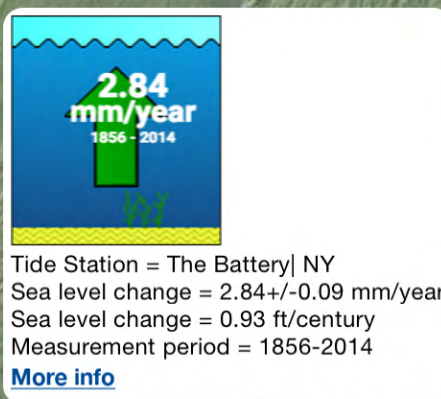


Currently the global average sea level rise is 3 mm/yr.



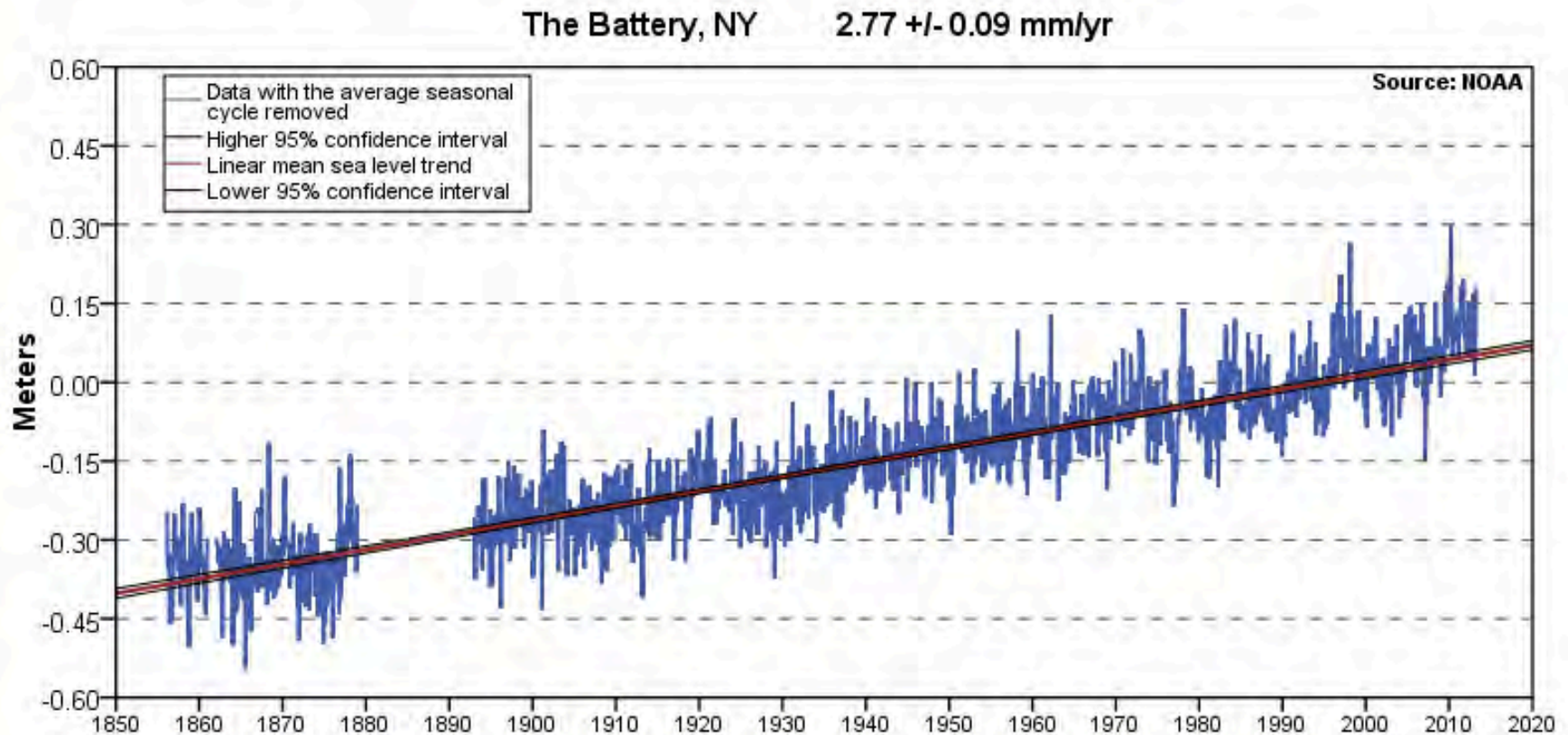
The gauge at the tip of the NYC Battery shows ~3mm/yr. rise in sea level.

Philadelphia

New York City

Our Sea Level has been on the rise.

Mean Sea Level Trend 8518750 The Battery, New York



The mean sea level trend is 2.77 millimeters/year with a 95% confidence interval of +/- 0.09 mm/yr based on monthly mean sea level data from 1856 to 2006 which is equivalent to a change of 0.91 feet in 100 years.

But how will that really affect us?

RPA Regional Plan Association

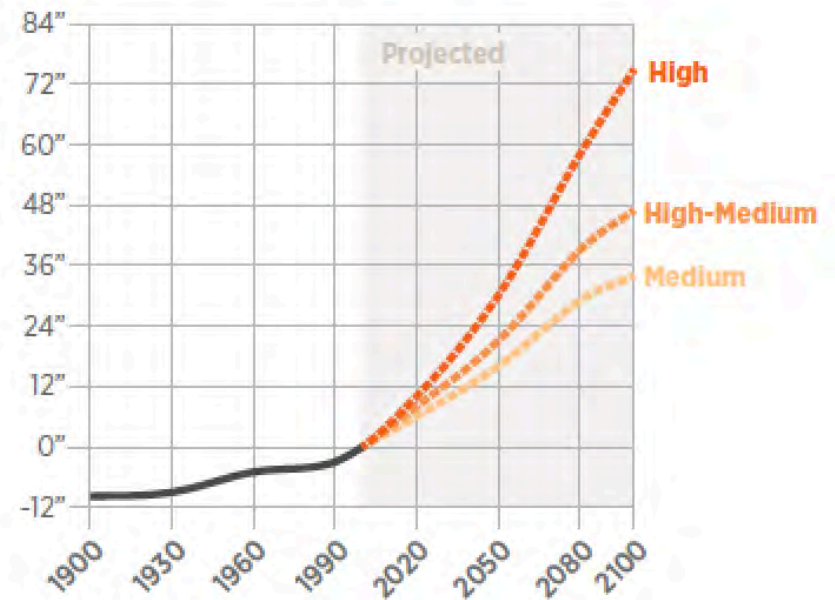
Under Water

How Sea Level Rise Threatens the Tri-State Region



A Report of The Fourth Regional Plan
December 2016

Historic sea level rise observations and future projections for New York City / Lower-Hudson Region.



Source: Adapted from NPCC and New York State projections.
Note: The Low scenario developed by the NPCC is not included in this chart. That scenario is dependent on a radical and immediate reduction in carbon emissions reduction that is considered by many experts to be unrealistic, and most consider the Medium scenario to be the lower range of what may occur.

Sea Level Rise is
accelerating

Regional Impacts of SLR

Hudson Valley / Long Island Sound

Residents Inundated +1': 659 +3': 2,454 +6': 6,652

+1' Because of topography and historical development patterns, Hudson River communities, many of which are developed on higher ground, are less at risk from sea level rise than other communities in the region. Still, places like Yonkers, Piermont and Stony Point, whose waterfront edges are more developed or are developed on fill, begin to see permanent flooding. Sections of Long Island Sound towns to the east including New Rochelle, Rye and Mamaroneck town are also likely to see permanent flooding.

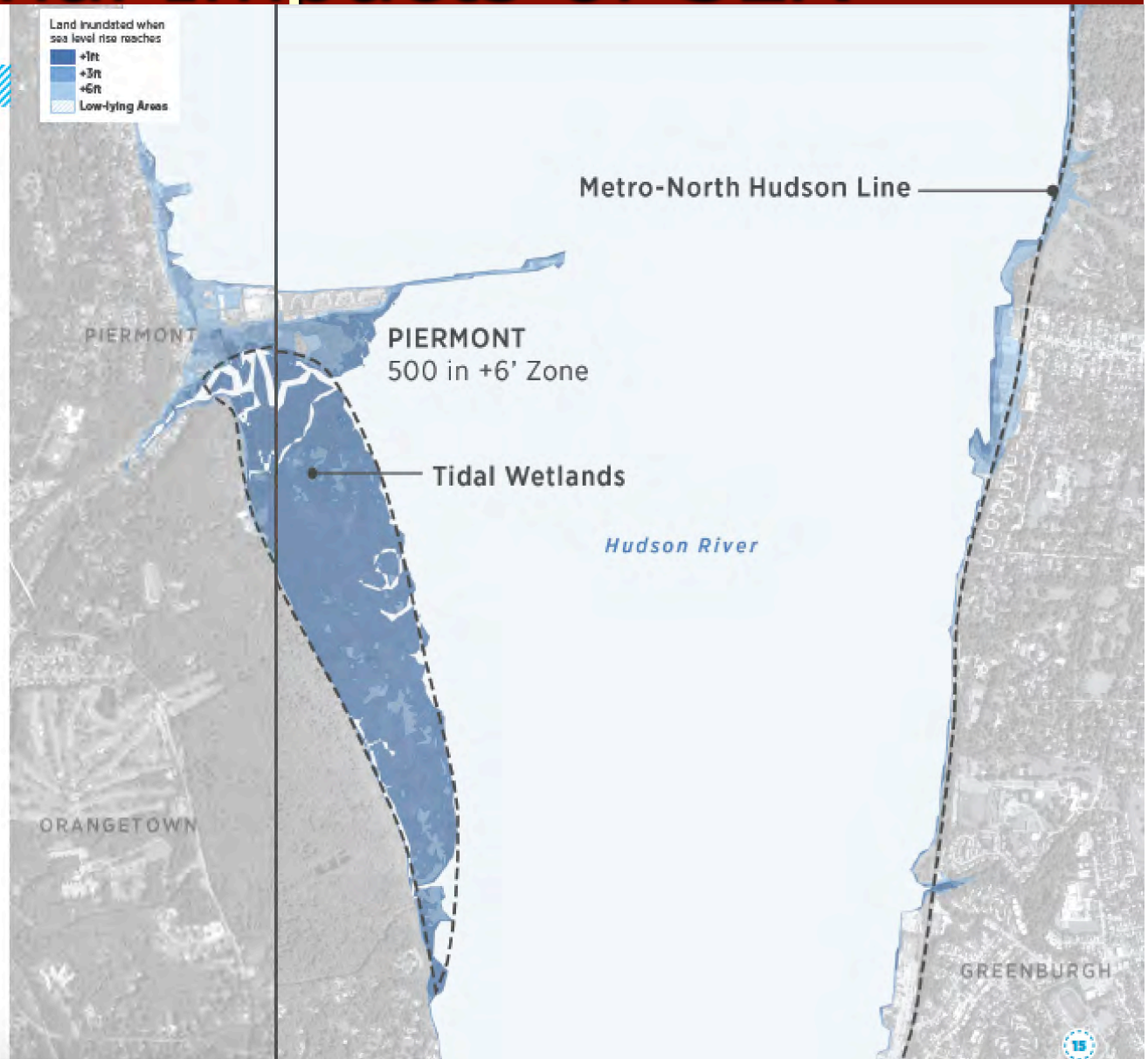
+3' Those New York communities along the Hudson River and Long Island Sound that saw flooding affecting sections of town at one foot sea level rise are likely to see the area and depth of flooding increase at three feet. Portions of the Metro-North Hudson rail line could become threatened at three feet of sea level rise. More than 2,000 of today's Westchester and Rockland County residents live in places along the Hudson and the Sound that could be permanently flooded at three feet of sea level rise, with the greatest numbers in Yonkers, Rye, New Rochelle and Mamaroneck town. Nearly 9% of Piermont's population today faces inundation at three feet.

+6' At six feet of sea level rise, the Hudson River is likely to have reclaimed many of the areas that had been filled in over time, affecting over 2,500 residents as well as critical infrastructure including waterfront parks, wastewater treatment plants and power generating facilities. The Metro-North Hudson rail line and its 12 stations between New York City and Poughkeepsie along with Amtrak's Empire Corridor line is at risk of inundation in a number of low lying sections along the Hudson's eastern shore. On the western shore, the River Subdivision — a freight line owned by CSX — runs north along the shoreline to Selkirk. Just south of Albany and has low lying sections at risk in places as well.

About one third of the Town of Mamaroneck's population today could be inundated at six feet of sea level rise, making it one of the hardest hit Long Island Sound towns. Rye and New Rochelle continue to lose land to the Sound at six feet.

Land inundated when sea level rise reaches

- +1ft
- +3ft
- +6ft
- Low-lying Areas



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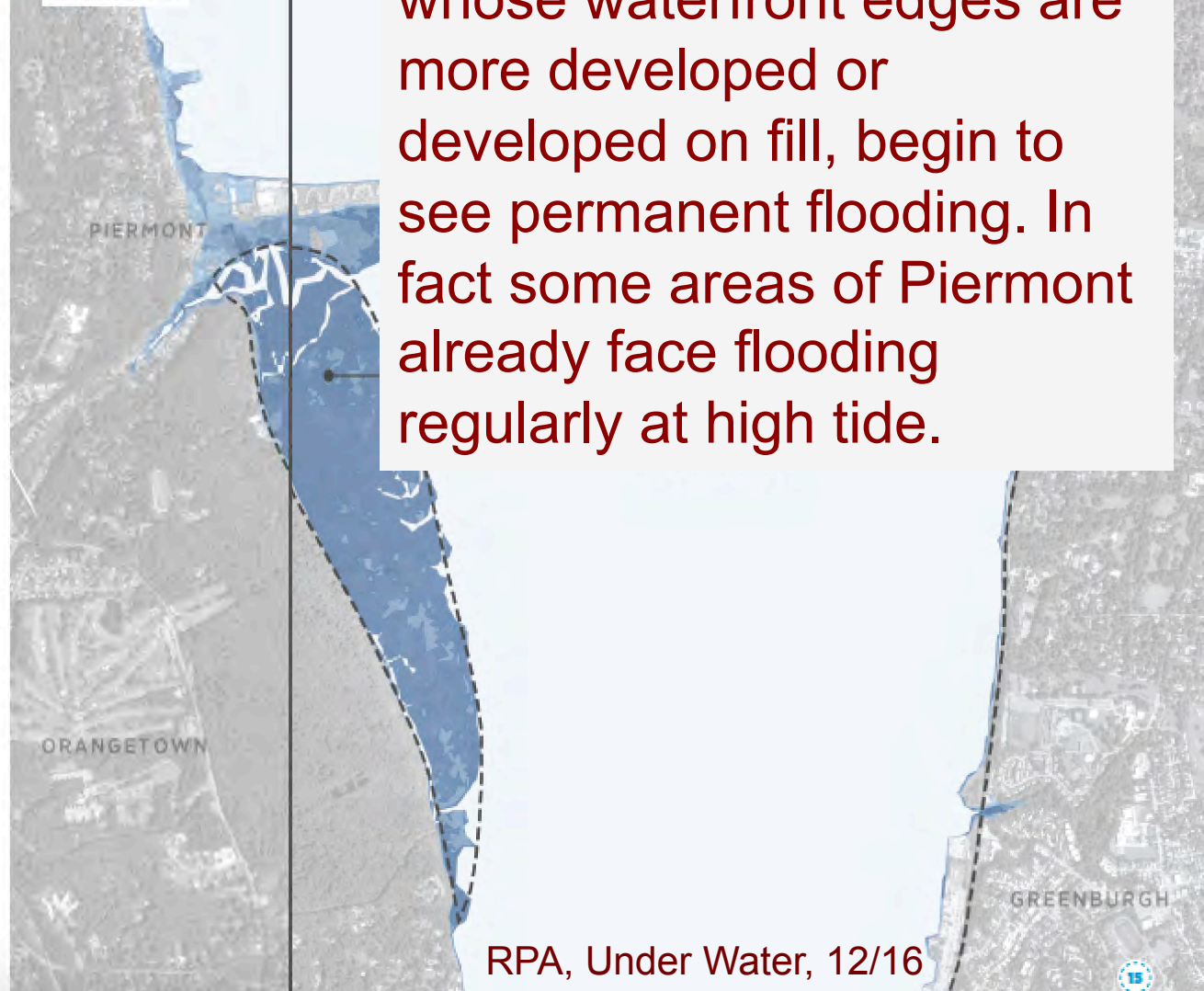
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Regional Impacts of SLR

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Sound towns, Rye and New Rochelle continue to lose land to the Sound at six feet.

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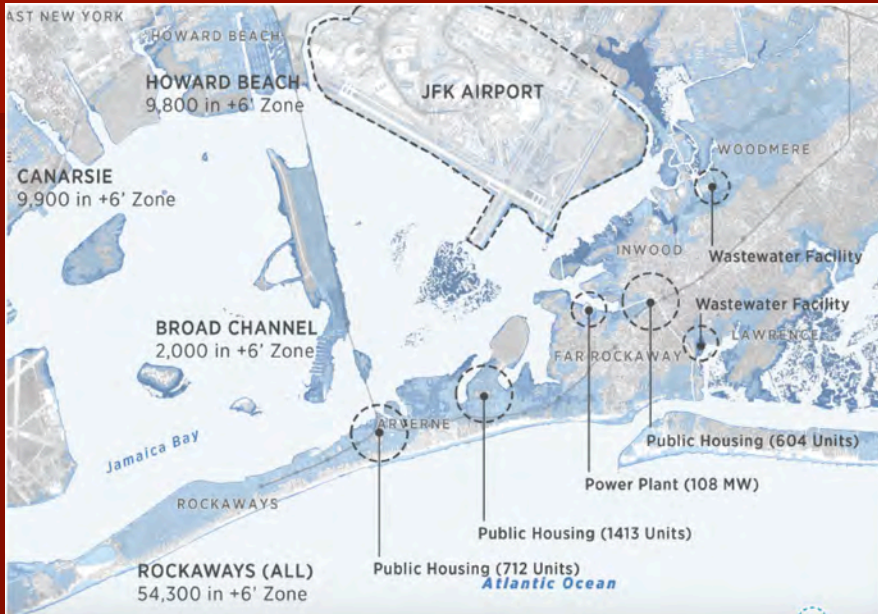


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At 6 ft. over 2,500 residents as well as critical infrastructure, railroads east and west, wastewater treatment plants & power generating facilities flooded.

RPA, Under Water, 12/16

Airports



JFK would not permanently flood but would be affected by storm surge. La Guardia would begin to flood at 1 ft. of rise. At 2 ft. 13 of 31 runways would be lost and portions of its terminals.

The ports of NY and NJ and Newark airport would be permanently inundated with 6 ft. of water, as would more than 6000 Newark residents.

Storm Surge in addition to Sea Level Rise is a concern



Where Storm Surge from Super Storm Sandy left its mark.



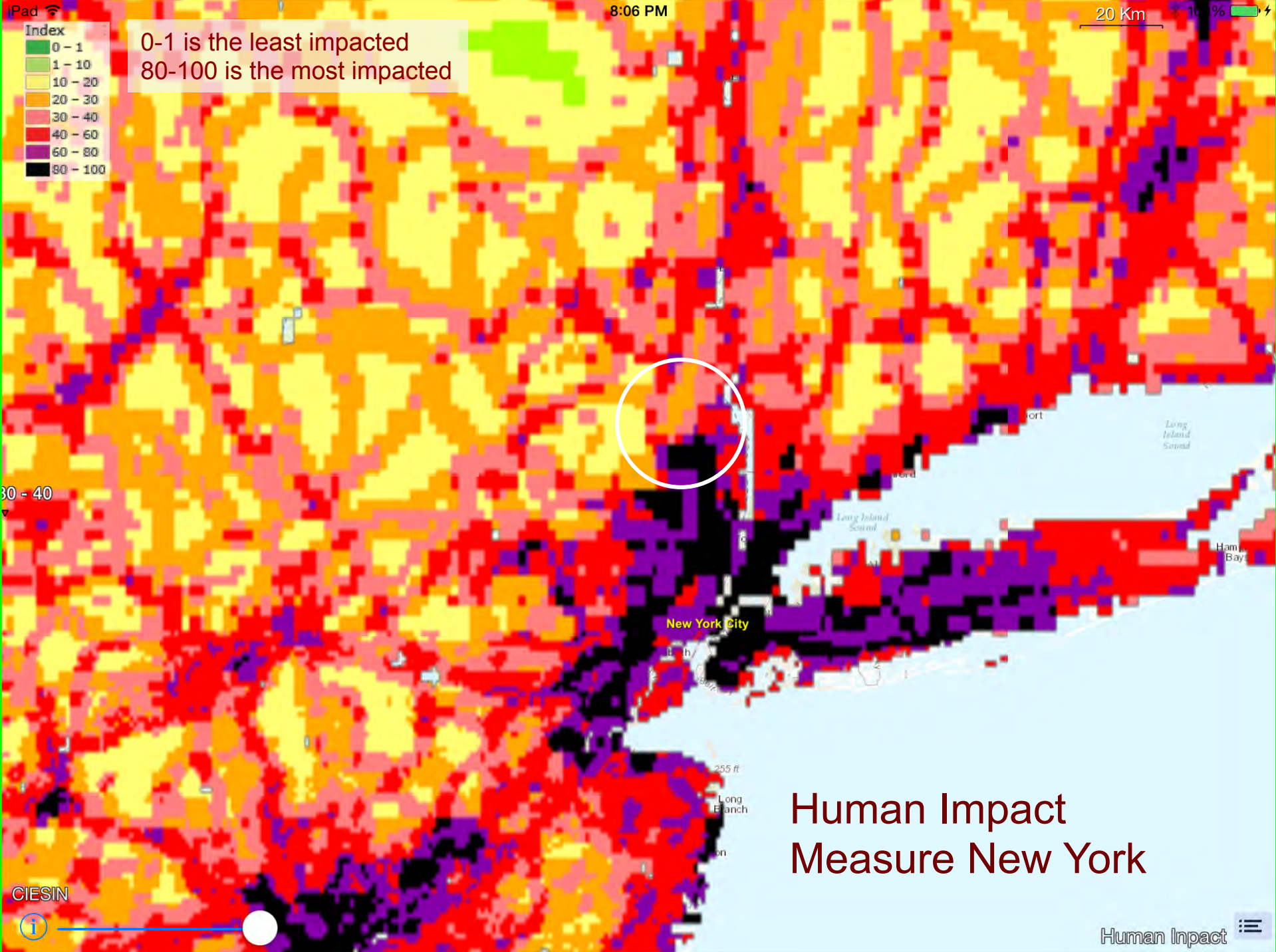
Piermont images from "Resilience Roadmap: Planning for Piermont's Future" Task Force Report 2014.

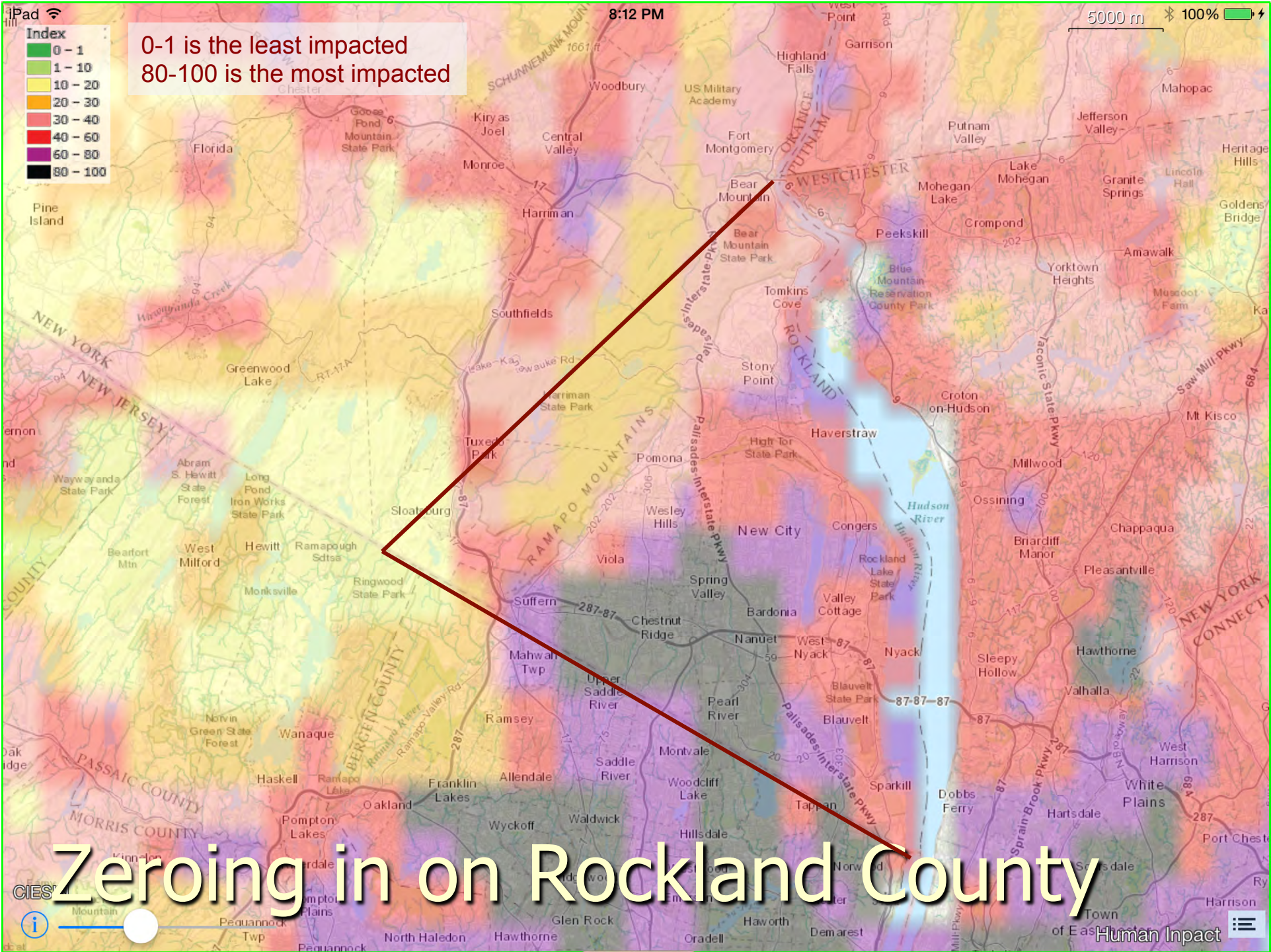
What does this have to do with planning?

We have made ourselves less resilient with the way that we have changed our landscape and hardened our surfaces.

The following maps are a measure of Human Impact. We can improve this with changes in our planning practices and land use decisions.

Maps from Polar Explorer: Sea Level app.
www.polarexplorer.org

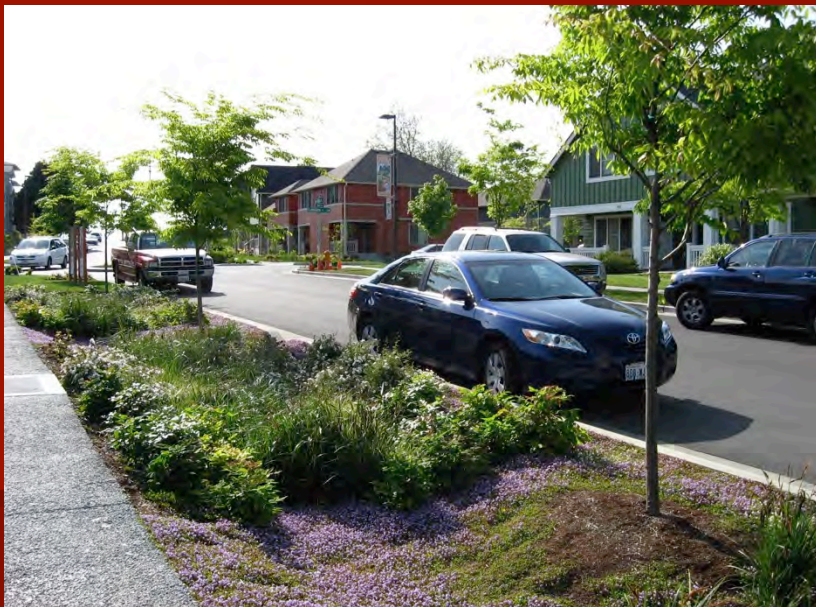




We can create change through planning



Permeable Pavement



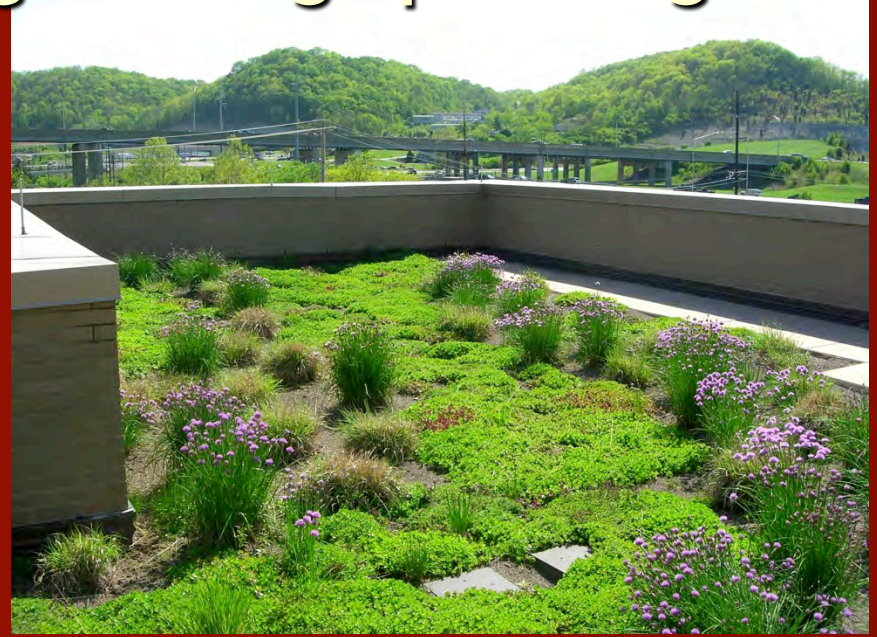
**Vegetation Islands
for 'run on'**

**Plant buffers between
sidewalks & streets**

We can create change through planning



Rain Barrels



Green Roofs



Rain Gardens



Retain Original Trees

We can create change through planning

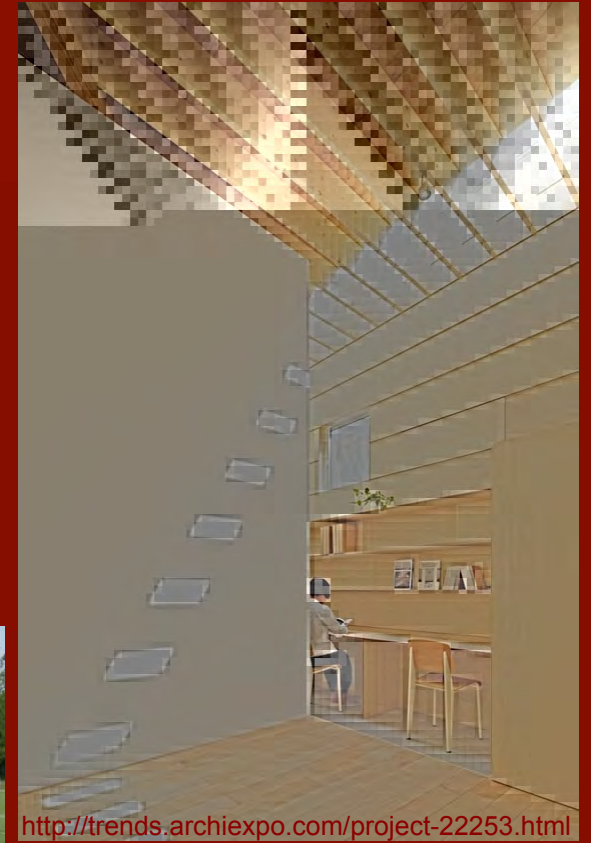
Encourage reduced energy use!

CARPOOL
& HYBRID
PARKING



Spaces that are walkable, bikeable, and encourage fuel conservation!

Solar to fuel our homes & businesses!



Natural sunlight!