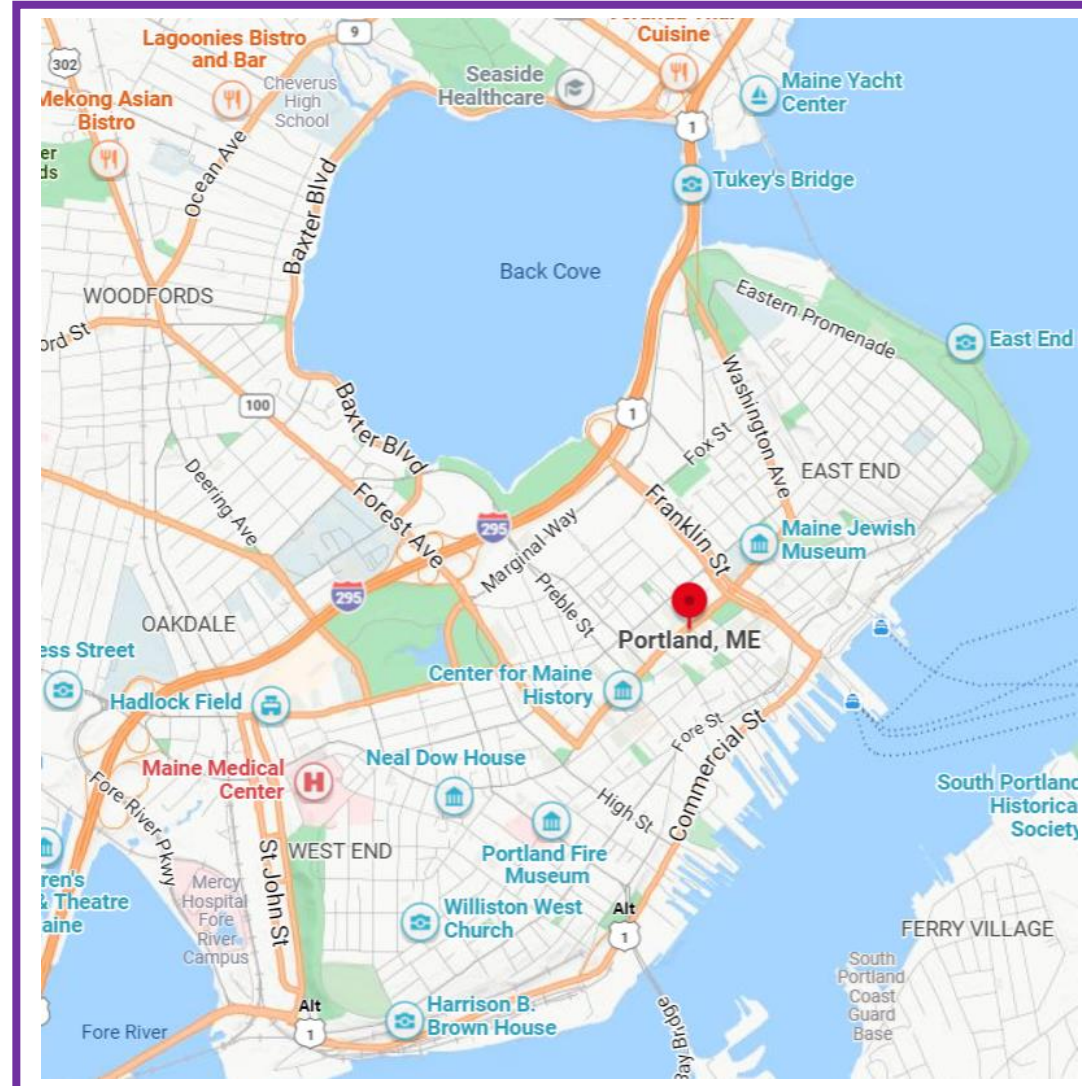
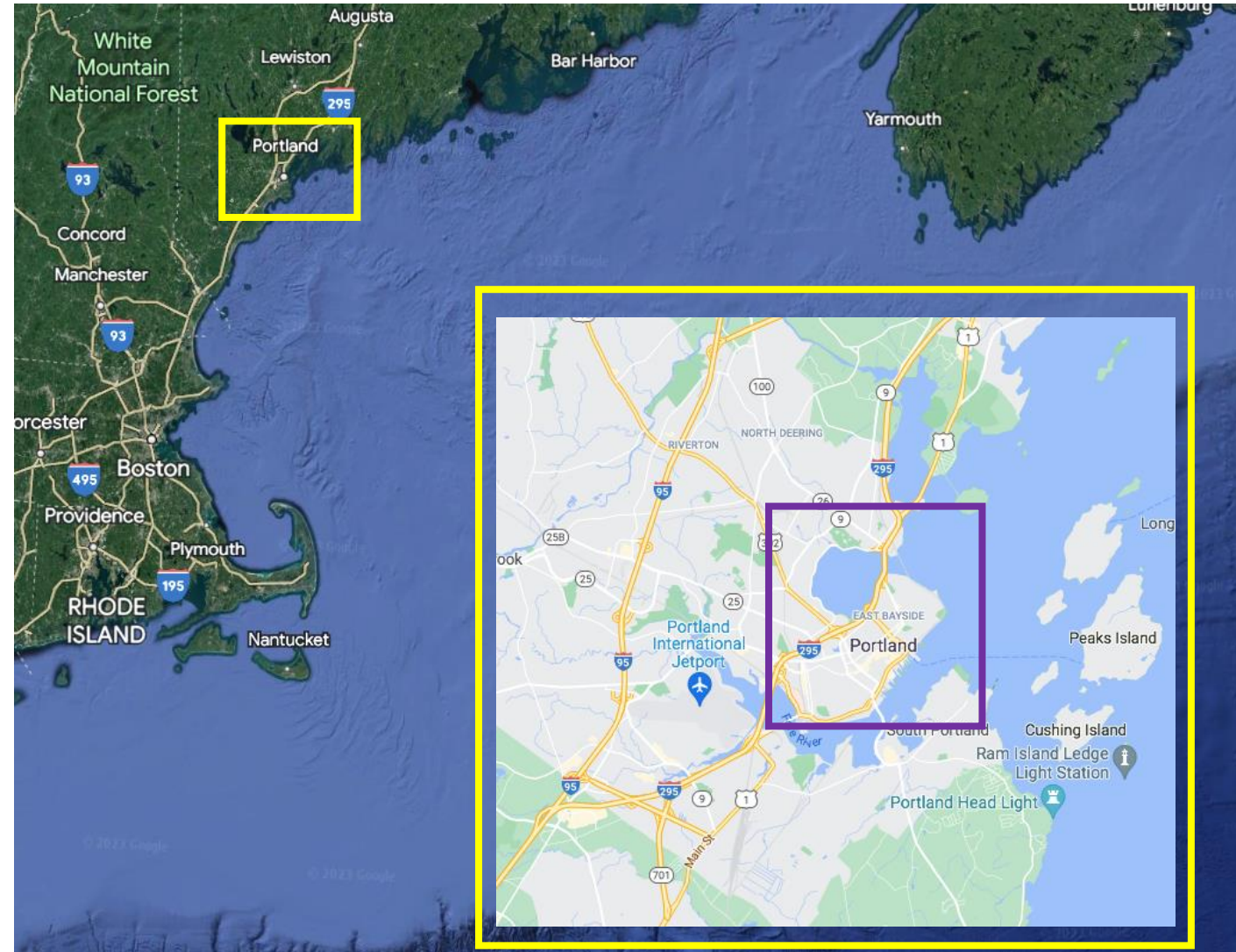


Infrastructure and the Littoral Zone



Karen Merritt, PhD MPH

Coming into the city....



Portland Demographics (who lives here?)

- Population: 65,835 (state: 1.3M)
- Racial and Latinx composition
 - White: 84.6% (state: 94.4%)
 - Black: 8.5% (state: 1.7%)
 - Asian: 3.5% (state: 1.3%)
 - 2 or more races: 2.9% (state: 1.8%)
 - Native American: 0.2% (state: 0.7%)
 - Native Hawaiian or Pacific Islander: 0.1% (state: NA)
 - Latinx: 3% (state: 1.8%)
- Median income: \$33,470 (state: \$29,808)

How about relative to Cumberland County and the whole state?

• Population	City: 65,835	County: 281,690	State: 1.3M
• Composition			
• White:	City: 84.6%	County: 92%	State: 94.4%
• Black:	City: 8.5%	County: 3.2%	State: 1.7%
• Asian:	City: 3.5%	County: 2.4%	State: 1.3%
• Native American:	City: 0.2%	County: 0.4%	State: 0.7%
• Latinx:	City: 3.0%	County: 2.2%	State: 1.8%
• Median \$\$:	City: \$33,470	County \$35,560	State: \$29,808

What about neighborhoods within Portland?

47.92% Born in Portland 

88.88% Native Born

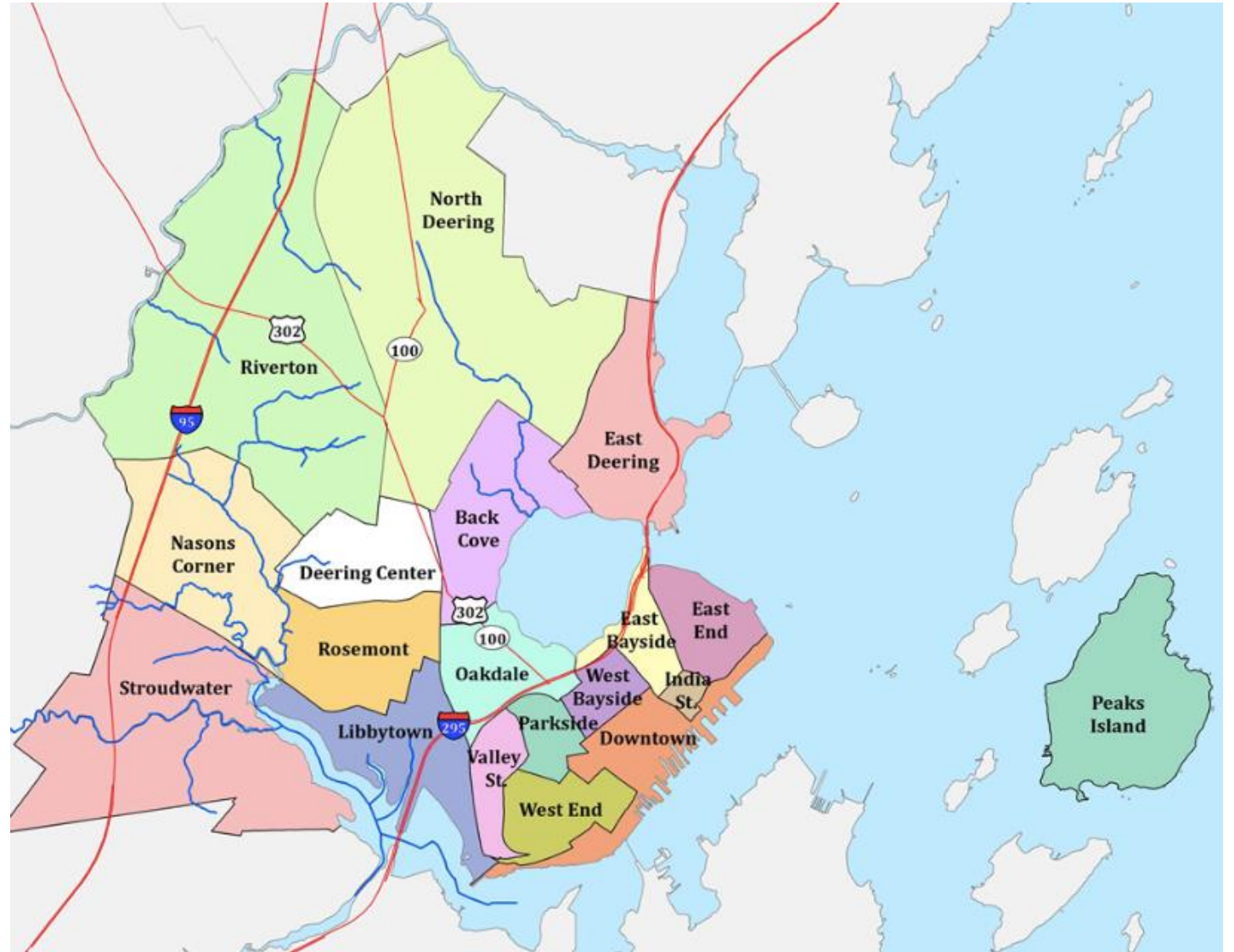
11.12% Foreign Born

5.40% Non Citizen *

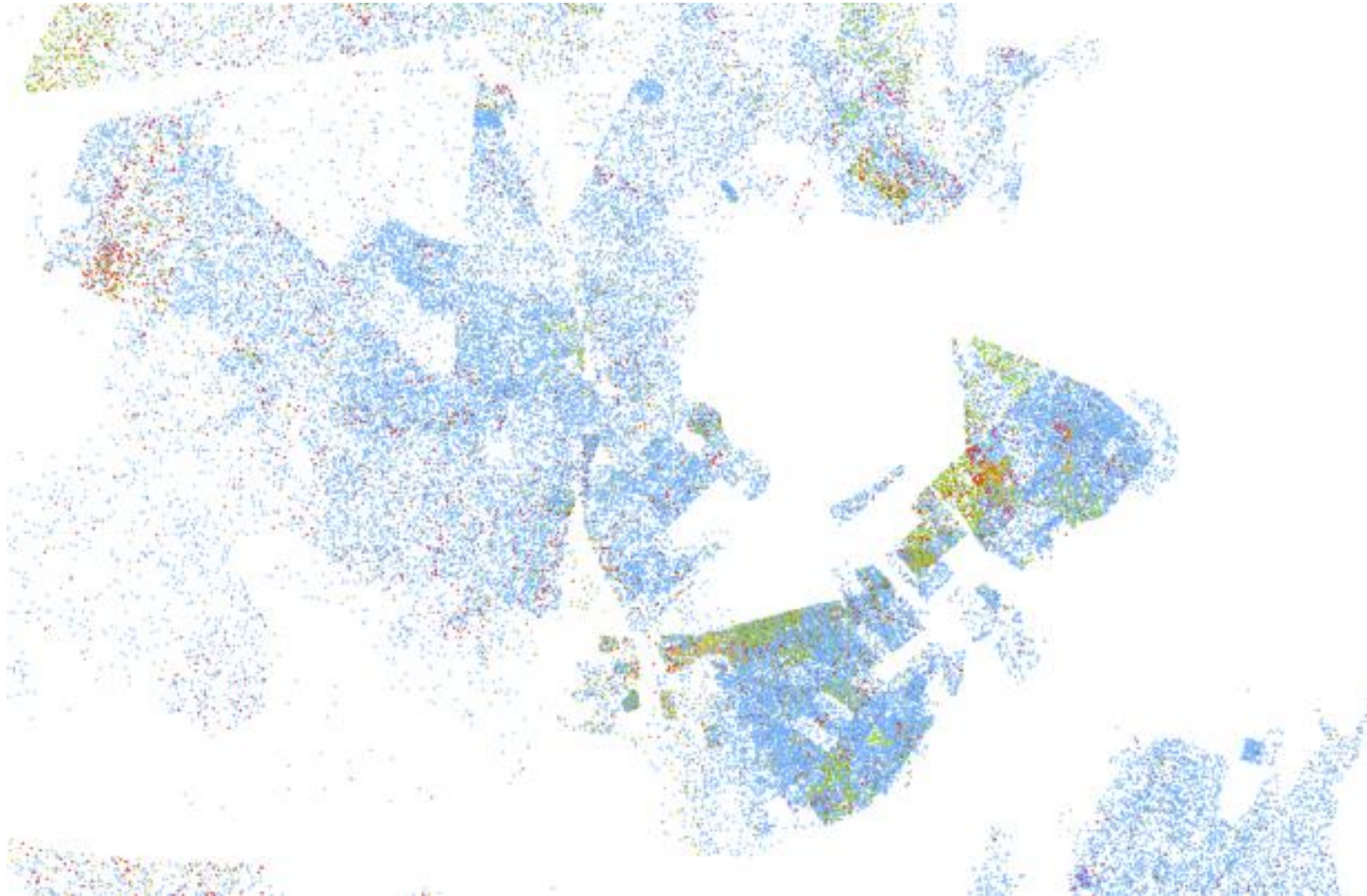
5.72% Naturalized

* Non citizens include legal permanent residents (green card holders), international students, temporary workers, humanitarian migrants, and ~~illegal~~ immigrants.

undocumented



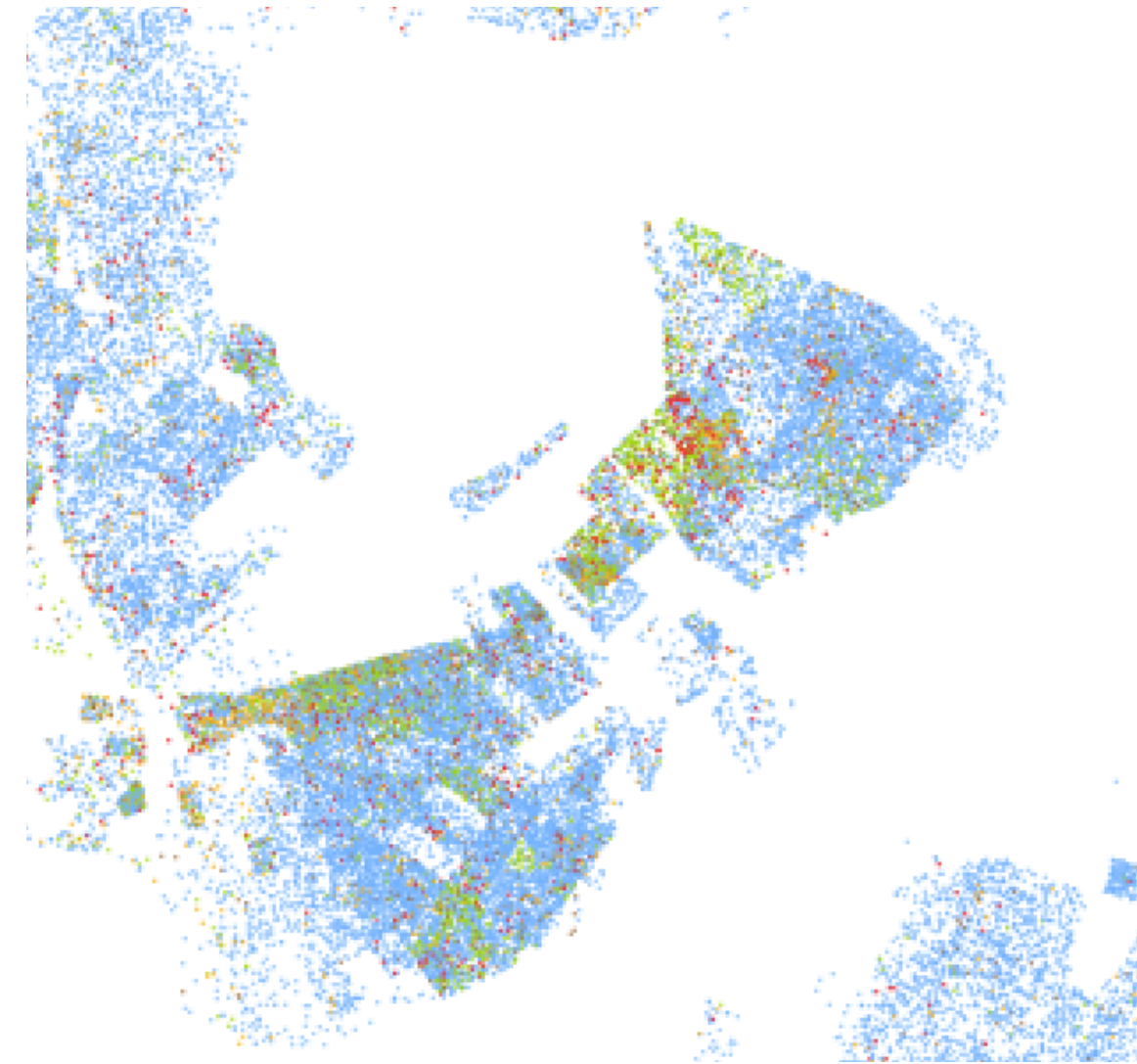
How about within neighborhoods?



2010 Census Block Data

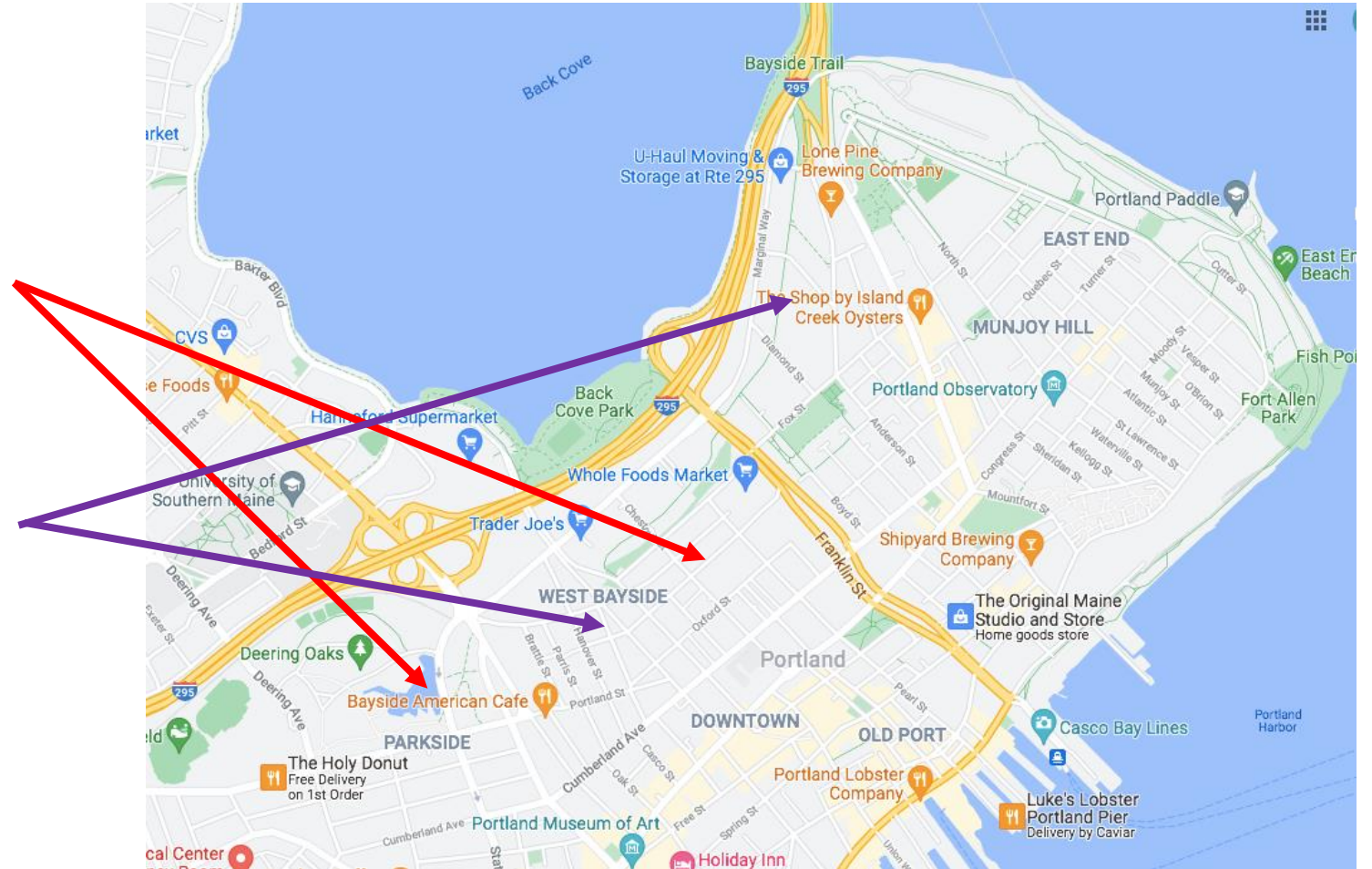
1 Dot = 1 Person

- White
- Black
- Asian
- Hispanic
- Other Race / Native American / Multi-racial



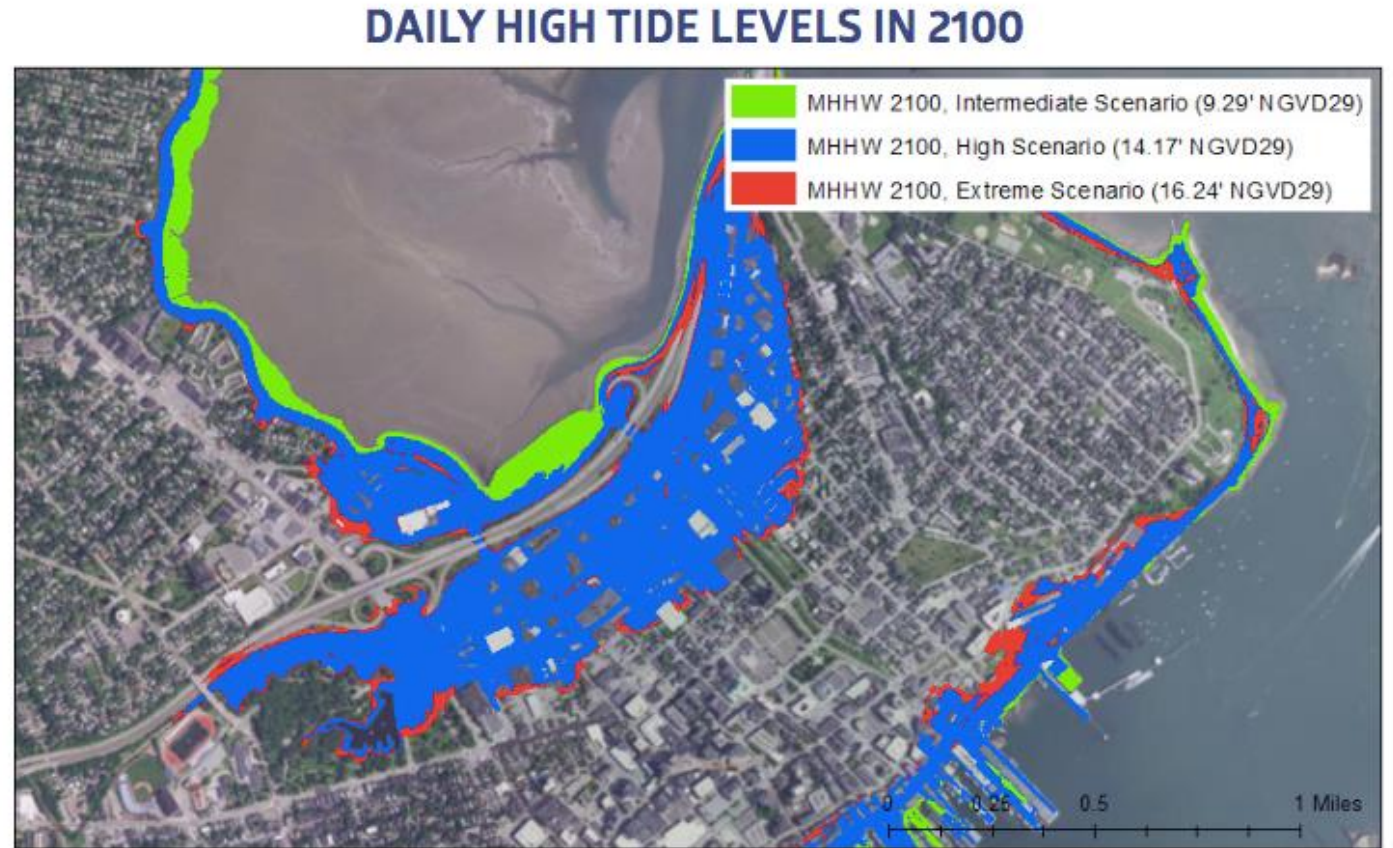
Parkside, West Bayside, East Bayside

- Q1: What separates Parkside from West Bayside?
- Q2: What separates West Bayside from East Bayside?



Parkside, West Bayside, East Bayside

- Q3: What separates East Bayside from the East End?
- Q4: What separates East Bayside from the Back Bay?



Projected high tide map

King Tide Parties

(www.kingtideparty.org)

KTP PROCLAMATION:

Read at the October 28th, 2016 King Tide Party

TO ALL TO WHOM ARE PRESENT – GREETINGS!

WHEREAS the King Tide regularly inundates this site near 2 Somerset Street

WHEREAS the King Tide offers a glimpse of what the future will hold

WHEREAS the inundation consists of brackish water that is corrosive

WHEREAS increased awareness of this site will trigger consideration of environmental issues that impact city planning and community development

WHEREAS naming the site will work to educate the public about its ecological significance

WHEREAS citizens of Portland have a right to open engagement in shaping public environments

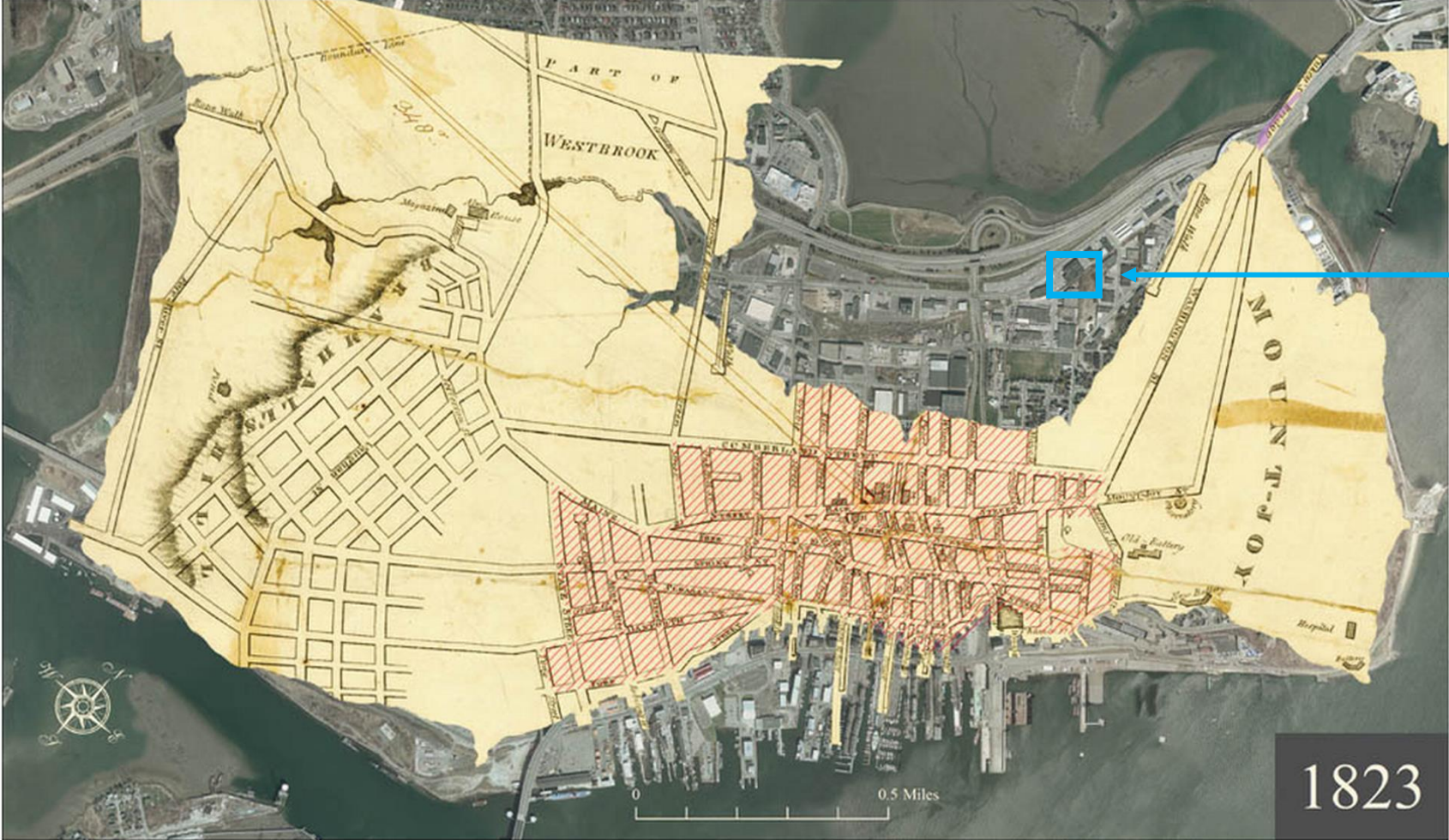
NOW, THEREFORE, We, the King Tide Party, do hereby proclaim that 2 Somerset Street be named **Somerset Lagoon**.

ACROSS THE CITY AND STATE we urge all citizens to support an awareness of the impact of King Tides, to identify and name sites of inundation and work together on how best to address tidal flooding issues.

IN TESTIMONY WHEREOF, we have here unto proclaimed this site Somerset Lagoon.

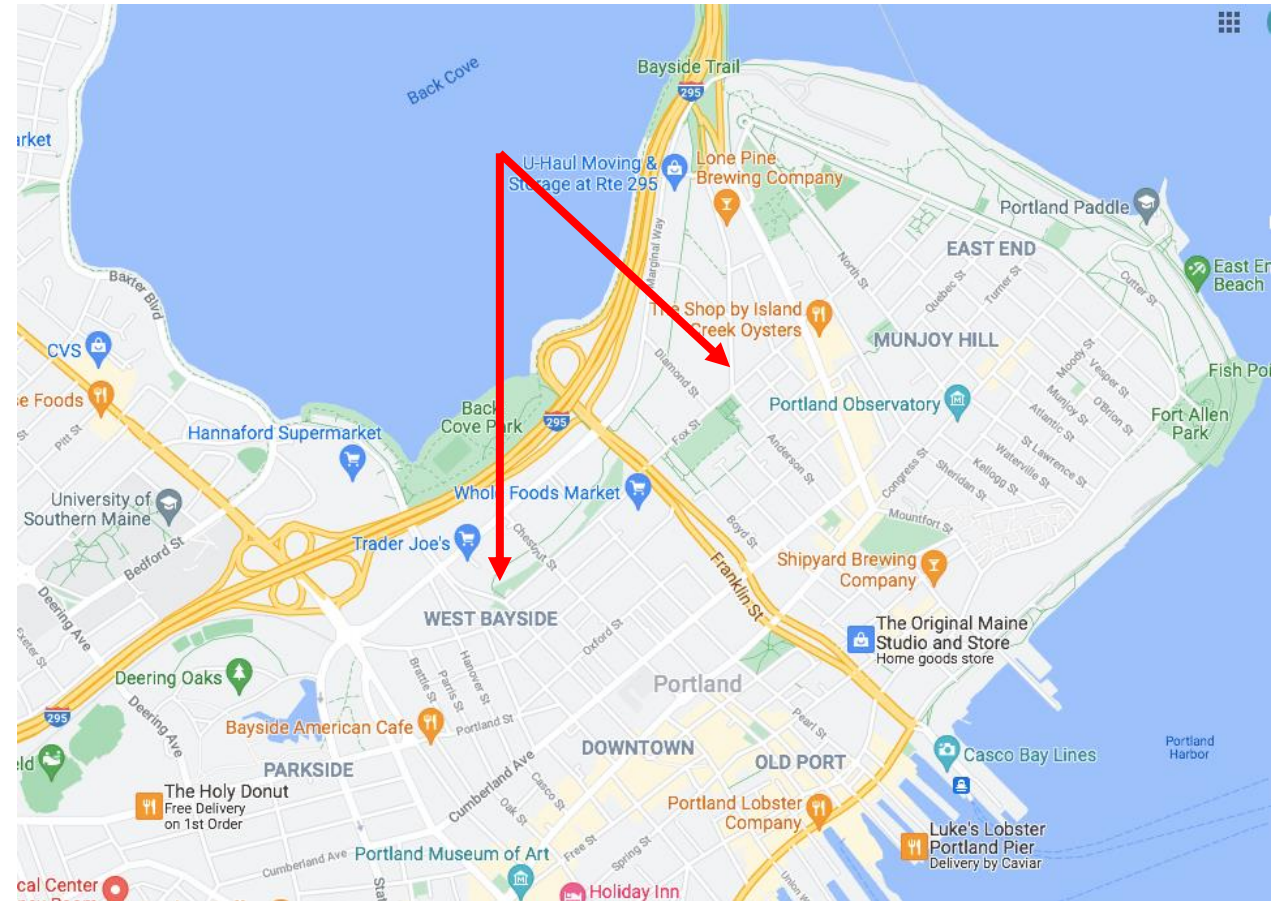


Why Does Understanding the Socio-Technical History Matter?

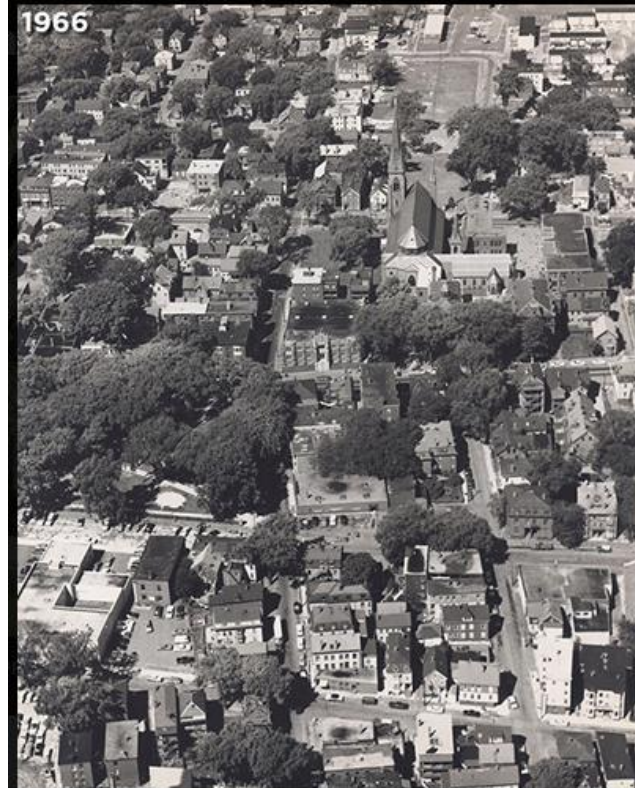


I-295 and Franklin Arterial

- I-295 construction – 1954 (Forest Ave. exchange also)
- Late 1960s – approx. 130 buildings removed on Franklin Street to allow easier access from I-295 to downtown
- Construction of Franklin Arterial creates a significant separation within Bayside neighborhood



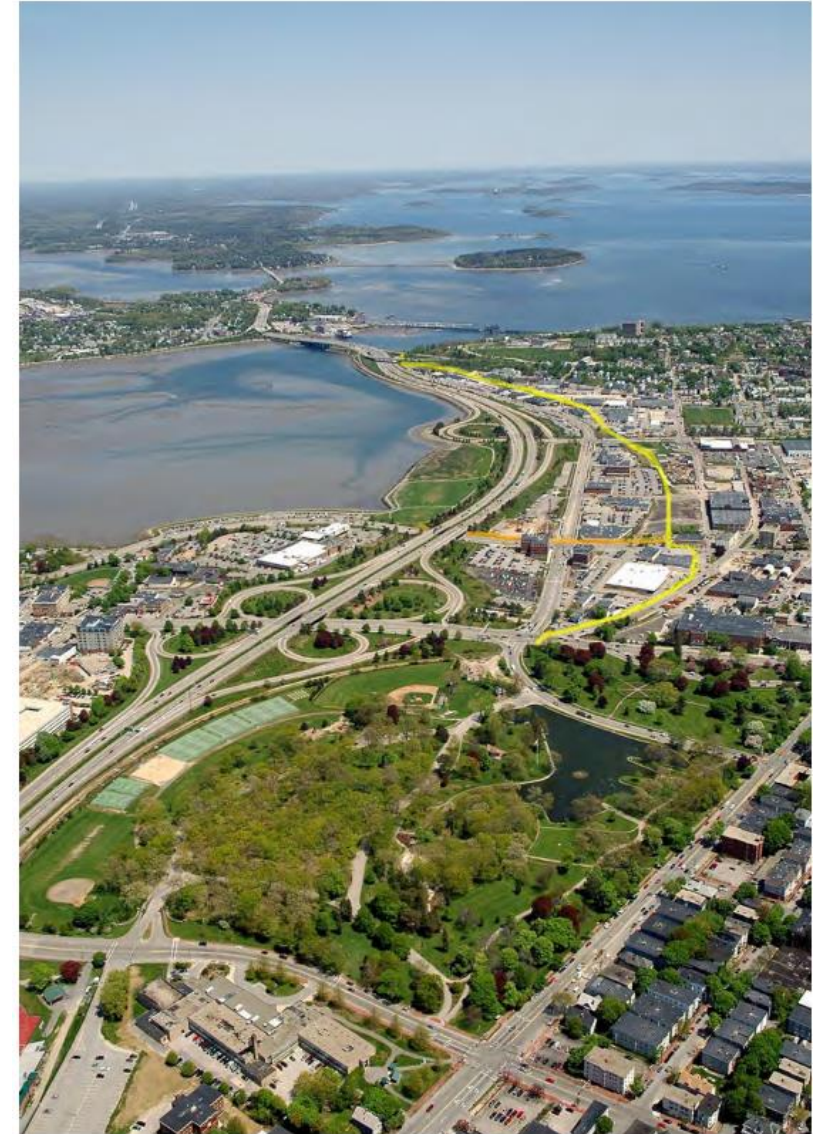
Neighborhood Clearance for Construction of the Franklin Arterial

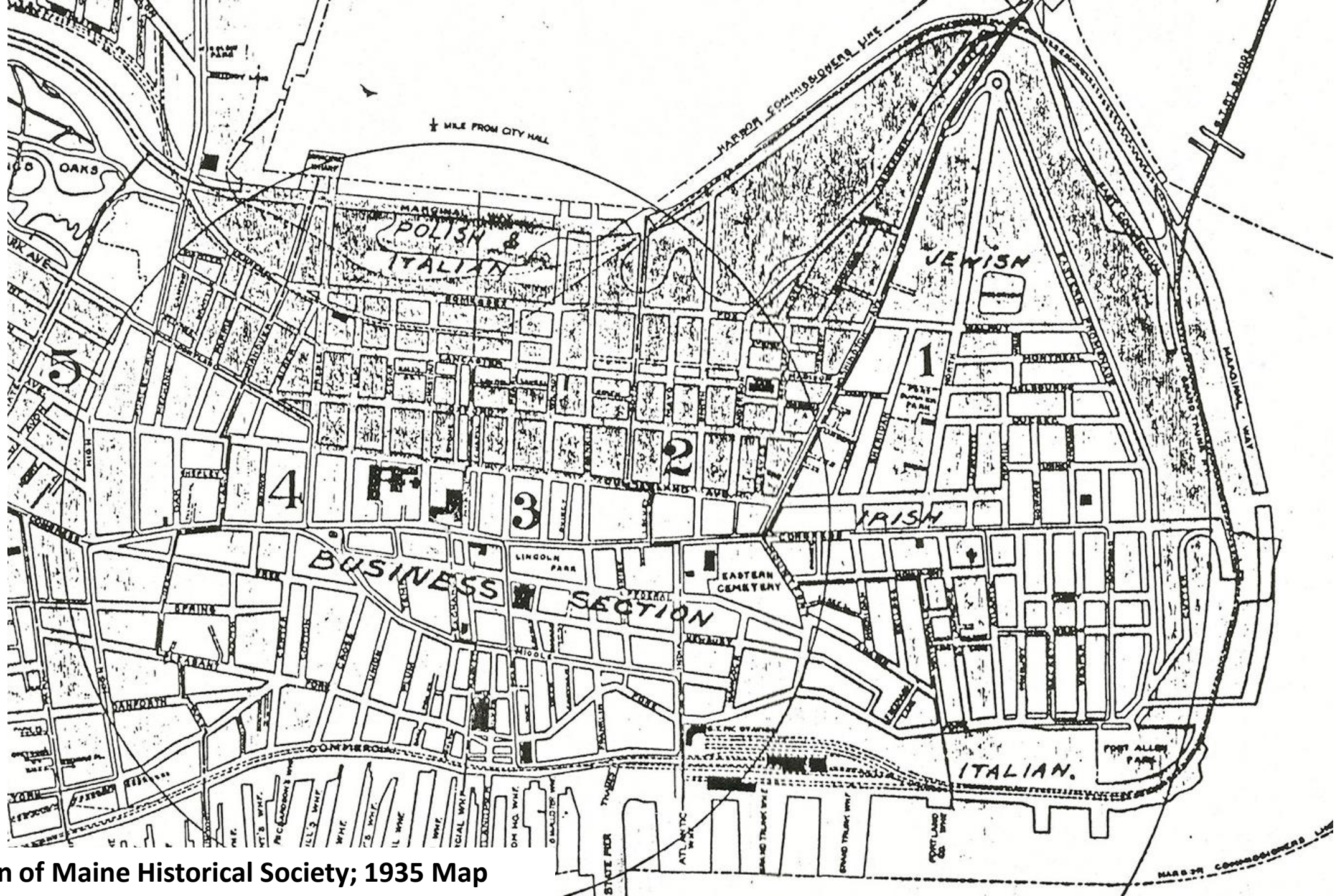


View toward the waterfront

View toward Back Cove

How about Bayside? Who Lived there Before I-295?





Collection of Maine Historical Society; 1935 Map

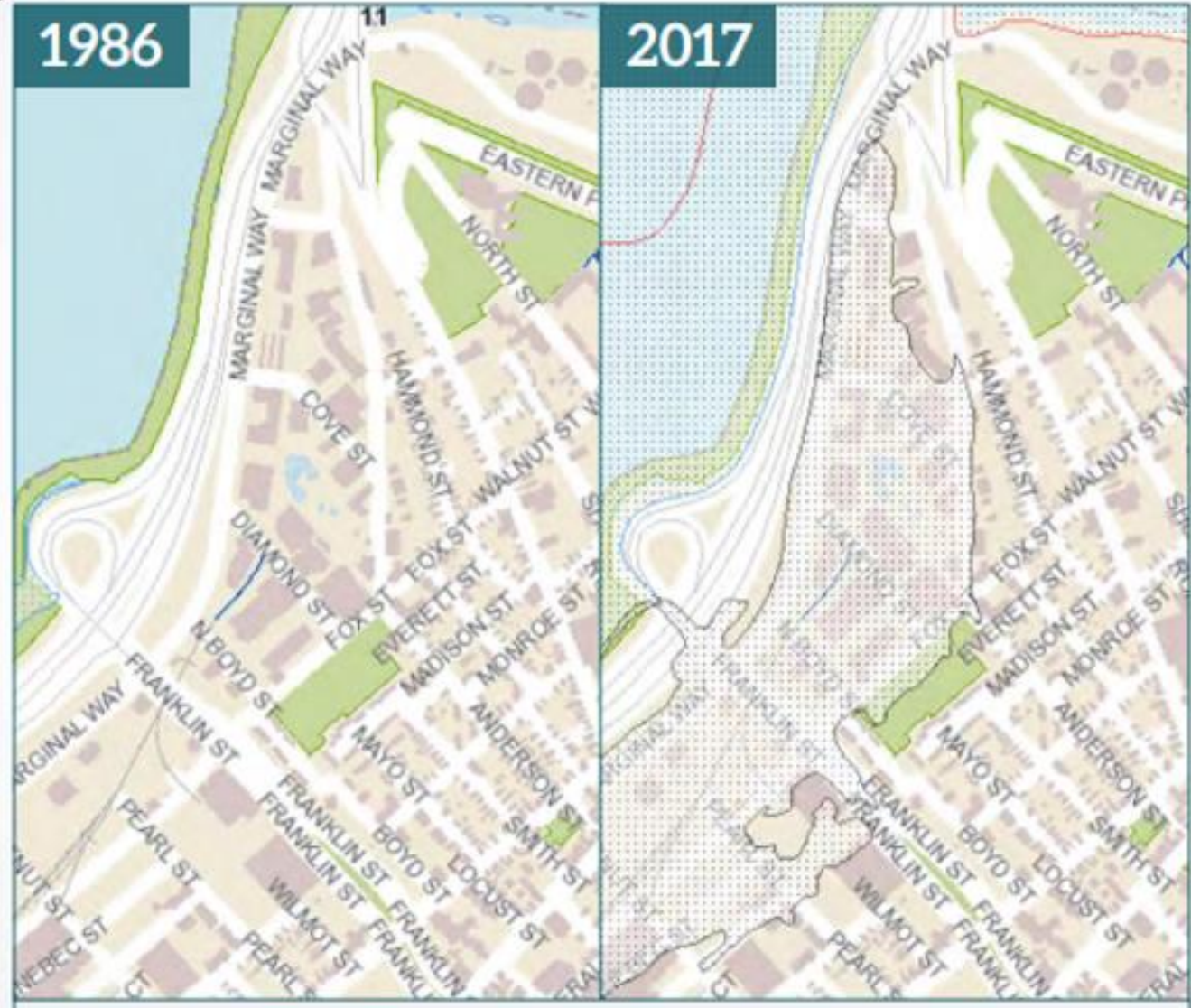
Bayside and Urban Renewal

- Densely populated neighborhood – immigrant communities
- One of several neighborhoods in Portland designated as ‘*slums*’ 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 significantly sensitive to sea level rise).

Environmental Conditions in East Bayside are characterized by:

- **Historical infill** after the Great Fire (1866) – ash, demolition debris and paving materials used as infill to expand the neighborhood
- **History of industrial use** creates contaminant concerns for metals (significantly Pb), solvents and petroleum compounds from scrap yards, rail lines, auto repair facilities and drycleaners
- **Housing concerns** – quality and quantity – older housing contains Pb-based paints, plus potential structural integrity concerns w/ SLR from building on infill





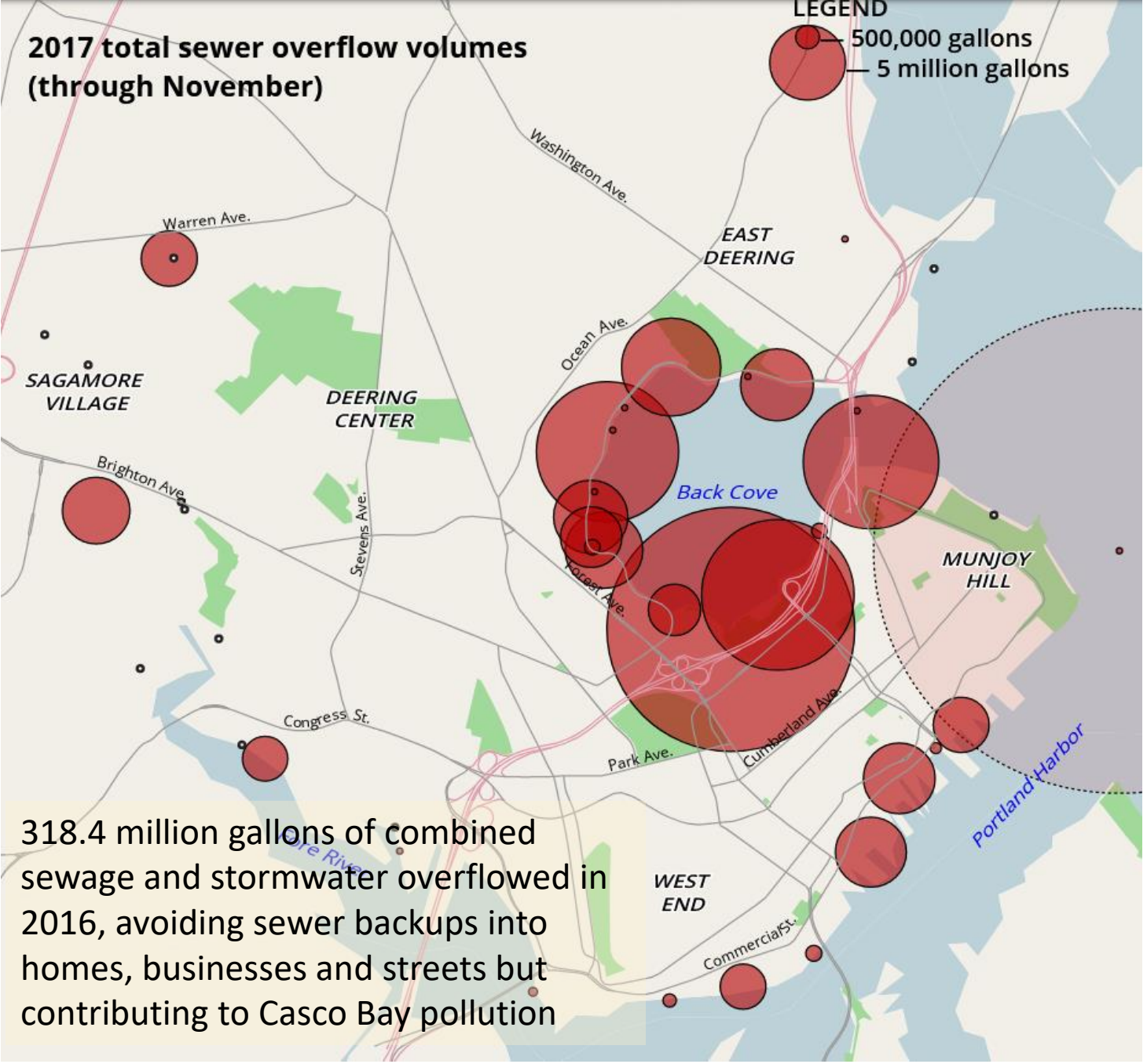
FEMA Floodplain Maps of Portland
2017 Map is a 500 yr recurrence interval map

We're looking at one set of neighborhoods within one coastal city impacted by decisions (**made by people**) regarding:

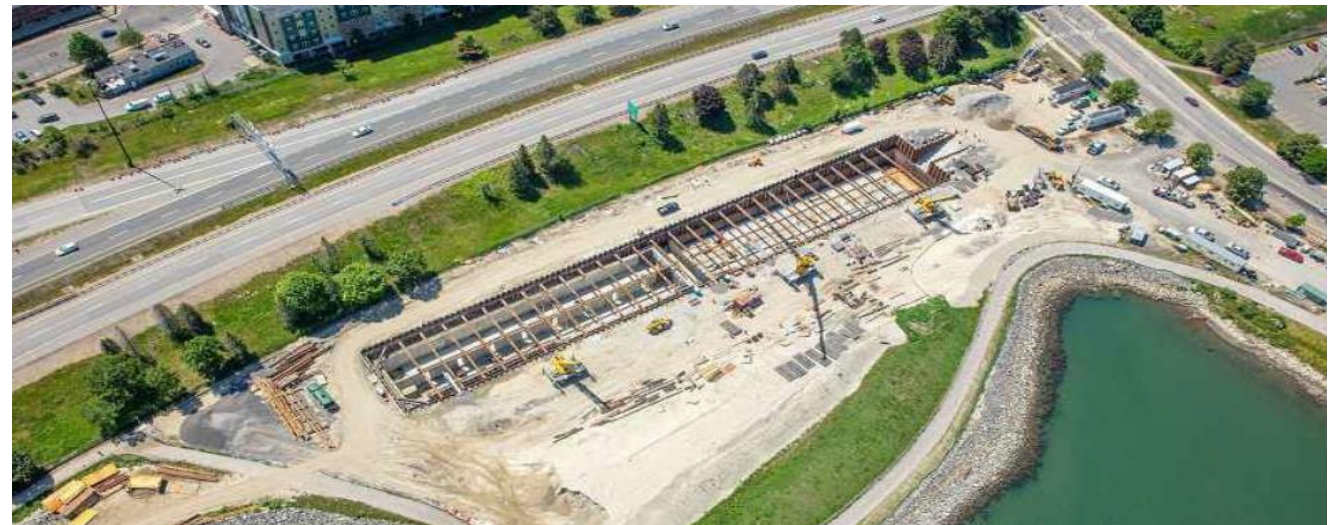
- **Transportation** – how do we site the through roads and highway exchanges?
- **Structural integrity** – what can impact the durability of housing stock?
- **Geotechnical stability** – is it a problem that neighborhoods are built on fill?
- **Water Resources** – flood management, old pipe networks, %IS*, sea level rise
- **Environmental (water) quality** – sanitation infrastructure × stormwater (CSO)*
- **Public Health** – where can inundation create health impacts (and what kind?)

These questions are at the intersection of environmental geology and public health engineering

* %IS = % Impervious Surface; CSO = Combined Sewer Overflows



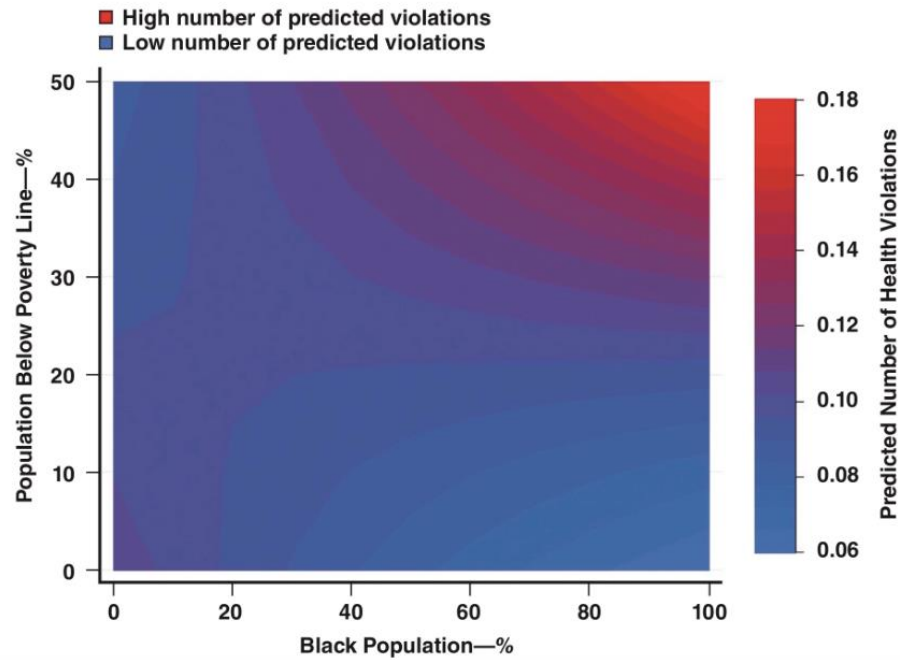
Back Cove Stormwater Storage Project – 3.5 MG



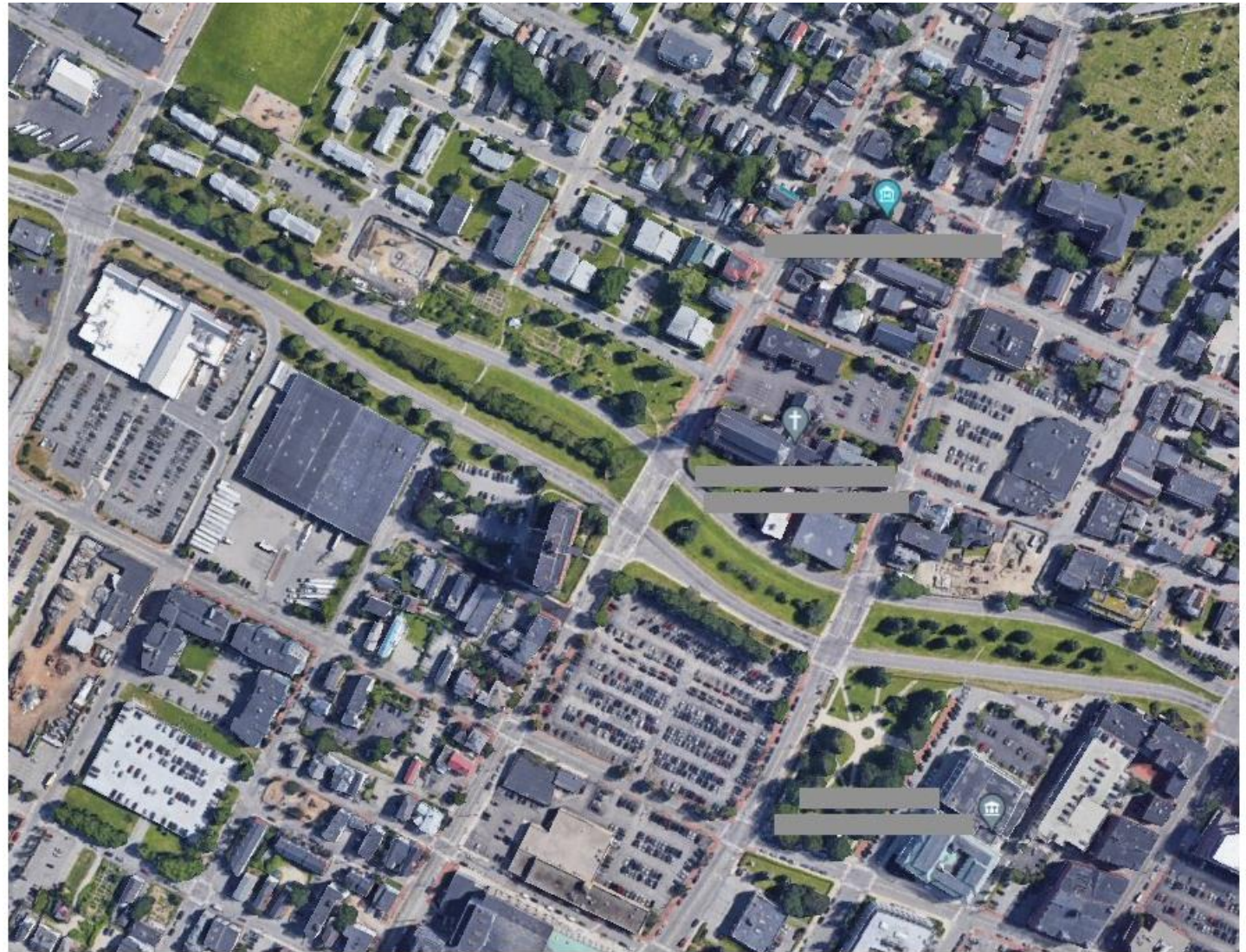
So...the Big Question:

Do Race × Socio-Economic Status Impact Access to Health and Safety?

FIGURE 2 Effect of percent black population and poverty on Safe Drinking Water Act violations



(Switzer and Teodoro, 2017)

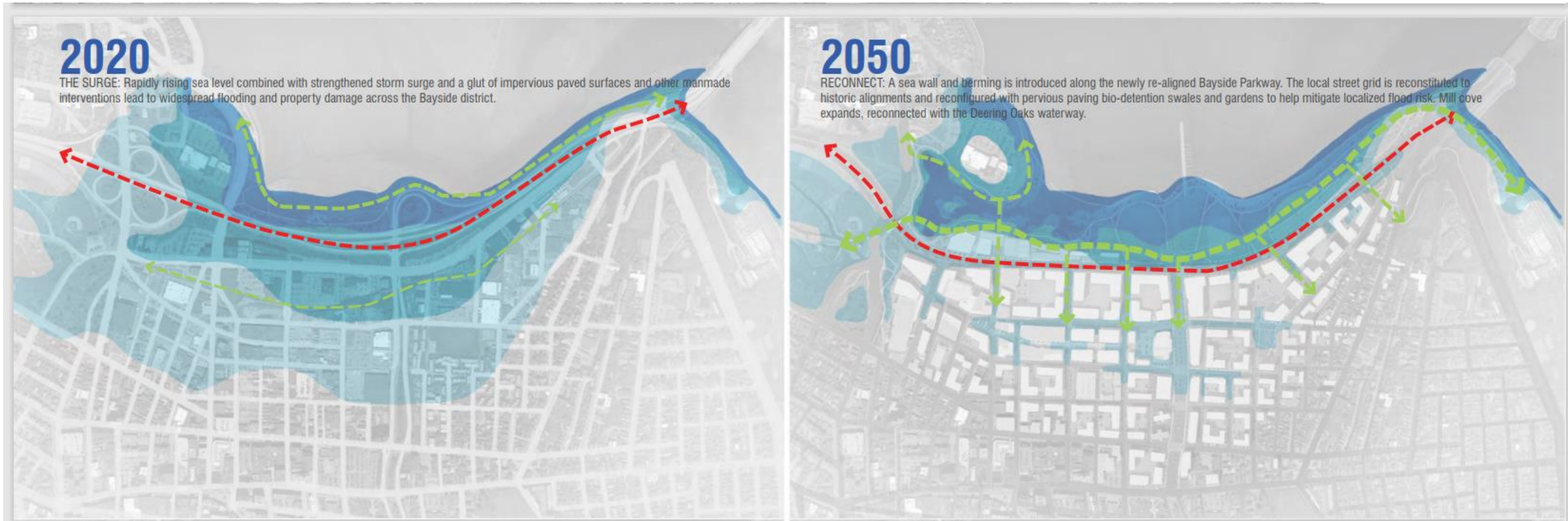


Ethnicity or Race × SES* spatially correlate with disparities in:

- 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

*These are neighborhood-scale, census tract and/or city-scale correlations in the U.S., they do not predict any individual's experience (meaning: pay attention to your mental shortcuts and biases).
Also...being on the receiving end of this list does not mean you caused your place on it.

Adaptive solutionscapes can look very different – how we characterize the ‘problem’ influences how we visualize possible responses (infrastructural or otherwise...)



Back Cove Pond



- 1. Oakdale/ Back Cove Neighborhoods
- 2. Bayside Neighborhood
- 3. Arboretum
- 4. Oakdale Recreational Fields
- 5. Oakdale/ Back Cove Boat House with Boat Launch
- 6. Great Lawn
- 7. East Deering Boat House, Dock and Swimming Facilities
- 8. Bayside Recreational Fields
- 9. Bayside Plaza and Field
- 10. Longfellow Island and Trails
- 11. Back Cove Pond and Casco Bay Underpass
- 12. Beach and Dog Park

	Project Title	Concept Summary
	Project ID	Back Cove Pond
		mbla + Canal 5 Studio

All reference sources must be adequately cited and no copyrighted material should be reproduced without permission and citation.

Question the city!

- **Transportation**

- Where are rail lines and where do highways get placed? How might infrastructure placement impact community access and health?

- **Structural**

- How might U.S. history of redlining create disparity in housing quality? Does redlining overlay on geography? Does land use history and land reclamation impact ground stability of/for past and future construction?

- **Water Resources**

- How might land use history create disparities in neighborhood susceptibility to flooding; infrastructural resilience in the face of sea level rise; and/or safe and functioning water and sanitation infrastructure?

- **Environmental**

- How might land use history impact potential for chemical exposures in soil, water and air? Does land use history impact % impervious surface and differential heat exposure?