

"Accountability for Climate Change Harms in New Jersey: Scientific, Policy and Legal Perspectives"

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Office of Sustainability, Department of Administration
City of Newark

19 August 2020

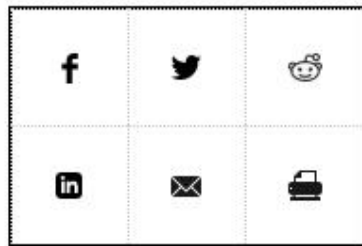
Here. Us. Now.



Disaster Program Allocates Unprecedented Funds for Climate Resilience

Communities will be able to tap into \$500 million to mitigate against disasters by, for example, strengthening building codes

By Thomas Frank, E&E News on August 13, 2020



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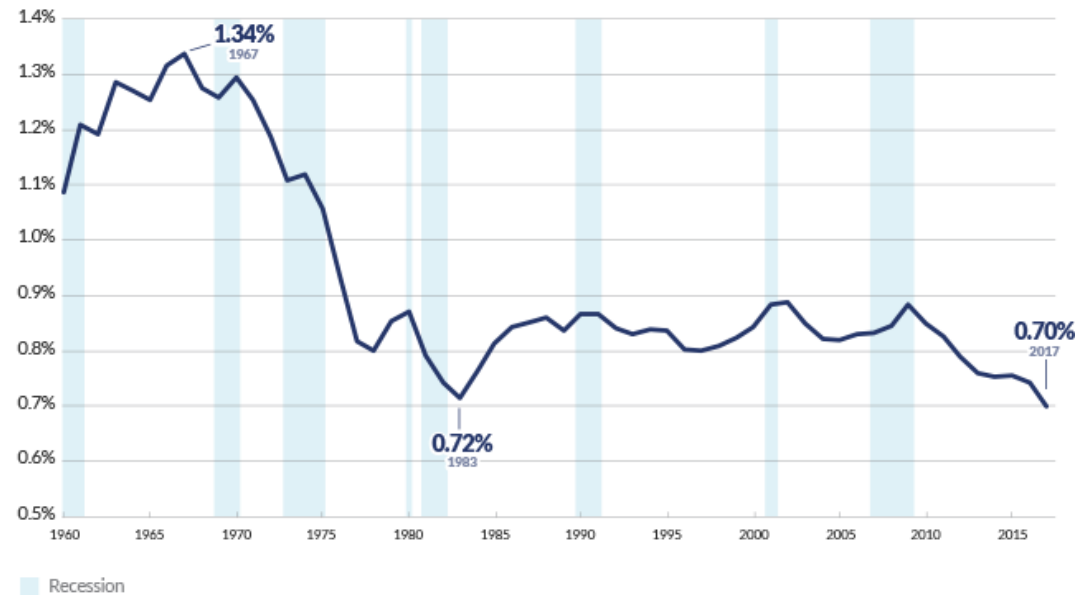
How To Stop Bad Bacteria Sticking Around

July 23, 2020

ARTS & CULTURE

States and cities have severe budget constraints

Figure 5
State Investment in Infrastructure at Lowest Level in More Than 50 Years
Spending on fixed assets as a share of GDP, 1960-2017

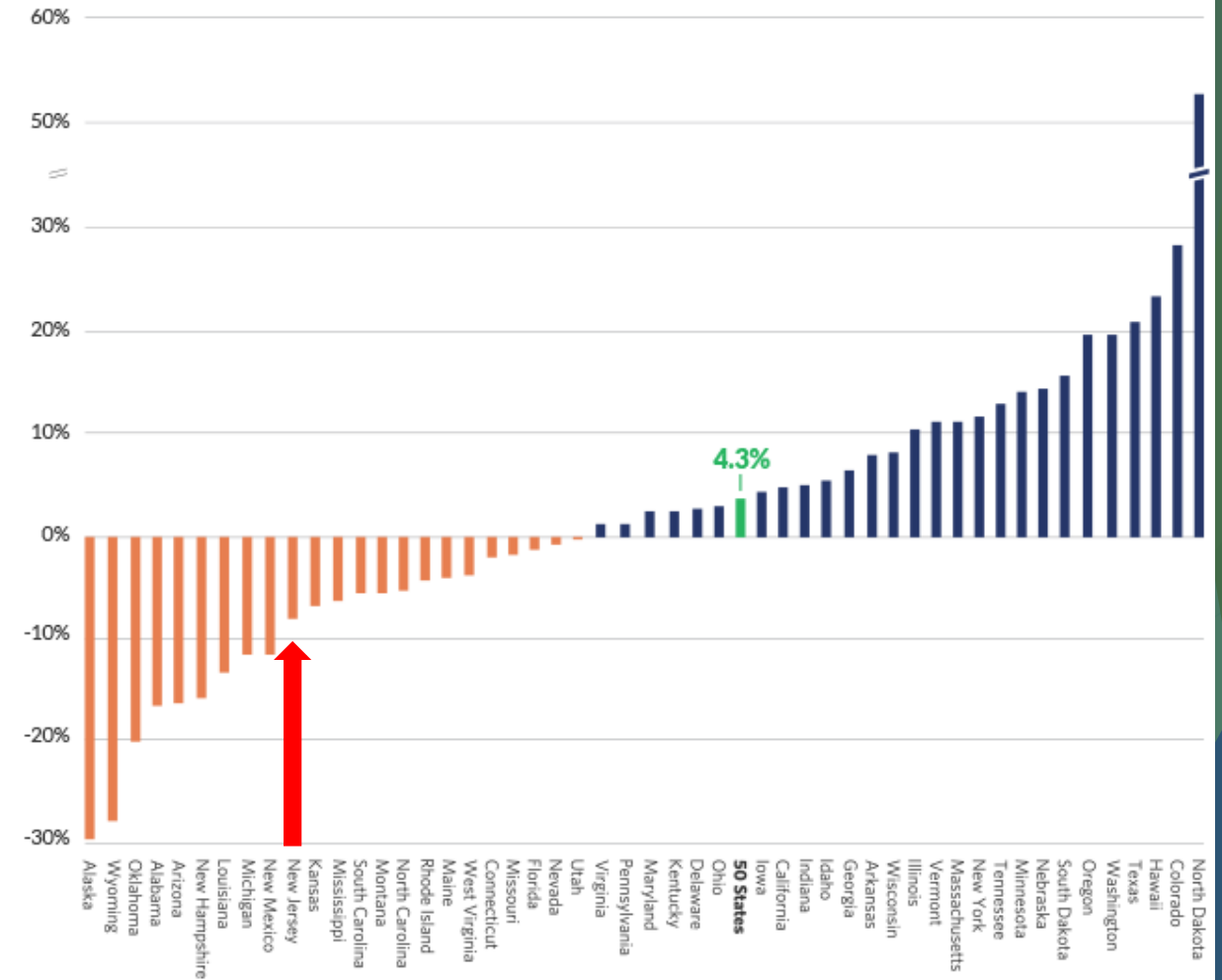


Sources: Pew analysis of data from the U.S. Bureau of Economic Analysis' State Government Current Receipts and Expenditures and the bureau's data for Gross Domestic Product

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<https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2019/06/lost-decade-casts-a-post-recession-shadow-on-state-finances>

Figure 2
 Nearly Half of States Are Spending Less Than a Decade Ago
 Percentage change after adjusting for inflation, fiscal 2008-18



Sources: Pew analysis of data from the National Association of State Budget Officers' "The Fiscal Survey of States" (fall 2009 and 2018) and the U.S. Bureau of Economic Analysis' Implicit Price Deflators for Gross Domestic Product

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NEWARK FORWARD



Newark

A City We Can All Believe In

An Empowered City
A Safer City
An Educated City
An Equitable City
A Collaborative City

DATAUSA:

NEWARK, NJ

ADD COMPARISON

POPULATION
282,102
1.07% DECLINE

POVERTY RATE
28.3%

MEDIAN AGE
33.7

MEDIAN HOUSEHOLD INCOME
\$37,642
7.04% GROWTH

NUMBER OF EMPLOYEES
128,606
8.87% GROWTH

MEDIAN PROPERTY VALUE
\$251,800
7.15% GROWTH

ABOUT

COVID-19

ECONOMY

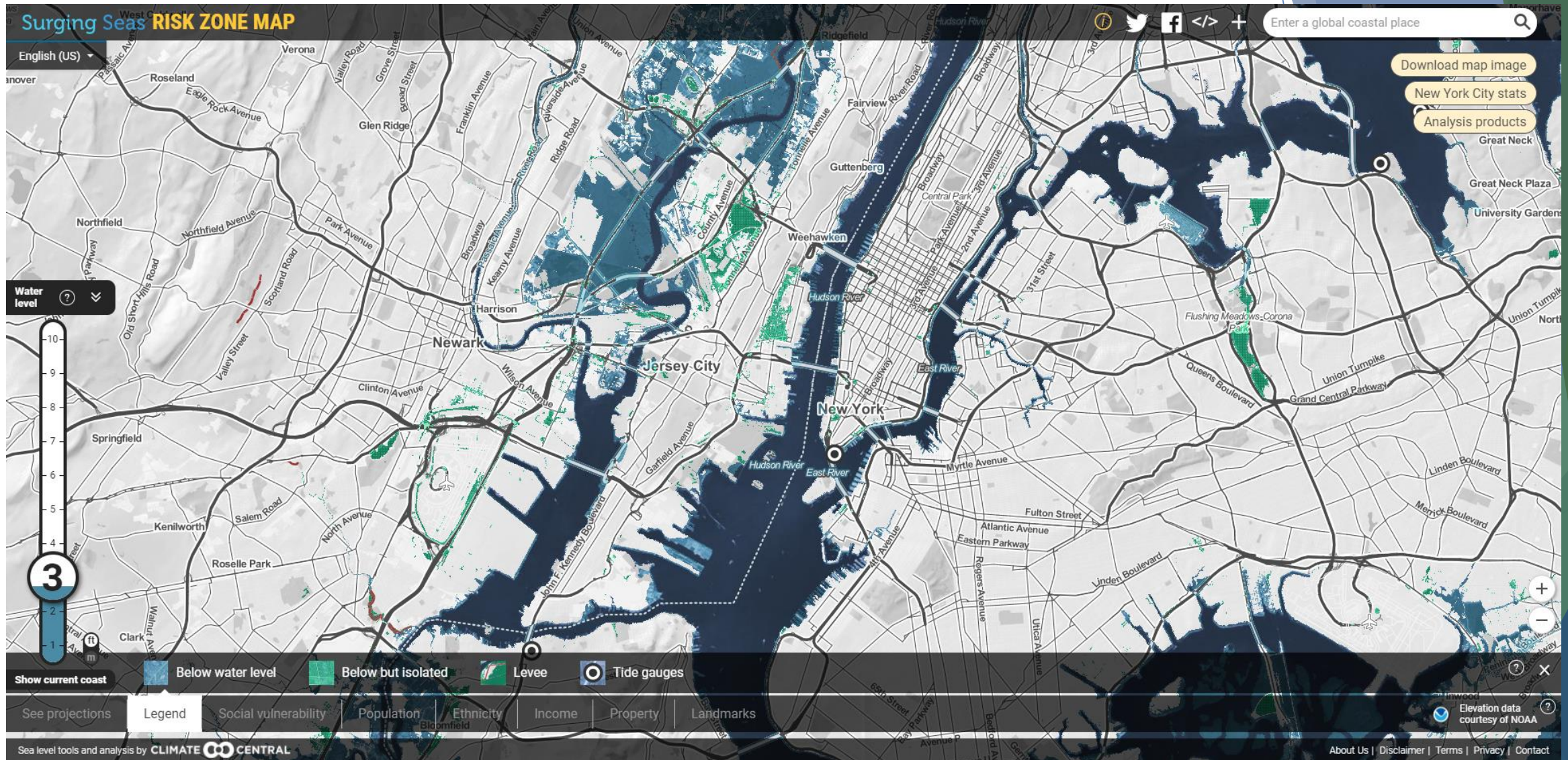
HEALTH

DIVERSITY

EDUCATION

HOUSING & LIVING

Source: <https://datausa.io/profile/geo/newark-nj/>



Source: <http://sealevel.climatecentral.org/maps>

New Jersey in 2040

\$25

BILLION
FOR SEAWALLS

6th most costly state

2,696

MILES
OF SEAWALLS

8th most miles of seawalls

GO DEEPER

RELATED DATA

Most costly New Jersey counties

#1 Cumberland County (\$5.8 Billion for seawalls)	SEE COST
#2 Ocean County (\$4.6 Billion for seawalls)	SEE COST
#3 Cape May County (\$4.2 Billion for seawalls)	SEE COST
#4 Salem County (\$3.3 Billion for seawalls)	SEE COST
#5 Atlantic County (\$2.1 Billion for seawalls)	SEE COST
SEE ALL	



Most costly New Jersey cities

#1 Atlantic City (\$364.5 Million for seawalls)	SEE COST
#2 Mystic Island (\$324.6 Million for seawalls)	SEE COST
#3 North Beach Haven (\$269.3 Million for seawalls)	SEE COST
#4 Ocean City (\$247.2 Million for seawalls)	SEE COST
#5 Brigantine (\$235.4 Million for seawalls)	SEE COST
SEE ALL	

GO DEEPER

Newark in 2040

\$29.86

MILLION
FOR SEAWALLS

#79 most costly in New-jersey

4

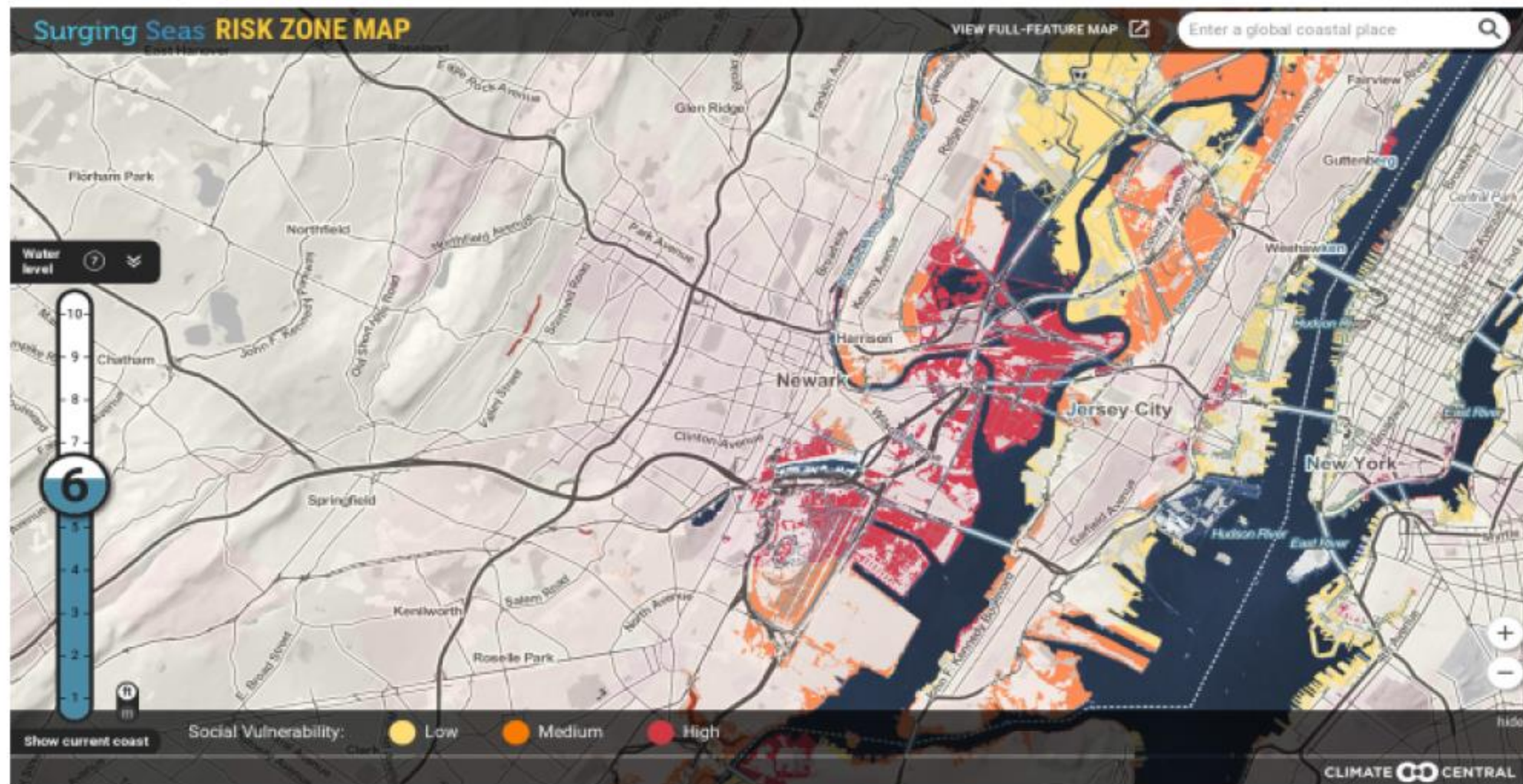
MILES
OF SEAWALLS

#63 most miles of seawalls in New-jersey

Make Big Oil pay. Not our community.

climatecosts2040.org

Land and population below 6 feet in Newark, NJ



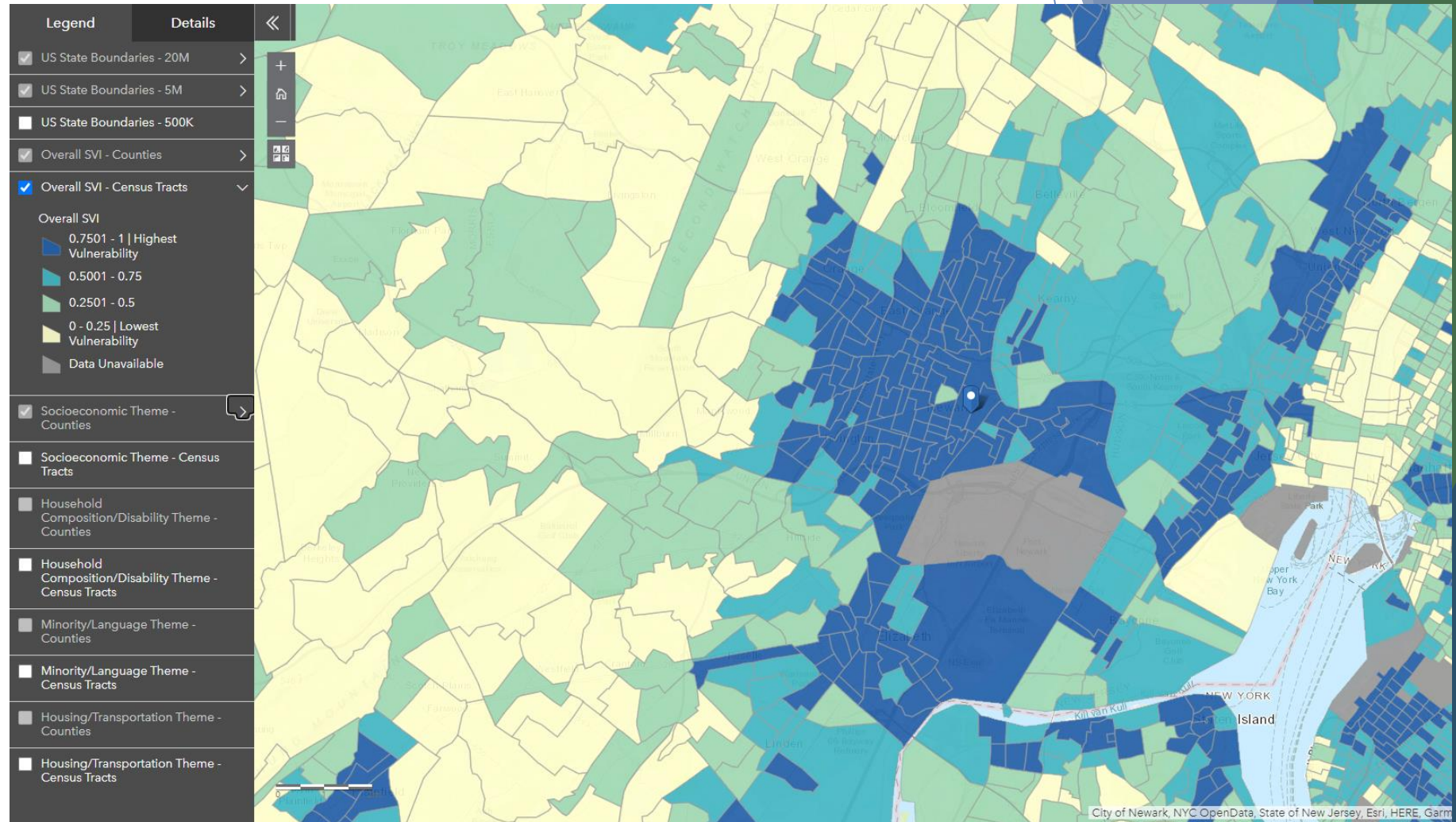
Social vulnerability (e.g. from low income) compounds coastal risk. Land below 6 feet is colored according to the legend. Surging Seas uses high-accuracy lidar elevation data supplied by NOAA. Map reflects a uniform sea level and/or flood height. Individual storm surge, tidal or rainfall events cause more complex and uneven water surfaces.

Email sealevel@climatecentral.org to ask about tailored analysis

Social Vulnerability Index

“Social vulnerability refers to the resilience of communities when confronted by external stresses on human health, stresses such as natural or human-caused disasters, or disease outbreaks. Reducing social vulnerability can decrease both human suffering and economic loss. CDC's Social Vulnerability Index uses 15 U.S. census variables at tract level to help local officials identify communities that may need support in preparing for hazards; or recovering from disaster.”

Source: <https://svi.cdc.gov/>

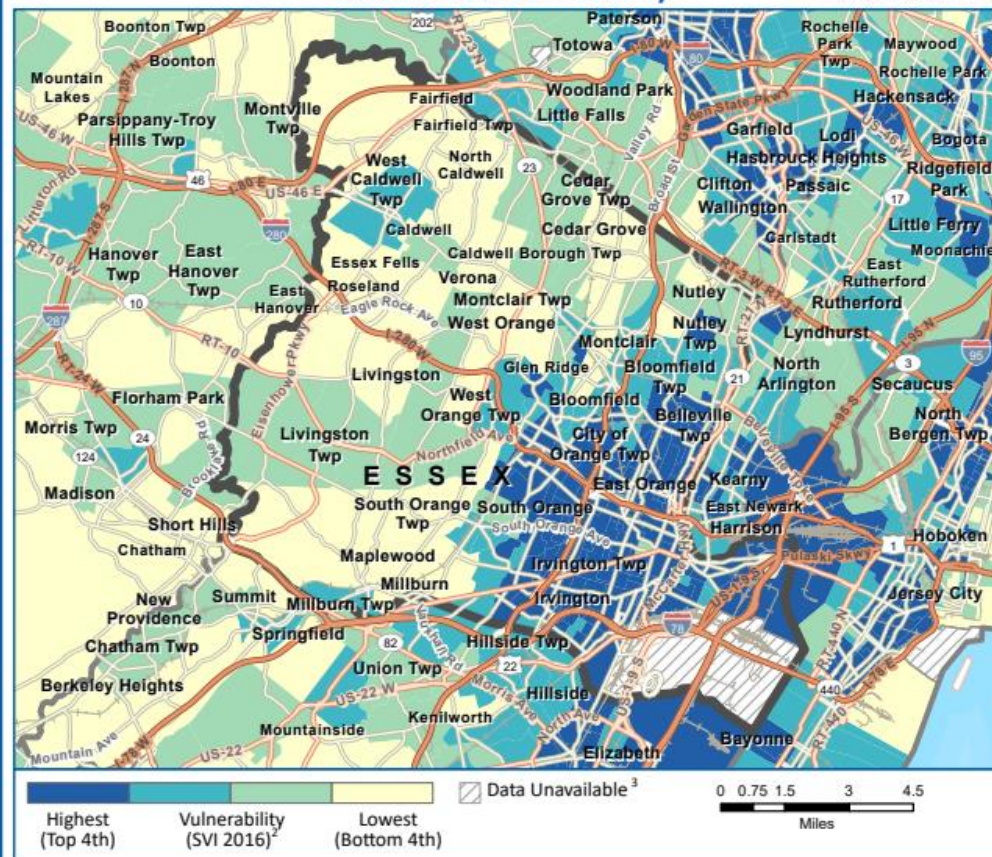


CDC's Social Vulnerability Index 2016

Essex County, New Jersey

PART 1

Overall Social Vulnerability¹



Social vulnerability refers to a community's capacity to prepare for and respond to the stress of hazardous events ranging from natural disasters, such as tornadoes or disease outbreaks, to human-caused threats, such as toxic chemical spills. The **Social Vulnerability Index (SVI 2016)³ County Map** depicts the social vulnerability of communities, at census tract level, within a specified county. SVI 2016 groups fifteen

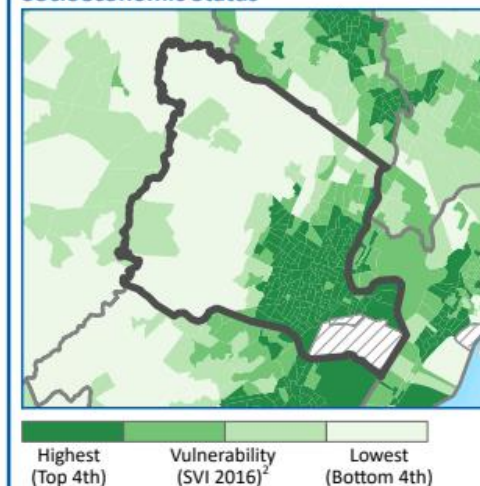
census-derived factors into four themes that summarize the extent to which the area is socially vulnerable to disaster. The factors include economic data as well as data regarding education, family characteristics, housing, language ability, ethnicity, and vehicle access. Overall Social Vulnerability combines all the variables to provide a comprehensive assessment.

SVI 2016 – ESSEX COUNTY, NEW JERSEY

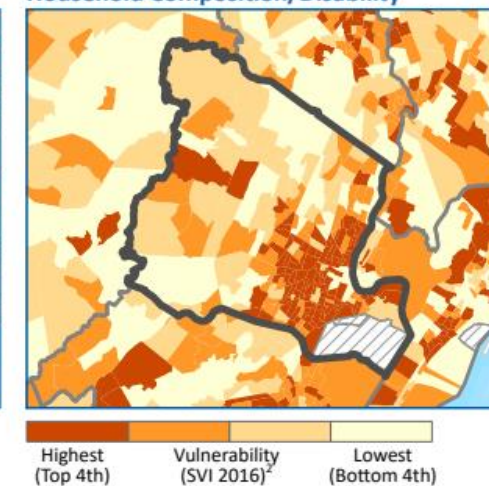
PART 2

SVI Themes

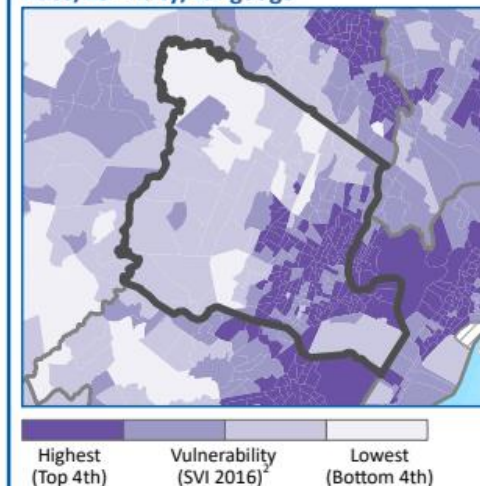
Socioeconomic Status⁵



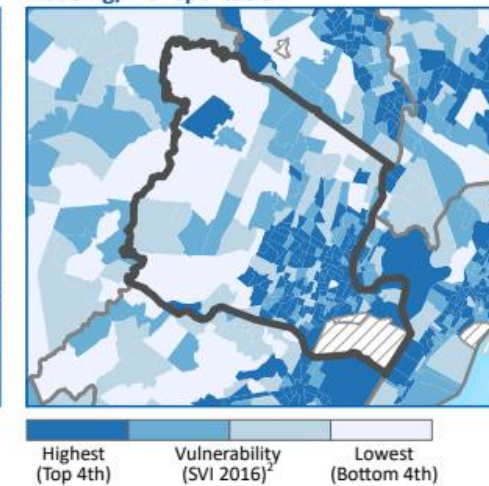
Household Composition/Disability⁶



Race/Ethnicity/Language⁷



Housing/Transportation⁸



Data Sources: ²CDC/ATSDR/GRASP, U.S. Census Bureau, Esri® StreetMap™ Premium.

Notes: ¹Overall Social Vulnerability: All 15 variables. ²Census tracts with 0 population. ³The SVI combines percentile rankings of US Census American Community Survey (ACS) 2012-2016 variables, for the state, at the census tract level. ⁴Socioeconomic Status: Poverty, Unemployed, Per Capita Income, No High School Diploma. ⁵Household Composition/Disability: Aged 65 and Over, Aged 17 and Younger, Single-parent Household, Aged 5 and over with a Disability. ⁶Race/Ethnicity/Language: Minority, English Language Ability. ⁷Housing/Transportation: Multi-unit, Mobile Homes, Crowding, No Vehicle, Group Quarters.

Projection: NAD 1983 StatePlane New Jersey FIPS 2900.

References: Flanagan, B.E., et al., A Social Vulnerability Index for Disaster Management. *Journal of Homeland Security and Emergency Management*, 2011. 8(1).
CDC's SVI web page: <http://svi.cdc.gov>.

MAP PRODUCED 2/23/2018

Agency for Toxic Substances and Disease Registry

Division of Toxicology and Human Health Sciences

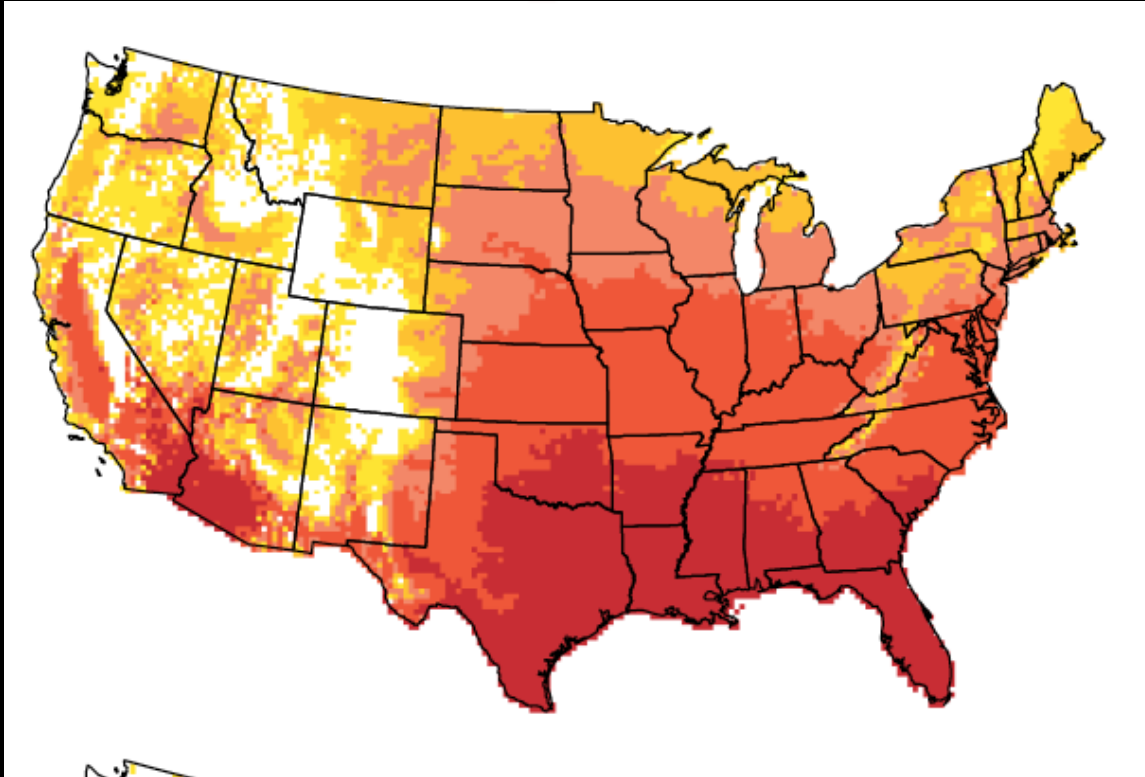
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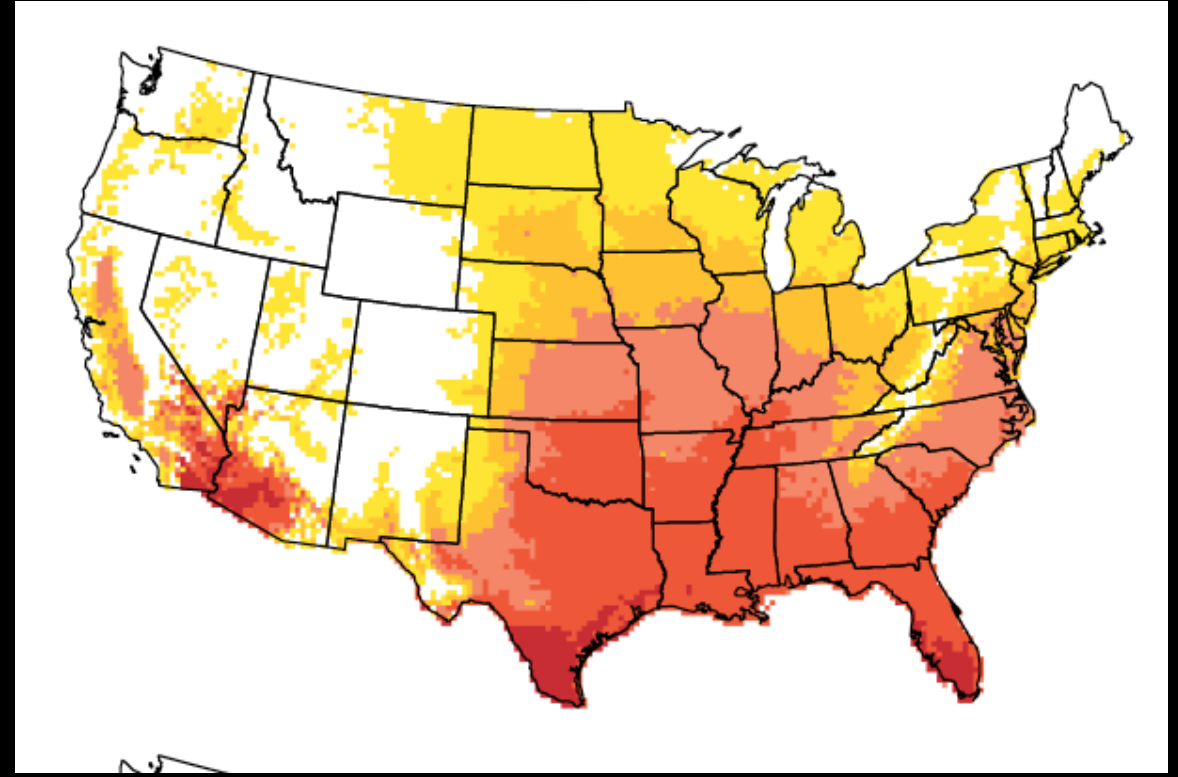
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FIGURE 8. Frequency of Extreme Heat by Late Century Depends on the Choices We Make

Late Century No Action



Late Century Rapid Action



Heat Index 100°F +

Average Days per Year

0-1

>1-10

>10-25

>25-50

>50-100

>100-200

TYPE IN YOUR LOCATION (CITY OR COUNTY) ⓘ

Essex County, NJ

CHOOSE HOW HOT ⓘ

Above 100°

This is what we can expect if we take immediate and aggressive steps to reduce heat-trapping emissions and limit global warming to 3.6°F (2°C)—the primary goal outlined in the Paris climate agreement.

WHERE WE ARE NOW

Historically

1971-2000 average

3

DAYS PER YEAR

WHERE WE ARE CURRENTLY HEADED ⓘ

Midcentury

2036-2065 average

22

DAYS PER YEAR

Late Century

2070-2099 average

45

DAYS PER YEAR

WITH BOLD ACTION ⓘ

Extreme Heat
Limited to

14

DAYS PER YEAR

<https://www.ucsusa.org/resources/killer-heat-interactive-tool>

Extreme Heat & Climate Change

HOW OFTEN WILL YOU ENDURE EXTREME HEAT WHERE YOU LIVE?

This tool shows the rapid increases in extreme heat projected to occur in locations across the US due to climate change. Results show the average number of days per year above a selected heat index, or “feels like” temperature, for three different time periods: historical, midcentury, and late century.

The results highlight a stark choice: We can continue along our current path, where we fail to reduce heat-trapping emissions and extreme heat soars, or we can act decisively now and stop the worst from becoming reality.

TYPE IN YOUR LOCATION (CITY OR COUNTY) ⓘ

🔍 New York-Newark, NY-NJ

CHOOSE HOW HOT ⓘ

Above 100° ▾

GO

WHERE WE ARE NOW

Historically
1971-2000 average

2

DAYS PER YEAR

WHERE WE ARE CURRENTLY HEADED ⓘ

Midcentury
2036-2065 average

18

DAYS PER YEAR

Late Century
2070-2099 average

40

DAYS PER YEAR

WITH BOLD ACTION ⓘ

Extreme Heat
Limited to

11

DAYS PER YEAR

The choice is clear: We can limit future extreme heat events but we must take bold action **now** to address the climate crisis.

How can cities better construct Climate Action Plans to ensure that the actions identified and prioritized can be implemented resulting in greater climate change mitigation and community resilience?

Six Major Types of Financial Mechanisms:

1. Grants
2. Partnerships
3. Loans
4. Bonds
5. Budget
6. New taxes and fees



For More Information: <https://www.usdn.org/products-government.html#/>

Funding and Financing Climate Action Plans

2019 USDN Innovation Fund Project

Final Report

USDN | urban sustainability
directors network

HIP: INVESTOR
Human Impact + Profit



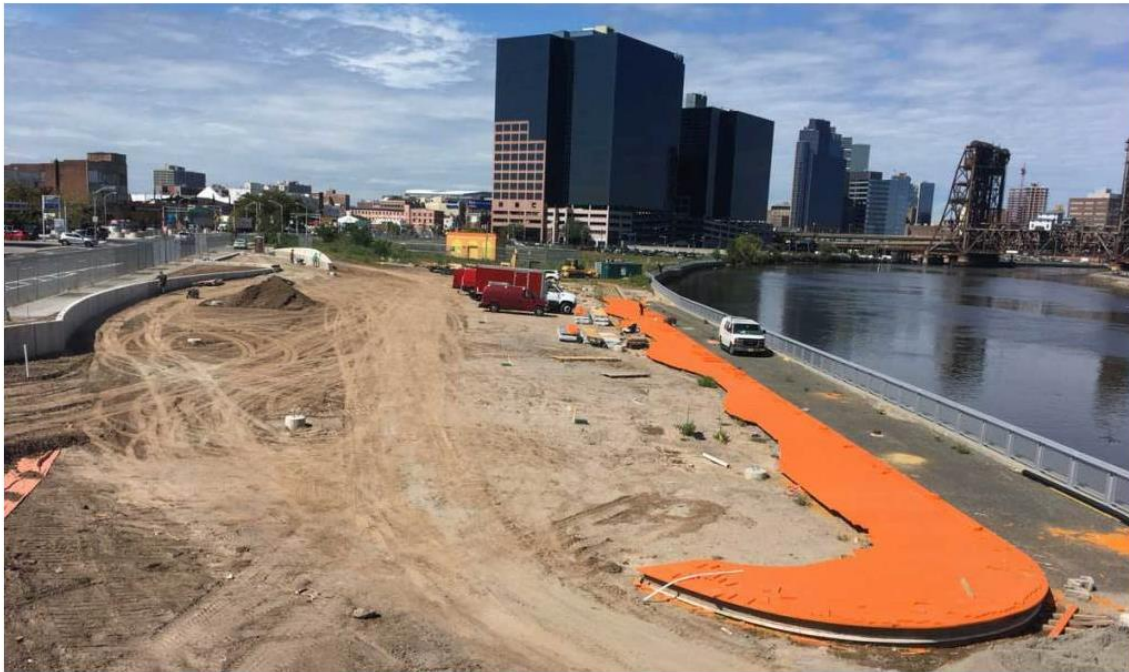
COMMUNITY CLIMATE ACTION PLAN - Fall 2019

Type of Action	Capital-Intensive Climate Action Initiatives	\$ Type	Top Funding & Finance Pathways	Sample Funders / Partners	Case Examples
Energy Supply + Energy In Buildings	ES3D/EB2D: Launch Revolving Loan Fund to Finance Renewable Energy + Energy Efficiency Projects \$50,000 - 250,000 in seed funding, 1.5-3% admin costs	Grant	Government and Foundation Grants	Reinvestment Fund, EnergyTrust	Baltimore Loan Program
		Loan	Bank Loan, Private Investment Fund, PRIs	Coalition for Green OpClean Energy	Colorado Clean Energy Fund
		Budget	Bend OR, City Budget - One Time Allocation	City of Bend, OR	Montpelier Energy Fund
	ES3E: Develop Community Solar Projects \$360,000 per farm (360kW scale) saves 540 tons CO ₂ /yr	Grant	Government Renewable Energy Grants	Oregon DOE, EnergyTrust	Wallows OR
		Partner	Developer or Utility Owned w/ User Subscription	Central Electric Coop, Pacific Power	Decatur Island, WA
		Loan	Community Shared Equity (Special Purpose Entity/VNM)	Clean Energy Collective	Boardman Hill, VT
		Loan	Revolving Loan Fund (anchor investment)	Spark Northwest	Sust. Energy Trust, WA
	ES3F: Pilot Renewable Microgrid and Battery Storage \$360k (40 kW solar + 110 kW storage) CERP = 200k	Grant	Government Renewable Energy Grants & Rebates	Oregon DOE, EnergyTrust	Eugene OR, OR Rebate
		Partner	Power Purchasing + Energy Savings Agreement	CEC/Pacific Power + Gridscape	Fremont, CA Microgrid
		Loan	Community Finance	Oregon Clean Power Co-Op	Tillamook County OR
Transport	ES3H: Create a Commercial PACE Program \$250k start up costs, once established ~\$900,000 loaned/yr	Loan	Low-Interest Financing	Oregon SELP, Dividend Solar	Dynapower Financing
		Bond	General Obligation Bond (could be certified green)	Oregon State Treasury / Facilities Auth	Camden, NJ Microgrid
		Fee	'Resilience' Tariff / Utility Fee (on electricity bill)	CEC / Pacific Power	Hawaii Microgrid Tariff
	ES4A: Build Biodigester at Wastewater Treatment Facility \$12.9 million, CERP = 140k	Budget	City Budget (for ~1 FTE C-PACE Admin)	City of Bend / Deschutes County	Reno, NV
		Grant	Government Renewable Energy Grants & Rebates	Oregon RAD, EnergyTrust	Junction City / Salem OR
		Partner	Power Purchasing Agreement (PPA)	Ameresco	Woodland Meadow
		Bond	General Obligation / Revenue Bond	Wells Fargo, JPMorgan, MorganStanley	Grand Rapids, MI
	ES5: Install Solar Panels on Public Buildings \$1.3 million (1.9MW on schools/city buildings) CERP = 20k	Grant	Government, State and Foundation Grants	OR DOE, EnergyTrust	Portland, OR - Solar
		Partner	Power Purchasing Agreements (PPA)	CEC / Pacific Power	Haverhill, MA - Solar
		Partner	Collaborative Purchasing	SEED Fund	Silicon Valley, CA
Waste		Loan	Tax-Exempt Lease Purchase Agreement	ENGIE / local ESCO	Stafford, CT / Gonzales, CA
		Loan	Renewable Energy Revolving Loan Fund	Oregon Energy Loan Program	Las Vegas, NV - Solar
		Bond	General Obligation Bond (could be certified green)	Oregon State Treasury / Facilities Auth	Lakeport, CA
	T3A: Create a Mobility Hub Program \$250,000 per hub (4 hubs in initial scope)	Grant	Government and Foundation Grants	US DOT Bike/Pedestrian Grants	Miami, FL - Underline
		Partner	Public Private Partnership / Sponsorship	Cascade East Transit	Kansas City - Think Big
		Bond	General Obligation Bond (could be certified green)	Oregon State Treasury / Facilities Auth	Sound Transit - Seattle
		Fee	New Transport User Fee for Bend Drivers	Bend Transportation	Chicago Transit Fee
	T5A: Convert City/Agency Fleet to EVs + Alternative Fuel \$40k/EV, \$1-5k/charging str (600 total vehicles) CERP = 50k	Grant	Government and Zero Emission Vehicle Grants	MultiState ZEV Funding	New York State ZEV Grants
		Partner	Collaborative Purchasing	Climate Mayors Collaboration	Chula Vista, CA
		Loan	Tax-Exempt Lease Purchase Agreement	Go Electric Oregon - Nissan Leaf	New Bedford, MA - EVs
Outreach Education Incentives Policy		Bond	General Obligation Bond (could be certified green)	Wells Fargo, JPMorgan, MorganStanley	LeasePlan
	W1A/C: Multifam Program + Expand Solid Waste System Managed by county (Facility & Infrastructure)	Partner	Performance-Based Waste Management Contract	Covanta, Cascade Disposal	Example Contract Template
		Loan	Federal Loan	SBA 504 Loan Program	Union City, Ga - Loan
		Loan	Loan Capacity from Private Partner	Closed Loop Fund	Scott County, IA
		Bond	General Obligation Bond (could be certified green)	Oregon State Treasury / Facilities Auth	Rethink Waste
		Fee	Raise Waste Hauler Fees / User Chargers	Bend Garbage & Recycling	Culver City, CA
	W3A: Improve Food Waste Recovery & Curbside Compost Managed by private contractors / county, CERP = 210,000	Grant	Government and Foundation Grants	Oregon DEQ Materials Grant	DEQ 2019 Grant Awardees
		Partner	Public Private Partnership	Local Institutions - Recycling Advocates	Indiana Pilot Program
		Fee	Raise Waste Hauler Fees / User Chargers	Bend Garbage & Recycling	Culver City, CA
	W4A: Increase Construction/Demolition Waste Recovery Managed by county, CERP = 150k	Grant	Federal/State Grants	Oregon DEQ	Bunn Box C&D Recycler
	Outreach Campaigns and Educational Programs Additional FTE across agencies	Loan	Loan Capacity from Private Partner	Closed Loop Fund	Lakeshore Recycling
		Bond	Revenue or Environmental Impact Bond	Quantified Ventures	Baltimore, MD Urban Wood
	Outreach Education Incentives Policy Costs highly variable	Grant	Nonprofit and/or Foundation Grants	QELP, EFAO, EnergyTrust	Enviro Education Oregon
	Incentives To Transition To Sustainable Economy Costs highly variable	Budget	Integrate into Capital Planning	EnergyTrust	EnergyTrust
	Policy Initiatives & Zoning Requirements Additional FTE across agencies and departments	Budget	Integrate into Capital Planning	LEAN, EnergyTrust	Berkeley, CA

Embed resiliency everywhere

ISSUE #65

NEWARK EXPANDS SUCCESSFUL RIVERFRONT PARK TO RECONNECT CITY AND REVITALIZE DOWNTOWN



Source: <https://revitalization.org/article/newark-expands-new-riverfront-park-reconnect-city-revitalize-downtown/>



Source: <https://waterfrontalliance.org/2018/08/03/worth-a-visit-newark-riverfront-park/>