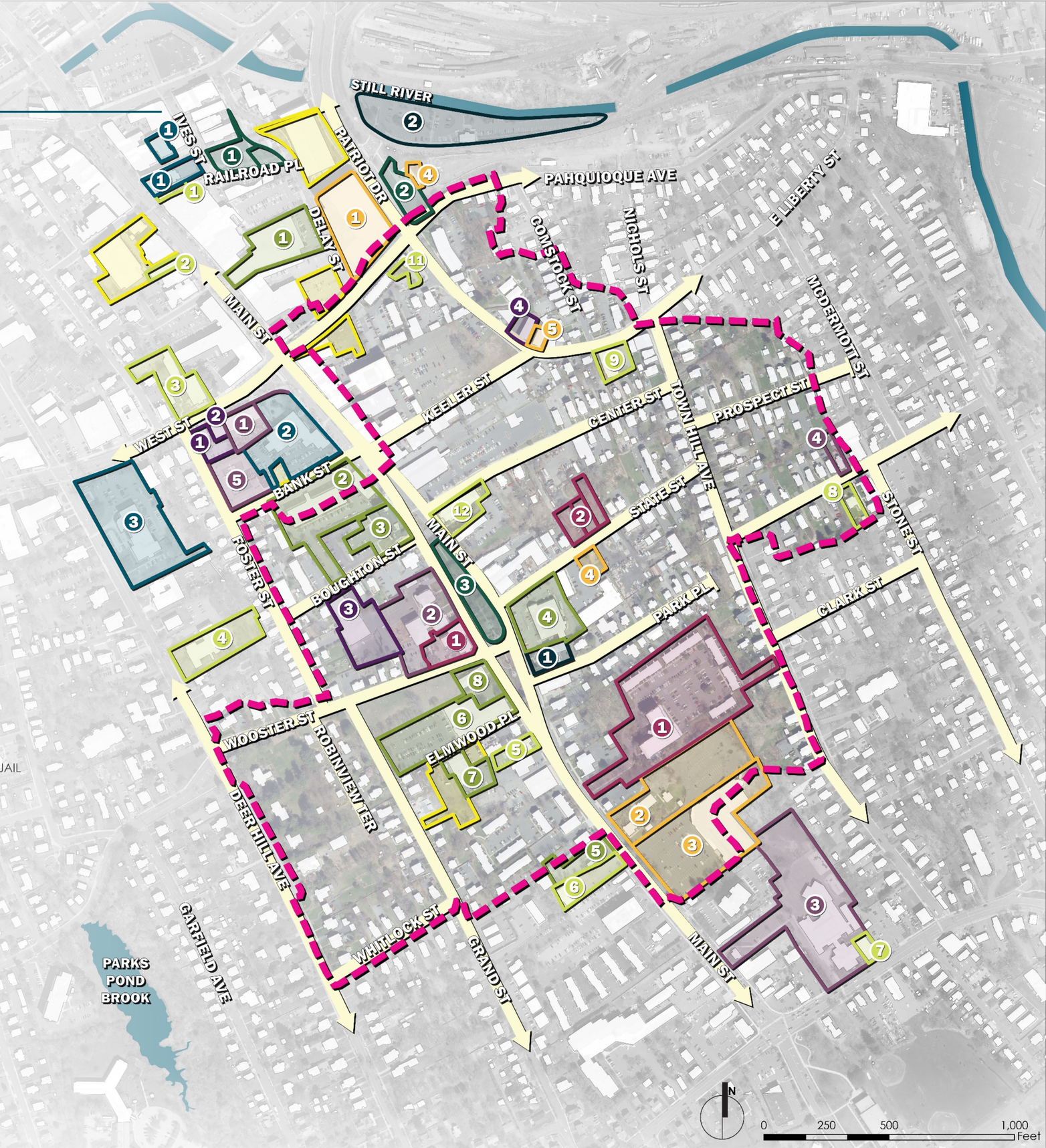
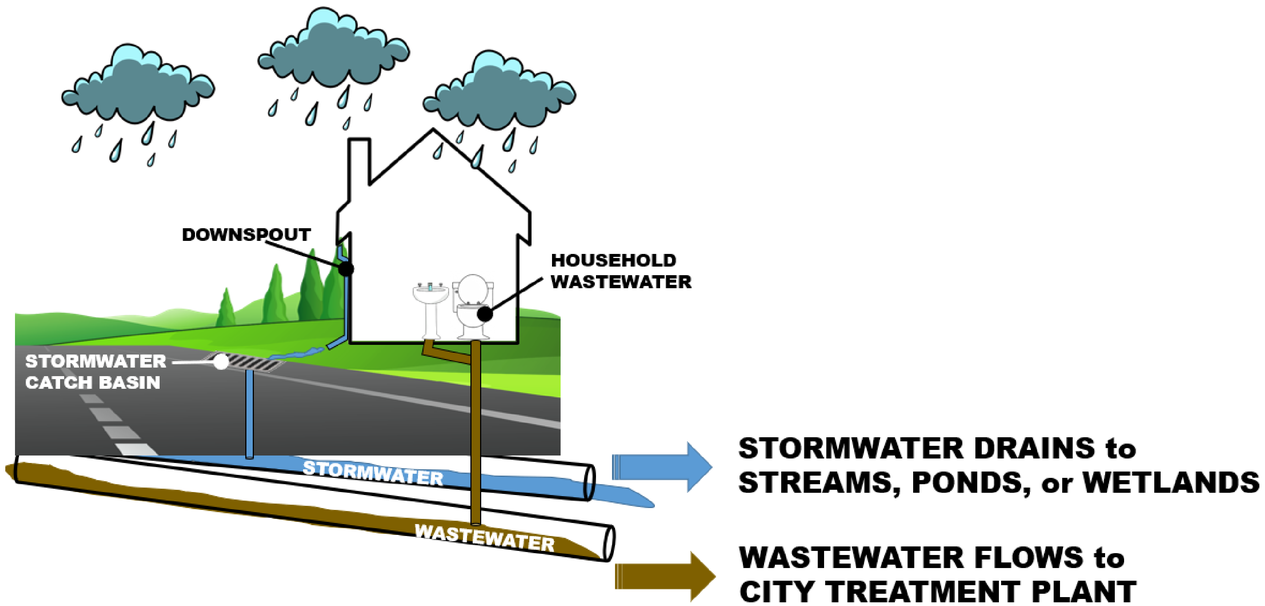
- Watershed Boundary
- Roadways



WHAT IS GREEN INFRASTRUCTURE?



Green infrastructure refers to systems and practices that **reduce** stormwater **runoff** through use of vegetation, soils, and natural processes to manage water and create healthier urban and suburban environments. These practices **capture, manage, and/or reuse rainfall** close to where it falls, reducing stormwater runoff and keeping it out of drainage systems and receiving waters.

Rain Gardens: Small, shallow sunken areas of planting that collect stormwater runoff from routes, streets, and sidewalks. Rain gardens are designed to mimic the natural flow and infiltration of stormwater.

Treebox Filters: Treebox filters are often found along sidewalks, street curbs, and car parks. The features accommodate a low volume of water.

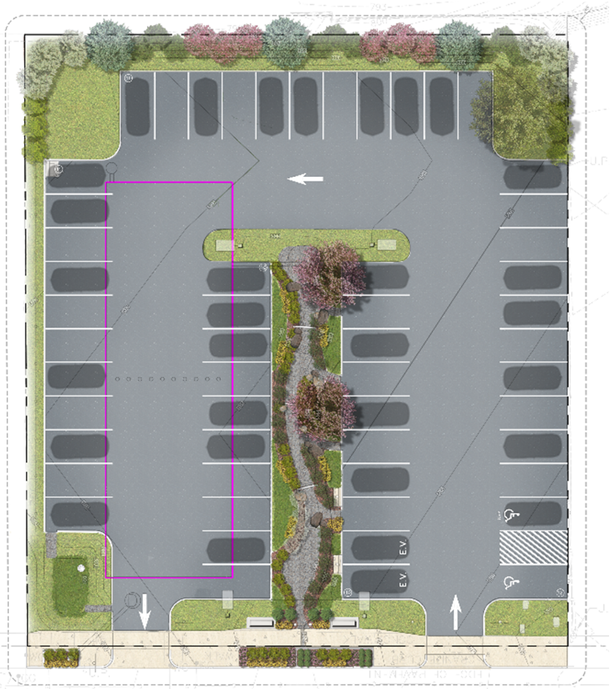
Roadside Bioswales: Bioswales are often found along road curbs and parking lots and use vegetation or mulch to slow and filter stormwater flow.

Underground Storage and Detention Systems: Underground systems are an efficient way to store, detain, and infiltrate stormwater runoff. The land above can be used for parking, parks, or other features.

BENEFITS OF GREEN INFRASTRUCTURE

FUSS & O'NEILL

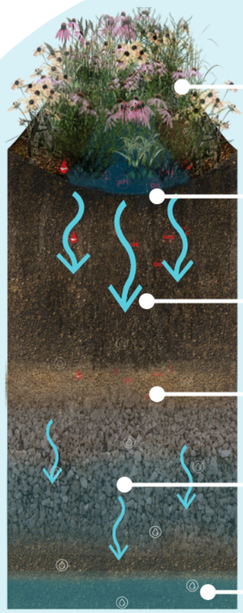
- Increases flood resiliency
- Improves water quality
- Improves air quality
- Reduces streambank erosion
- Sequester carbon
- Adds aesthetic interest
- Contributes to overall economic vitality
- Helps reduce energy consumption
- Improves property values
- Promotes adaptation to climate change



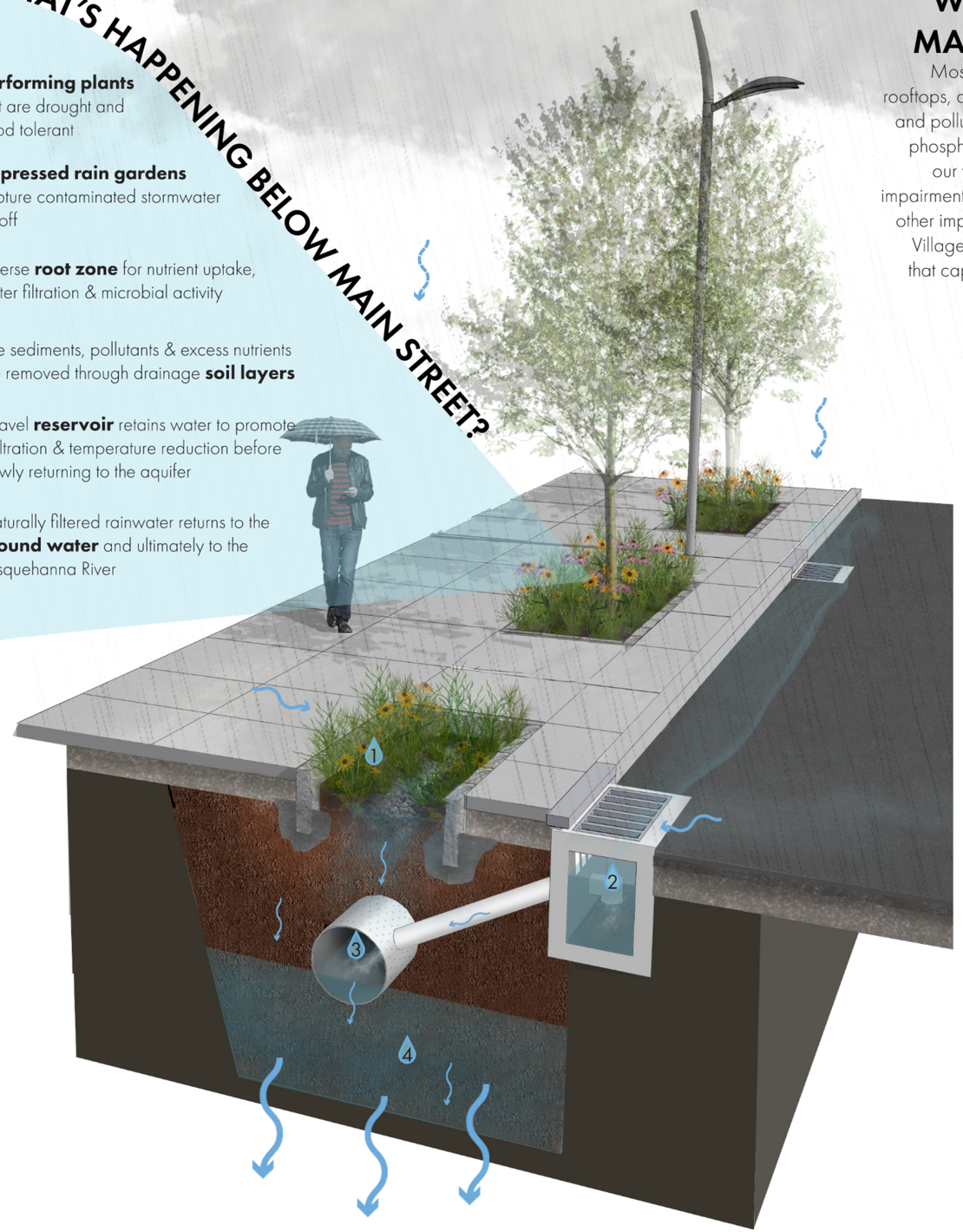
STORMWATER ON MAIN ST.

Green Infrastructure Approach to Responsible Stormwater Management

WHAT'S HAPPENING BELOW MAIN STREET?



1. **Performing plants** that are drought and flood tolerant
2. **Depressed rain gardens** capture contaminated stormwater runoff
3. Diverse **root zone** for nutrient uptake, water filtration & microbial activity
4. Fine sediments, pollutants & excess nutrients are removed through drainage **soil layers**
5. Gravel **reservoir** retains water to promote infiltration & temperature reduction before slowly returning to the aquifer
6. Naturally filtered rainwater returns to the **ground water** and ultimately to the Susquehanna River



SYSTEM DESIGN + FUNCTION

1. **Rain Gardens** are designed to collect stormwater from impervious surfaces before reaching the existing conventional stormwater drainage system.
2. **Catch Basins** will collect storm water from the road to be pretreated by removing floating and heavy sediments before entering the green infrastructure system.
3. **Perforated Pipes** collect pretreated water from the catch basins. Water percolates into the reservoir below through openings in the pipe. If the reservoir fills, the pretreated water will flow to the connected existing conventional stormwater system.
4. **The Rain Garden Reservoir** has storage capacity to hold collected water, releasing it slowly over time. Sidney's Reservoir can hold 960 cubic yards of water. That's like filling 193,895 one gallon jugs of water!

WHY IS A RESPONSIBLE STORMWATER MANAGEMENT STRATEGY IMPORTANT?

Most stormwater runoff occurs during a rainfall or snow melt. It travels off our rooftops, along our roadways, parking lots and sidewalks picking up contaminants and pollutants before outputting into **local water systems**. Sediment, nitrogen, phosphorus, bacteria, oil and grease, trash, pesticides and metals can leak into our water systems making stormwater runoff the number one cause of stream impairment in urban areas. Runoff can cause water pollution, erosion, flooding and other impacts to the environment and the **integrity of our infrastructure.** The Village of Sidney, New York has adopted a natural, green infrastructure system that captures, cleanses and reduces stormwater runoff using **plants, soils** and **microbes.**

THESE PLANTS ROOT THE SYSTEM

Stormwater Management Systems rely on vegetation to stabilize soil, filter contaminants, absorb nutrients, intercept and transpire water, and support a healthy soil biology. Diverse Root types and depths are important for performance. These species are tolerant of both wet and dry conditions!


Zelkova


Flowering Dogwood


Purple Coneflower


Dwarf Fountain Grass


Sea Holly


Black Eyed Susan

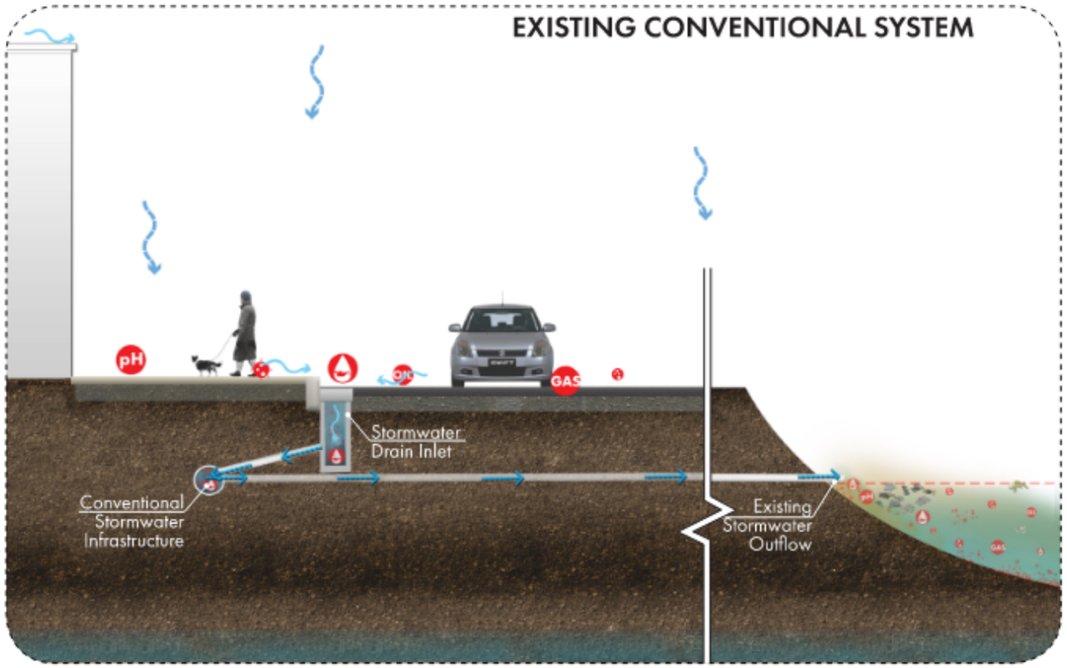

Tufted Hairgrass


May Night Salvia


Gold Coast Juniper

INFILTRATING INFRASTRUCTURE

Improving Water Quality In Danbury



URBAN RUNOFF ⟶ CONTAMINANTS ⟶ PIPE NETWORK ⟶ UNHEALTHY RIVER

1

Urban runoff collects contaminants from rooftops, roadways, parking lots, sidewalks & other impervious surfaces.

2

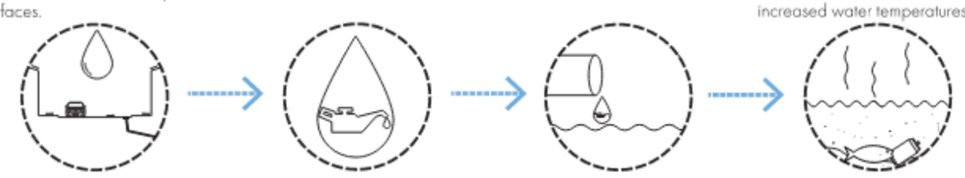
Chemical, nutrient and thermal contaminants are collected with runoff and directed to storm drains.

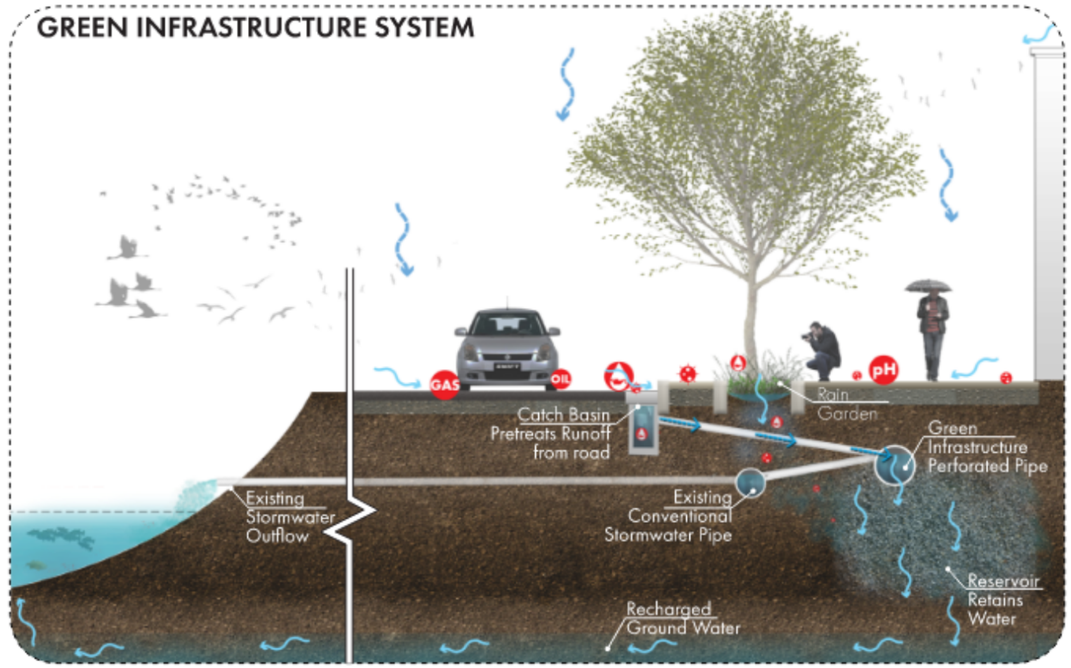
3

Contaminated runoff travels the pipe networks until it daylights into local water sources.

4

Local water bodies are polluted with heavy metals, algae inducing nutrients, sedimentation and increased water temperatures.





HEALTHY RIVER ⟵ PIPE NETWORK ⟵ CONTAMINANTS ↓ GREEN INFRASTRUCTURE ⟵ URBAN RUNOFF

5

A reduction of runoff entering the conventional system promotes good water quality and a healthy ecosystem for the Susquehanna.

4

Only in heavy storm events when the reservoir has reached capacity will water backup into the existing conventional grey infrastructure system.

2

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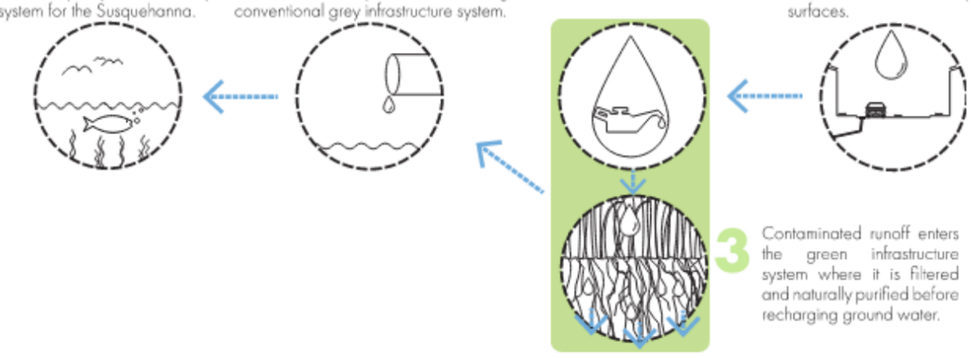

3

Contaminated runoff enters the green infrastructure system where it is filtered and naturally purified before recharging ground water.