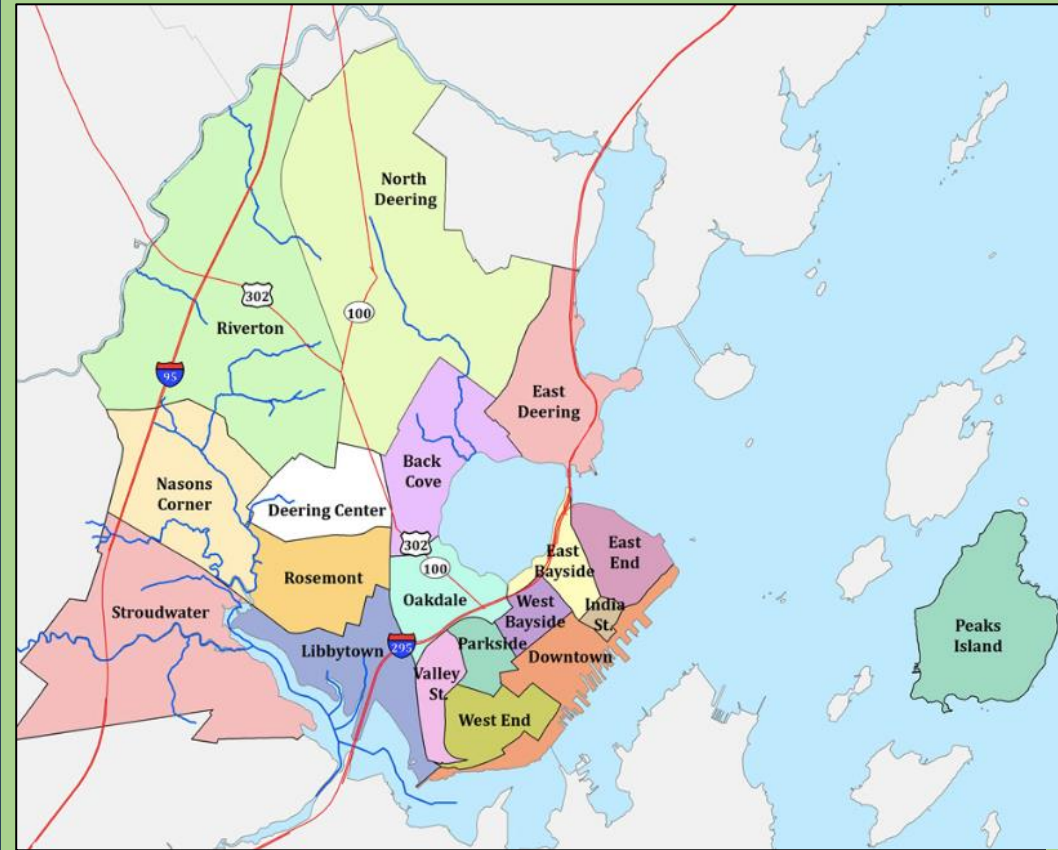


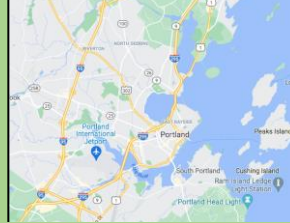
Socio-Technical Understanding and Local Impacts: Developing a Community Health Assessment in Civil and Environmental Engineering Senior Capstone

Case Study: Boyd Street Garden and the East Bayside Neighborhood Portland, ME



Bayside and Urban Renewal (overview/review)

- Densely populated neighborhood – immigrant communities
- One of several neighborhoods in Portland designated as 'slums' in the 1950s by the "Slum Clearance and Redevelopment Administration"
- Urban renewal activity from 1950s – 1970s destroyed approx. 2,800 units of housing in Portland with > 1,100 of those units in Bayside.
- Portland is STILL struggling to replace that housing.
- Bayside is STILL culturally rich with immigrant communities.
- Bayside is also STILL under-resourced, significantly subject to flooding, and structurally isolated/separated by the Franklin Arterial



The city of Portland says:

A Century of Retrofitting Portland for Automotive Traffic

Historically speaking, Portland was built predominantly as walking environments for the people who lived and worked in them, along a traditional grid layout. This resulted in many relatively short blocks, affording convenient options for walking from point A to point B, no matter where you were in the city. Today we experience the efficiency of the traditional layout best by walking the city's streets.

The rise of the automobile and the intercity mobility it afforded led to a century of retrofitting our cities - including Portland - for motorized vehicles, with little if any consideration for the traditional and dominant transportation mode in the city: as a pedestrian on foot. The creation of Franklin Street Arterial represents the "pinnacle of an era" when the automobile had dominance over other modes. Not only was the Arterial engineered and built exclusively for high-speed vehicles, with the complete absence of pedestrian considerations, but its very design created a nearly impenetrable structure, creating a psychological if not physical barrier dividing what was formerly a very walkable and livable neighborhood.

The work of reversing these impacts that the Arterial created for the Bayside and East End neighborhoods, and the entire Portland peninsula, began with the Bayside Plan and continues with every new development. The recent addition of sidewalks in the vicinity of the new Whole Foods Market represents the beginning of a re-retrofitting with long overdue pedestrian accommodations.

Neighborhood Clearance for Construction of the Franklin Arterial



View toward the waterfront

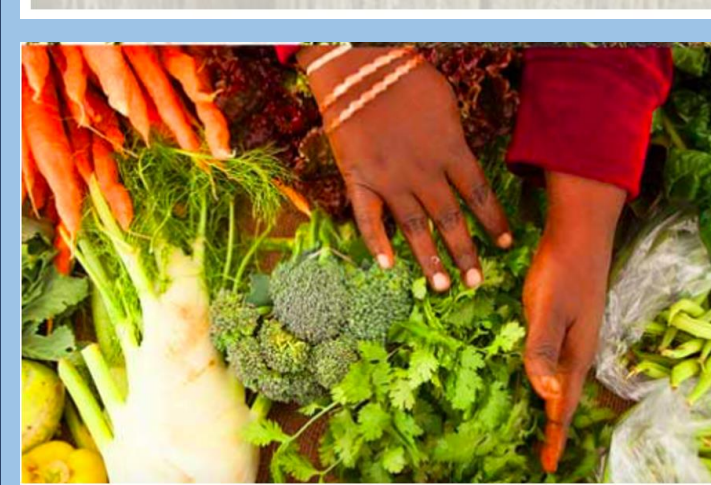
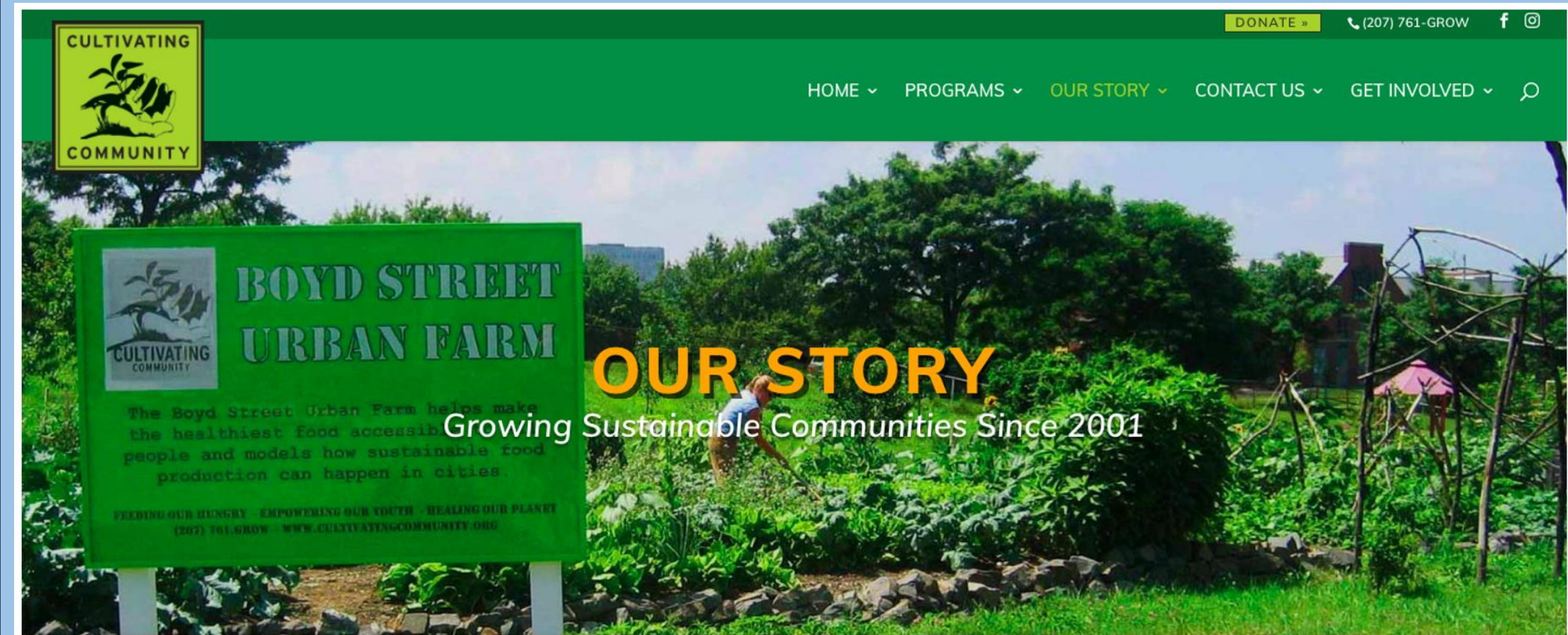
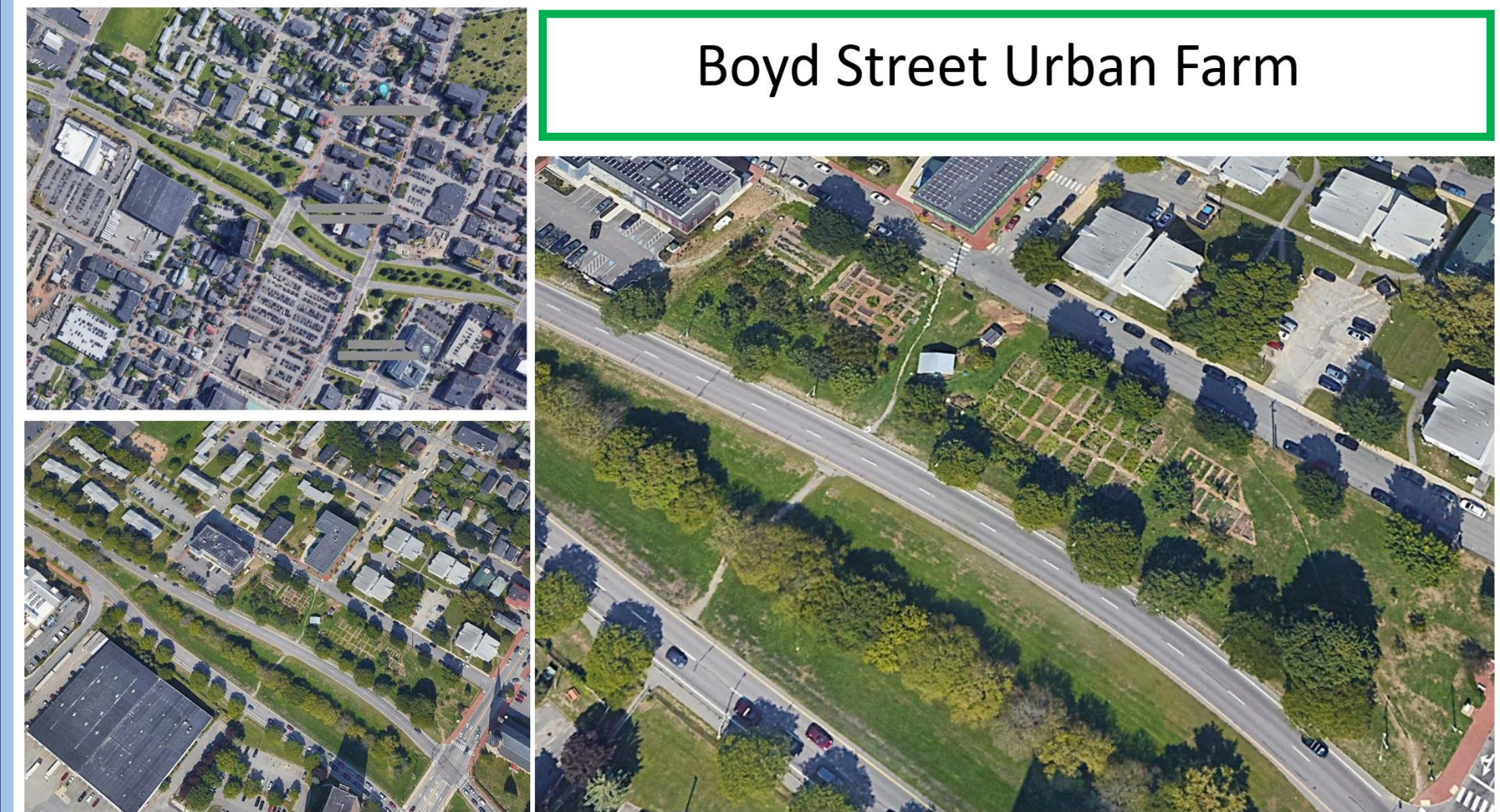
View toward Back Cove



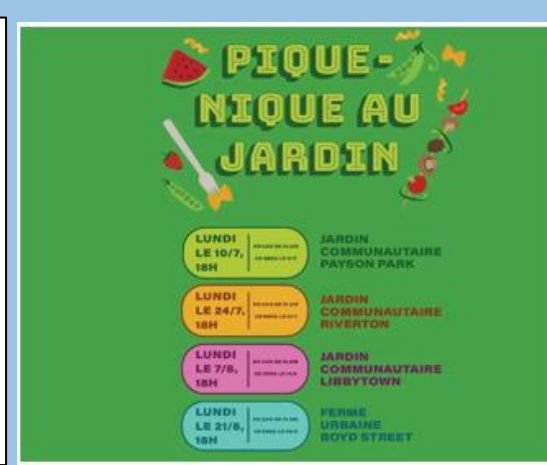
Evidence of this isolation and disconnection is in the informal and unprotected walking path that cross-cuts the Arterial in the location where Oxford St. used to cross Franklin St.



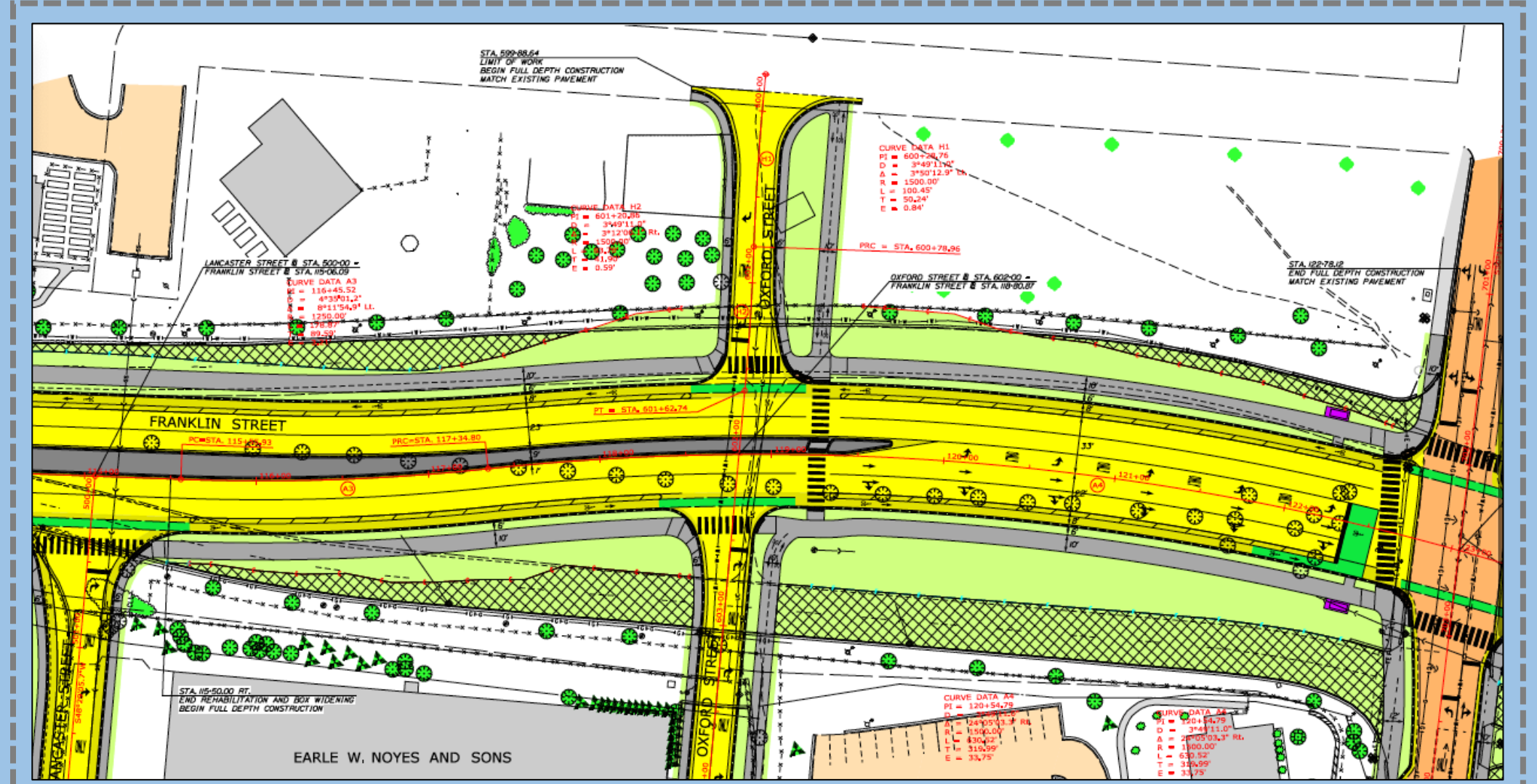
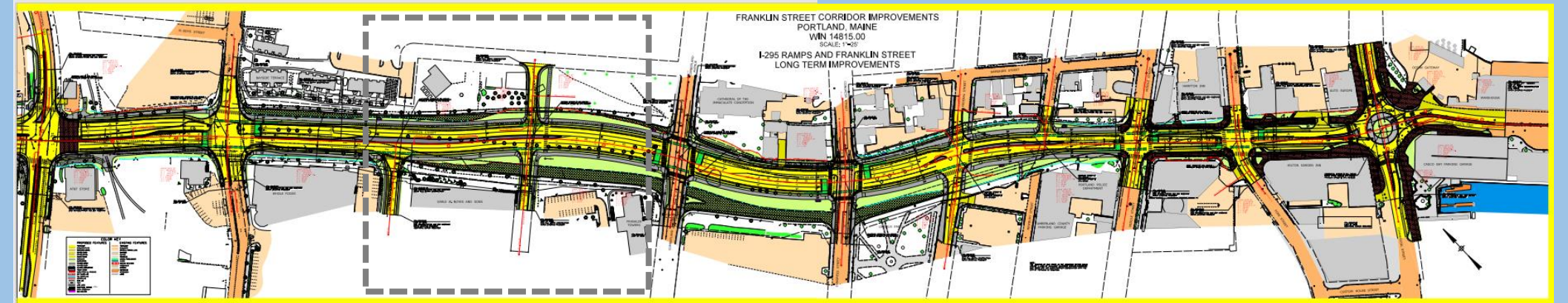
Boyd Street Urban Farm



BOYD STREET COMMUNITY GARDEN
Boyd Street Community Garden was built in 2009 as a partnership between Kennedy Park and Cultivating Community. This 30-plot garden's soil was originally contaminated with lead from the demolition of old buildings previously on the site. The City of Portland removed the contaminated soil and brought in safe fill. This site also includes an orchard of 30 fruit trees, raspberry and blackberry bushes, honey bees, and a separate youth garden. The youth garden is run by city high school students and Cultivating Community. The youth grow and distribute vegetables, fruit, and flowers to neighbors as part of the Elder Share Program.

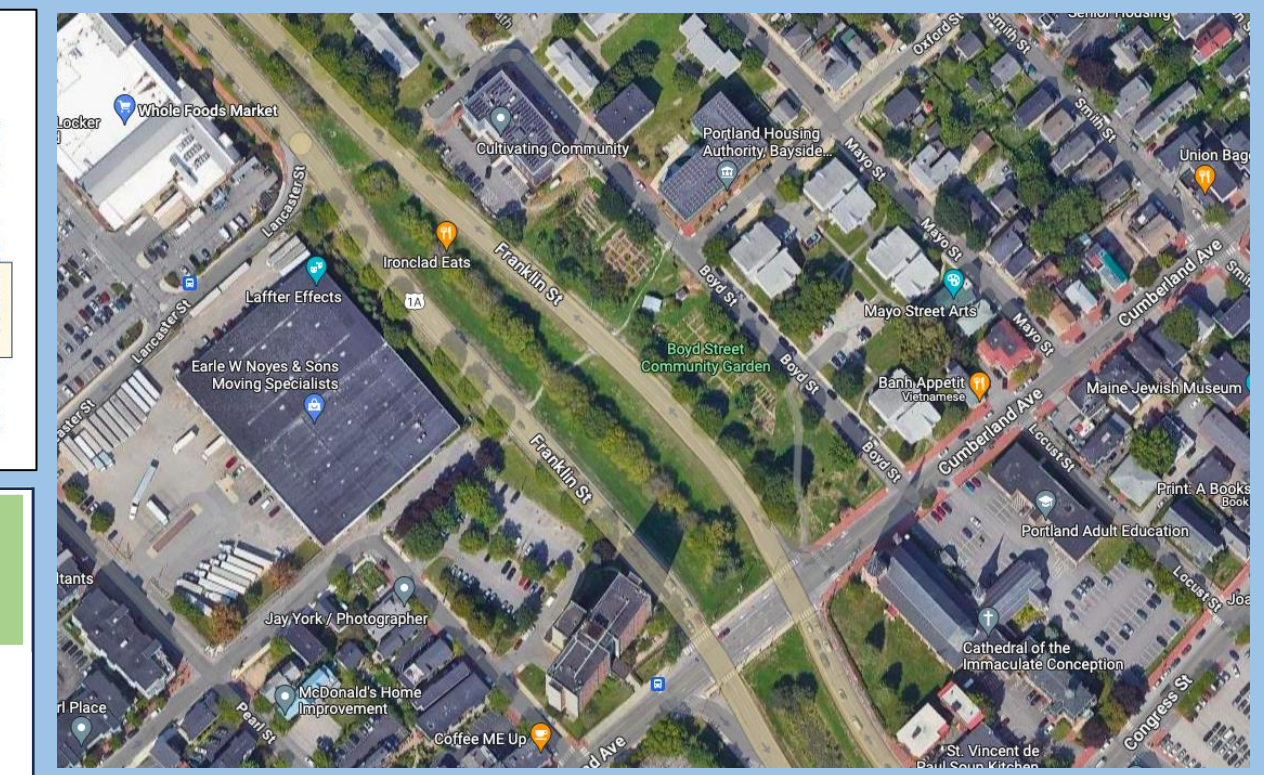


Case Study: Proposed Franklin Street Corridor Improvements



This is why we need to be focusing specifically on equity

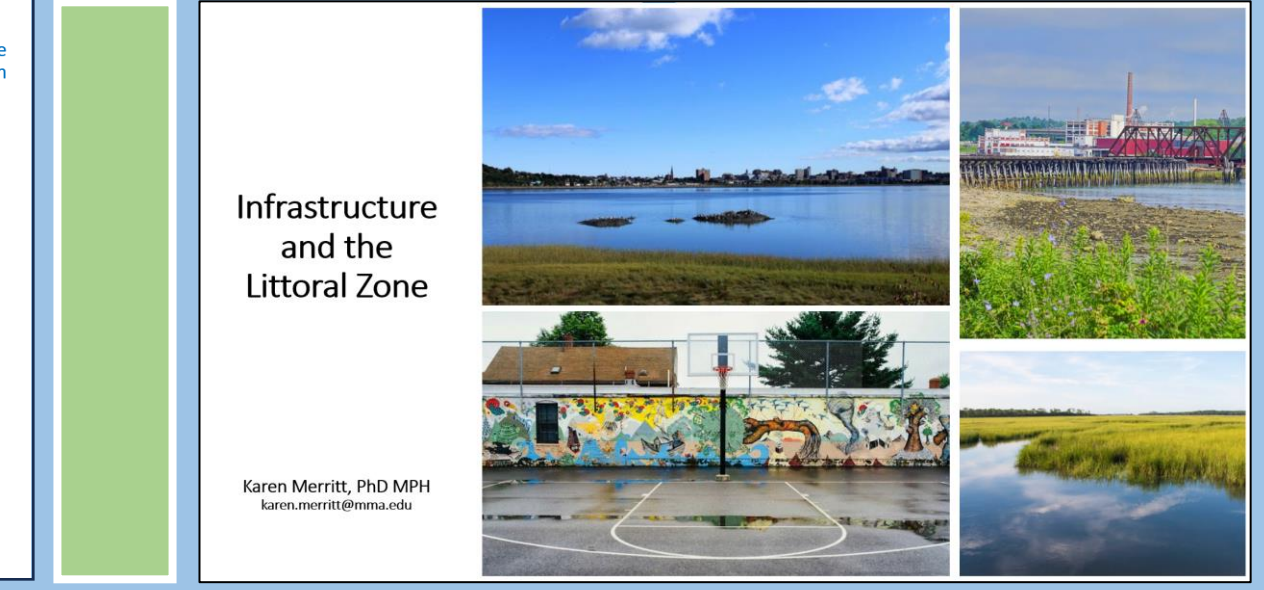
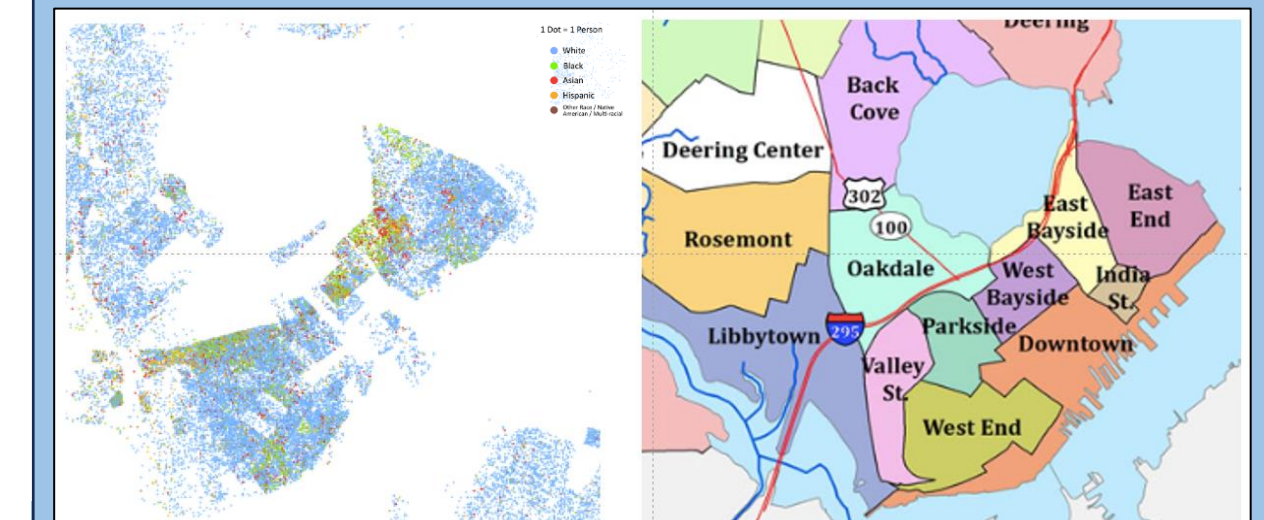
- Does this proposed solution (re)create a new version of the existing problem?
- Are there other ways to improve neighborhood connectivity?
- Are there other ways to slow high-speed traffic on Franklin?
- Who is this cross street for?



Health and Local Environmental Impact Assessment (HLEIA)

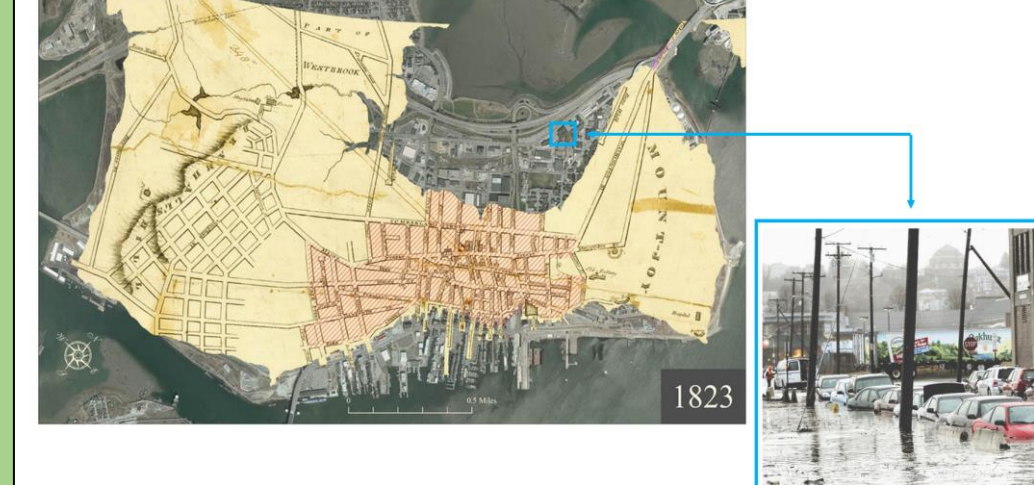
- HLEIA will be integrated into your Capstone projects
- Each team will generate an HLEIA relevant to your project siting
- All components are required, although the framing of the responses will vary by project (see next slide)
- The objective of the HLEIA is to evaluate the potential impacts of your projects as a strategy for including perspectives that might not have been provided to you in project scoping.
- There are 6 questions to evaluate

- Q1: Summarize general demographics for the location in which the work is being scoped; include characterization information on:
 - Racial and ethnic composition, age demographics, wealth distribution, and one additional factor to help understand who lives in the location in which your project is being proposed or developed.
- Q2: Identify 3 communities who may be impacted by the work being scoped;
 - 'Communities' can be identified by: size (sq ft), scale (geographic), or focus factor (ex: special interest or activity; age-restricted demographics).
- Q3: For each of the 3 communities identified:
 - Describe at least one potentially health-positive benefit of the work being scoped; and
 - Describe at least one potentially health-negative impact of the work being scoped.
- Q4: Provide 3 spatially-contextual details on the area where the work is scoped;
 - For urban projects, describe the site within the neighborhood; the neighborhood within the side of town; and the side of town within the city; for rural projects, consider the site within the town and the town within a larger area unit such as 'coastal' or 'inland' or a county.
- Q5: In the vicinity of the project, identify preliminary potential impacts that could occur during implementation to:
 - waterways and water quality
 - air quality
 - soil stability
 - food-growing potential and local food security
 - community access and mobility (specify who is being impacted)
 - community exposure to hazards in the environment (specify who is being impacted)
- Q6: Following implementation, identify potential outcomes and impacts of the project with respect to:
 - waterways and water quality
 - air quality
 - soil stability
 - food-growing potential and local food security
 - community access and mobility (specify who is being impacted)
 - community exposure to hazards in the environment (specify who is being impacted)



Infrastructure and the Littoral Zone
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Why Does Understanding the Socio-Technical History Matter?

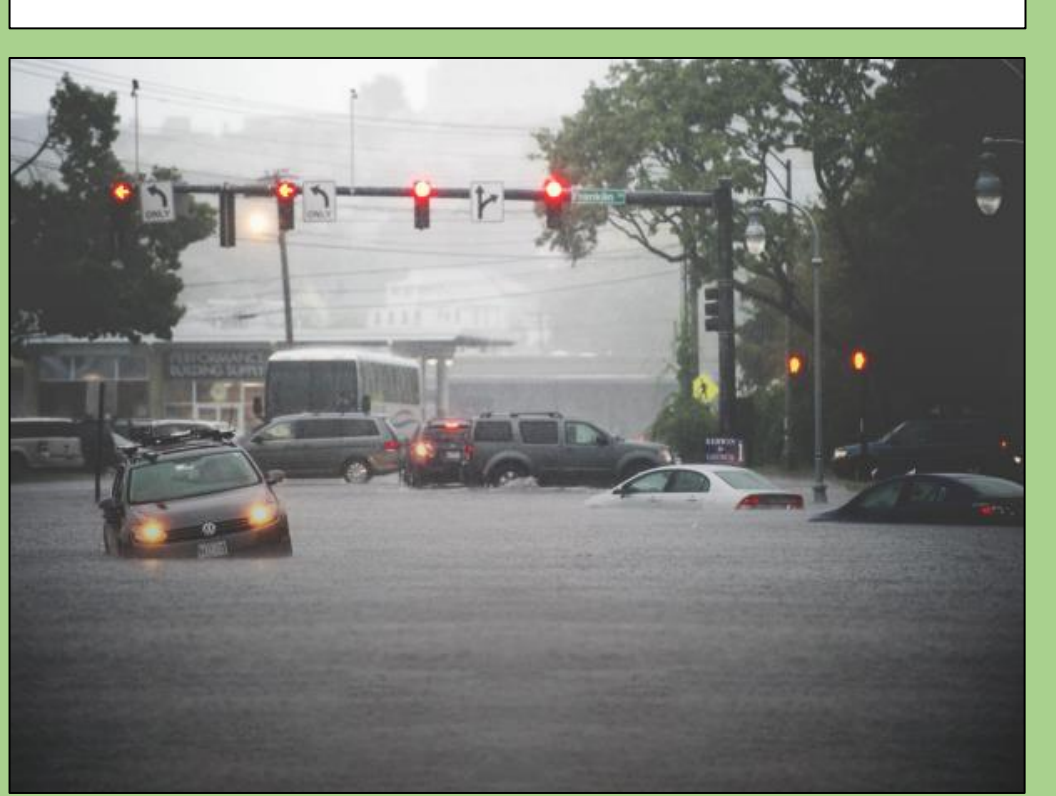


DAILY HIGH TIDE LEVELS IN 2100



What does all this have to do with Engineering and Project Management?

- We're looking at one set of neighborhoods within one coastal city impacted by decisions (made by people) regarding:
- **Transportation** – how are through-roads and highway exchanges sited?
 - **Structural integrity** – what can impact the durability of housing stock?
 - **Geotechnical stability** – is it a problem that neighborhoods are built on fill?
 - **Water Resources** – flood management, old pipe networks, 'NIS', sea level rise
 - **Environmental (water) quality** – sanitation infrastructure x stormwater (CSO)
 - **Public Health** – where can inundation create health impacts (and what kind?)
- * NIS = % Impervious Surface; CSO = Combined Sewer Overflows



Ethnicity or Race x SES* spatially correlate with disparities in:

- Access to clean and consistently available drinking water
- Access to functioning sanitation
- Access to nutritious foods at reasonable prices
- Roadway infrastructure designed to facilitate mobility
- Protection from large-scale flooding
- Ability to rely on stable and accessible power (electricity, lighting)
- Access to sturdy and sufficient housing built with safe materials
- Ability to NOT live in proximity to brownfields and waste disposal sites

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