



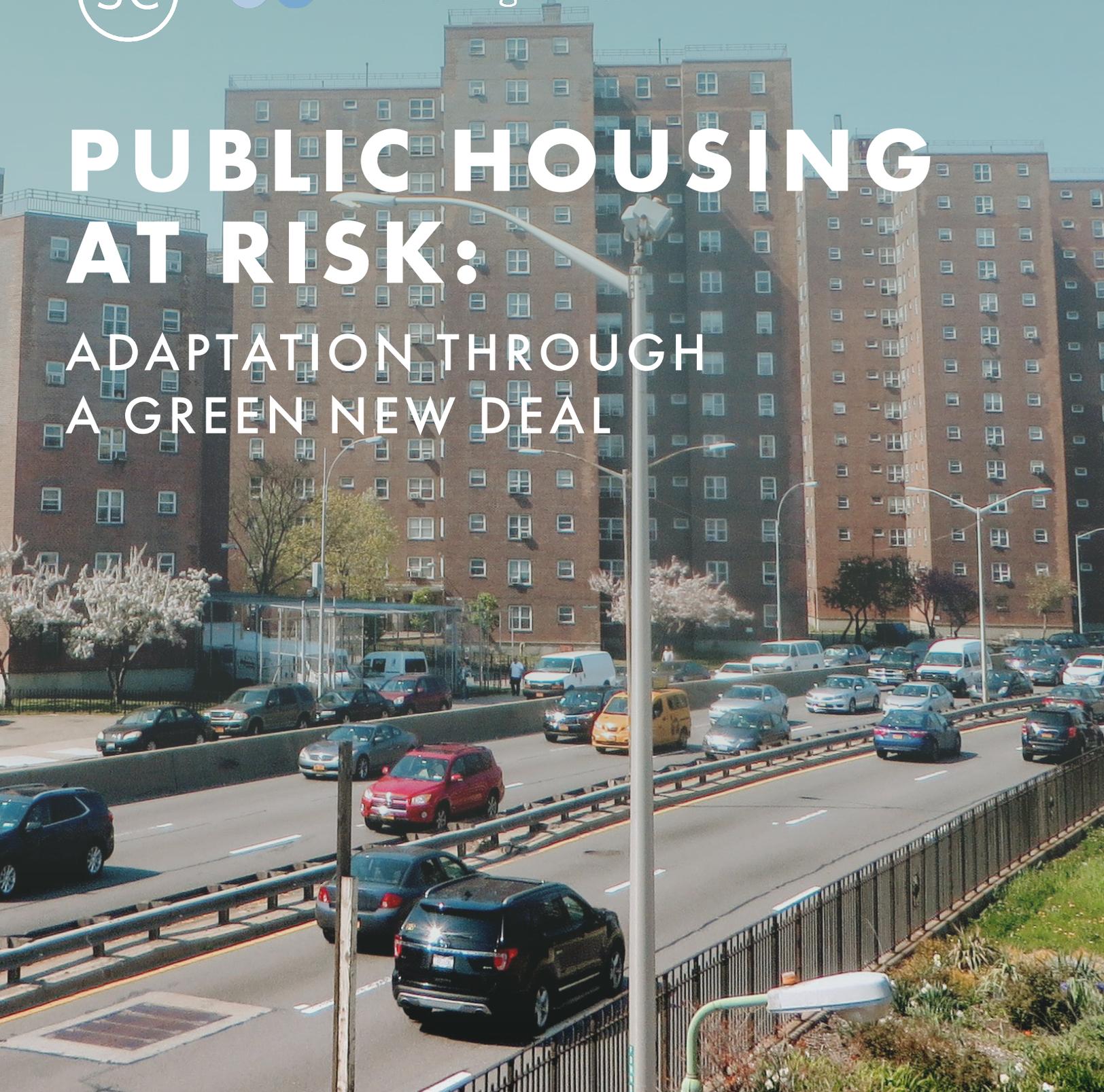
DATA FOR *PROGRESS*



The McHarg Center

PUBLIC HOUSING AT RISK:

ADAPTATION THROUGH A GREEN NEW DEAL



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Background

Data for Progress, the Socio-Spatial Climate Collaborative, and the Ian McHarg Center for Urbanism + Ecology recently published a series of policy reports outlining the benefits of The Green New Deal for Public Housing Act proposed by Rep. Alexandria Ocasio-Cortez and Sen. Bernie Sanders. In our [polling memo](#), [NYCHA report](#), and [National report](#), we find the benefits of investing in deep energy retrofits and capital improvements to public housing would be a powerful and efficient way to advance the goals of the Green New Deal: lowering carbon emissions, lifting up frontline communities, and creating millions of good green jobs along the way.

But confronting climate change means more than just the aggressive abolition of carbon pollution. We must also adapt to extreme weather, sea level rise, and chronic effects from climate change like heat and drought that are already locked into projections of the near future. As Rep Ocasio-Cortez has said repeatedly, public housing is infrastructure. And much of that infrastructure is more vulnerable than most experts. There is simply no better place to begin decarbonizing *and* adapting to climate change than in our public housing communities.

Many of America's public housing units have been constructed in our most precarious locations—in the drained swamplands, unprotected coastal and riverine landscapes, and otherwise flood-prone areas that real estate developers and local elected officials deemed too risky for private investment. In some inland communities, public housing complexes—and much of our most noxious heavy industry facilities—also tends to be located in high-risk areas. Most buildings were constructed at a time of very different building codes and as cost-efficiently as possible—leaving out systems such as air conditioning

that most Americans view as a basic need. Along the coast, public housing and heavy port and petrochemical facilities often sit alongside one another in areas exposed to storm surge and, increasingly, sunny day flooding—a phrase used to describe the increasing rate of flooding as sea levels rise and high tide forces saltwater through sewer outfalls and into neighborhoods in communities like Charleston, SC, Galveston, TX, and Norfolk, VA.

Public Housing's vulnerability is most apparent and urgent in relation to rising sea levels. The Urban Institute and Furman Center estimate that [at least 9% of U.S. public housing units rest in the 500-year floodplain](#)—roughly 117,000 of the 1.3 million total units. This estimate is based on current flood maps which are based on past experience and not accurate depictions of current or future flood risks. Tens of thousands more are surely at risk from wildfires out West and expanding floodplains in [inland communities](#). These high-risk areas are expanding as a result of the increasing intensity of acute and chronic events due to climate change, the tendency of low-income residents to be forced into living in exposed areas, and the ways in which sprawling development replaces natural flood and water storage landscapes and heat retention with concrete, large homes, and other impervious surfaces. Put another way, 9% is the most conservative possible estimate of the number of public housing units currently sitting in the floodplain—the true number at risk is far higher. Tens of millions of people currently living in the US are going to be displaced by climate change this century, including [at least 13 million from sea level rise alone](#). Many will be vulnerable public housing residents.

Though we do not yet have good estimates for the number of public housing units at risk of increased inland flooding, wildfire, drought, extreme heat, and other non-coastal hazards, there is data available for sea level rise. **We estimate that at least 63,400 units of public**

housing could be at or below mean high-tide under a high-emissions and sea level rise scenario by . Tens of thousands more would be placed into a new surge zone under this scenario, exposing far more public housing units to the harshest impacts of hurricanes like [Maria](#) and [Harvey](#).¹ Without a Green New Deal for Public Housing that includes major investments in community resilience and adaptation, residents will be forced to do what they're always forced to do: [bear the brunt of these disasters on their own](#).

Last month, Rep. Ilhan Omar introduced the Homes for All Act. In it, she calls for the construction of 12 million new units of public housing over 10 years—an idea first put on the table by the Homes Guarantee. The bill rightly argues that the only way to close the yawning gap between the number of public housing units we have and the number we need is to dramatically and immediately scale up their construction. The gap grows when considering how many of the current units will be offline due to climate-related damages and ongoing capital disinvestment without a Green New Deal for Public Housing.

Just like the Green New Deal for Public Housing Act, the Homes for All Act calls for repealing the [Faircloth Amendment](#), allowing the federal government to finally build new public housing again along with retrofitting where appropriate.

In addition to all the arguments made by Rep. Omar, we need to build at least 12 million units in 10 years because we're going to lose a substantial number of our existing public housing as the effects of climate change set in.² Much of the Green New Deal's framing has rightly focused on three primary

goals: decarbonization, justice, and jobs. But for the GND to succeed, it will also have to place adaptation among its primary goals, in particular as a central component of its green jobs policies and its frontline community investments. This will require investments in flood-proofing for multi-story buildings, protective infrastructure in most flood-prone communities, and in some cases, resettlement elsewhere. As the Green New Deal for Public Housing agenda continues to take shape, it will need to couple investments in decarbonization, justice, and jobs with adaptation and resilience.

- ▶ The Urban Institute and Furman Center estimate that at least 9% of the existing public housing units already rest in the floodplain—roughly 117,000 homes. We project an additional 2,056 units will be inundated by 3' of sea level rise, an additional 34,476 by 7' of sea level rise, and an additional 63,400 by 7' of sea level rise—180,400 public housing units, or 13.8% of the existing stock in this country.
- ▶ This does not account for the public housing units that will be lost to inland flooding, drought, wildfire, extreme heat, and other climate and development-related pressures. This only underscores the need to build 12 million units in 10 years as described in Rep. Ilhan Omar's Homes for All Act. We are going to lose much more than 13.8% of the public housing supply to climate change this century.
- ▶ In addition to bolstering the case for building new public housing, this sea level rise data should also inform the rollout of Rep. Ocasio-Cortez and Sen. Sanders Green New Deal for Public Housing Act through a more tailored approach to deep energy retrofit investments. Namely, those retrofits should be

the most intensive in public housing units we know will be largely secure from the impacts of climate change and scaled down as their risk of inundation, fire, etc. increase—those units and residents should be first in line for resettlement and relocation as we begin building 12 million new units elsewhere.

- ▶ New units must be constructed outside of the risk areas. In our report on the Green New Deal for NYCHA, we discuss the need to build more housing and suggest ways of doing so that would also increase community vitality and achieve the Green New Deal for Public Housing Act’s goal of adding social services and organic food options to public housing communities. More attention is needed on these issues, especially the question of purchasing new land for public housing in well-connected, walkable areas, as envisioned by the Homes for All Act, or a commensurate expansion of housing vouchers with affordable housing financing to develop energy-efficient and resilient assisted housing units as matched to the local housing stock and public housing governance.
- ▶ Where resettlement is best, extensive wraparound services and one-for-one household relocation guarantees must be made before, during, and after moves to ensure that the most vulnerable residents’ needs are met.
- ▶ This sliding scale of deep energy retrofits must be accompanied by a commensurate investment in adaptation strategies in each public housing community. These should range from the flood-proofing of ground floors in towers to the construction of hard and soft infrastructure to act as surge

barriers to strategic resettlement in communities at immediate risk of inundation by sea level rise. These adaptation investments should be deployed in concert with a national-scale deep energy retrofits program to ensure these frontline communities are the site of both strategic investments in jobs, justice, and decarbonization, and that they are protected from the new flood, heat, and fire risks posed by climate change.

- ▶ There is no better place to begin the processes of decarbonization and climate adaptation than the nation’s public housing communities. To do this well, deep energy retrofits have to be coupled with a suite of infrastructural adaptation strategies.

Public Housing and Sea Level Rise

It is a feature, not a bug, of land development in the United States that our [poorest people are forced to live in our highest-risk landscapes](#). Along urban highways, this means that low-income communities experience far higher rates of asthma and other public health disparities. Around the hazardous waste and heavy industrial facilities of the waste and petrochemical industries, this means that low-income communities experience far higher rates of cancer and mortality. And along the coast, this means that nearly every community with public housing units will lose a significant number of them to sea level rise.

Table 1. **Public housing units at risk from sea level rise by state**

| State | Partisan Control (Gov) | Total Buildings | Total Units | Total Residents | Units Lost w/3' SLR | Units Lost w/7' SLR | Units Lost w/10' SLR | Median HH Income | Poverty Rate |
|-------|------------------------|-----------------|-------------|-----------------|---------------------|---------------------|----------------------|------------------|--------------|
| FL | Republican | 221 | 29892 | 62718 | 617 | 5878 | 10035 | \$14,267.08 | 33.0% |
| LA | Republican | 169 | 18775 | 38706 | 187 | 799 | 1635 | \$13,093.27 | 36.3% |
| SC | Republican | 97 | 12864 | 29013 | 0 | 944 | 1405 | \$12,300.88 | 30.6% |
| NC | Republican | 226 | 26203 | 55868 | 190 | 622 | 1098 | \$11,510.96 | 33.4% |
| TX | Republican | 510 | 46949 | 94851 | 0 | 220 | 802 | \$13,383.95 | 31.1% |
| GA | Republican | 319 | 32130 | 66868 | 0 | 217 | 606 | \$13,218.05 | 34.1% |
| AL | Republican | 258 | 33723 | 65172 | 0 | 0 | 245 | \$12,161.68 | 34.0% |
| MS | Republican | 70 | 8924 | 19148 | 0 | 0 | 27 | \$12,599.93 | 37.0% |
| AK | Republican | 14 | 1242 | 3334 | 0 | 0 | 0 | \$29,928.73 | 14.6% |
| NY | Democrat | 356 | 200075 | 408401 | 100 | 14051 | 26525 | \$22,827.37 | 37.5% |
| MA | Democrat | 213 | 33928 | 61324 | 0 | 3080 | 7596 | \$19,559.16 | 28.2% |
| NJ | Democrat | 217 | 31341 | 52707 | 613 | 5524 | 6768 | \$18,181.75 | 29.3% |
| VA | Democrat | 114 | 16085 | 34668 | 0 | 982 | 2729 | \$11,994.36 | 43.0% |
| CT | Democrat | 120 | 14104 | 25406 | 0 | 1412 | 1810 | \$16,909.65 | 26.1% |
| CA | Democrat | 178 | 28690 | 73060 | 0 | 398 | 951 | \$ 20,629.74 | 33.9% |
| MD | Democrat | 91 | 12981 | 23632 | 329 | 329 | 540 | \$14,191.57 | 35.0% |
| RI | Democrat | 67 | 9187 | 14851 | 0 | 0 | 193 | \$15,623.77 | 26.8% |
| DE | Democrat | 26 | 2296 | 5011 | 0 | 0 | 181 | \$16,102.53 | 30.2% |
| WA | Democrat | 126 | 11978 | 21835 | 20 | 20 | 156 | \$18,681.06 | 21.5% |
| OR | Democrat | 53 | 3705 | 8168 | 0 | 0 | 98 | \$16,914.75 | 18.3% |

Table 2. **Public housing units at risk from sea level rise by metropolitan statistical area**

| MSA | Total Buildings | Total Units | Total Residents | Units Lost w/3' SLR | Units Lost w/7' SLR | Units Lost w/10' SLR | Median HH Income | Poverty Rate |
|---|-----------------|-------------|-----------------|---------------------|---------------------|----------------------|------------------|--------------|
| New York-Newark-Jersey City, NY-NJ-PA | 364 | 200058 | 407027 | 100 | 16553 | 29872 | \$23,105.44 | 36.8% |
| Boston-Cambridge-Newton, MA-NH | 148 | 24100 | 41500 | 0 | 2800 | 7316 | \$20,202.41 | 26.2% |
| Miami-Fort Lauderdale-West Palm Beach, FL | 66 | 12126 | 22676 | 29 | 3806 | 7086 | \$14,289.34 | 36.4% |
| Virginia Beach-Norfolk-Newport News, VA-NC | 47 | 6263 | 13706 | 0 | 982 | 2729 | \$13,078.27 | 46.1% |
| Atlantic City-Hammonton, NJ | 9 | 1597 | 2582 | 492 | 1597 | 1597 | \$14,758.05 | 43.1% |
| Philadelphia-Camden-Wilmington, PA-NJ-DE-MD | 162 | 20624 | 41416 | 0 | 1038 | 1516 | \$16,925.68 | 38.8% |
| Charleston-North Charleston, SC | 7 | 1932 | 4476 | 0 | 944 | 1405 | \$12,030.41 | 30.6% |
| Bridgeport-Stamford-Norwalk, CT | 41 | 4726 | 9262 | 0 | 998 | 1248 | \$17,828.41 | 29.4% |
| Key West, FL | 3 | 638 | 1165 | 588 | 588 | 638 | \$22,991.30 | 12.8% |
| San Francisco-Oakland-Hayward, CA | 43 | 5971 | 11503 | 0 | 308 | 637 | \$20,694.83 | 25.2% |
| Brunswick, GA | 4 | 627 | 1592 | 0 | 217 | 586 | \$12,003.43 | 40.0% |
| Deltona-Daytona Beach-Ormond Beach, FL | 11 | 1196 | 2798 | 0 | 426 | 569 | \$13,521.08 | 28.4% |
| New Haven-Milford, CT | 42 | 4021 | 7186 | 0 | 414 | 562 | \$15,790.56 | 24.0% |
| New Orleans-Metairie, LA | 46 | 3635 | 6944 | 129 | 404 | 550 | \$14,823.09 | 45.6% |
| Palm Bay-Melbourne-Titusville, FL | 6 | 998 | 2158 | 0 | 371 | 533 | \$14,972.16 | 28.8% |
| Houston-The Woodlands-Sugar Land, TX | 29 | 4273 | 8869 | 0 | 154 | 530 | \$13,063.43 | 36.6% |
| Houma-Thibodaux, LA | 4 | 1089 | 2138 | 0 | 209 | 507 | \$11,873.85 | 24.8% |
| Providence-Warwick, RI-MA | 91 | 13475 | 23702 | 0 | 280 | 473 | \$17,423.64 | 26.0% |
| Washington, NC | 3 | 382 | 847 | 0 | 136 | 382 | \$11,909.08 | 26.8% |
| Port St. Lucie, FL | 4 | 894 | 2078 | 0 | 284 | 354 | \$13,526.70 | 50.0% |

New York (29,872 units), Boston (7,316 units), and Miami (7,086 units) unsurprisingly top this list of metropolitan areas with the most public housing units at risk. But Virginia Beach (2,729 units), Atlantic City (1,597 units), Charleston (1,405 units), San Francisco (637 units), Houston (530 units) also have highly exposed public housing communities.

While public housing is often associated with large progressive urban centers like New York (and it is surely abundant there), many of the most vulnerable communities are located along the Southeast and Gulf Coasts. This includes Florida’s 24th (4,281 units), 25th (1,117 units), and 26th Congressional Districts (1,390

units); North Carolina’s 3rd Congressional District (908 units); South Carolina’s 1st (461 units) and 6th Congressional Districts (944 units), Texas’s 14th (530 units) and 36th Congressional Districts (192 units); Louisiana’s 1st (632 units) and 3rd Congressional Districts (578 units); and Georgia’s 1st Congressional District (606 units), among others. Though HUD does not make this data publicly available, a considerable proportion of scattered site, Section 8, and HUD-VASH housing along the Gulf Coast and Southeast houses veterans—many of whom will see their homes flooded out by climate change as Republican members of the House vote against expanding funding and support for them and their public housing neighbors.

Table 3. Public housing units at risk from sea level rise by Congressional District (Top 20 overall)

| District | Partisan Control | Total Buildings | Total Units | Total Residents | Units Lost w/3' SLR | Units Lost w/7' SLR | Units Lost w/10' SLR | Median HH Income | Poverty Rate |
|----------|------------------|-----------------|-------------|-----------------|---------------------|---------------------|----------------------|------------------|--------------|
| FL25 | Republican | 7 | 1117 | 1984 | 0 | 1117 | 1117 | \$ 19,555.55 | 27.2% |
| NC03 | Republican | 24 | 2464 | 5137 | 0 | 432 | 908 | \$ 10,844.53 | 34.5% |
| LA01 | Republican | 6 | 1067 | 2101 | 0 | 334 | 632 | \$ 12,561.50 | 25.8% |
| GA01 | Republican | 22 | 3027 | 6721 | 0 | 217 | 606 | \$ 12,008.19 | 42.8% |
| NY13 | Democrat | 29 | 33485 | 68536 | 0 | 0 | 7121 | \$23,992.29 | 37.2% |
| FL24 | Democrat | 26 | 6286 | 11495 | 0 | 1750 | 4281 | \$13,562.79 | 43.4% |
| MA07 | Democrat | 62 | 9405 | 17401 | 0 | 1387 | 3823 | \$20,608.48 | 28.8% |
| VA03 | Democrat | 41 | 5749 | 12526 | 0 | 982 | 2729 | \$13,045.71 | 48.2% |
| NJ02 | Democrat | 28 | 3679 | 6187 | 613 | 2316 | 2568 | \$16,254.95 | 31.9% |
| NJ08 | Democrat | 45 | 9343 | 16415 | 0 | 2068 | 2357 | \$18,087.67 | 26.9% |
| MA08 | Democrat | 25 | 4900 | 7829 | 0 | 1272 | 2191 | 18,147.11 | 32.4% |
| NY11 | Democrat | 7 | 5805 | 12592 | 0 | 1432 | 1432 | \$22,275.11 | 35.3% |
| FL26 | Democrat | 8 | 1921 | 4598 | 588 | 864 | 1390 | \$16,580.67 | 28.0% |
| MA05 | Democrat | 16 | 2943 | 5396 | 0 | 141 | 1302 | \$22,507.72 | 14.8% |
| CT04 | Democrat | 33 | 4057 | 7980 | 0 | 697 | 947 | \$17,389.84 | 32.1% |
| SC06 | Democrat | 18 | 3799 | 8913 | 0 | 944 | 944 | \$12,336.56 | 32.4% |
| CT03 | Democrat | 40 | 3590 | 6064 | 0 | 715 | 863 | \$16,574.84 | 22.8% |
| NJ10 | Democrat | 48 | 7473 | 11922 | 0 | 405 | 793 | \$18,573.09 | 34.9% |
| NJ01 | Democrat | 23 | 2140 | 4002 | 0 | 545 | 692 | \$15,449.64 | 35.7% |
| FL27 | Democrat | 11 | 1949 | 2346 | 0 | 514 | 621 | \$11,304.51 | 26.2% |

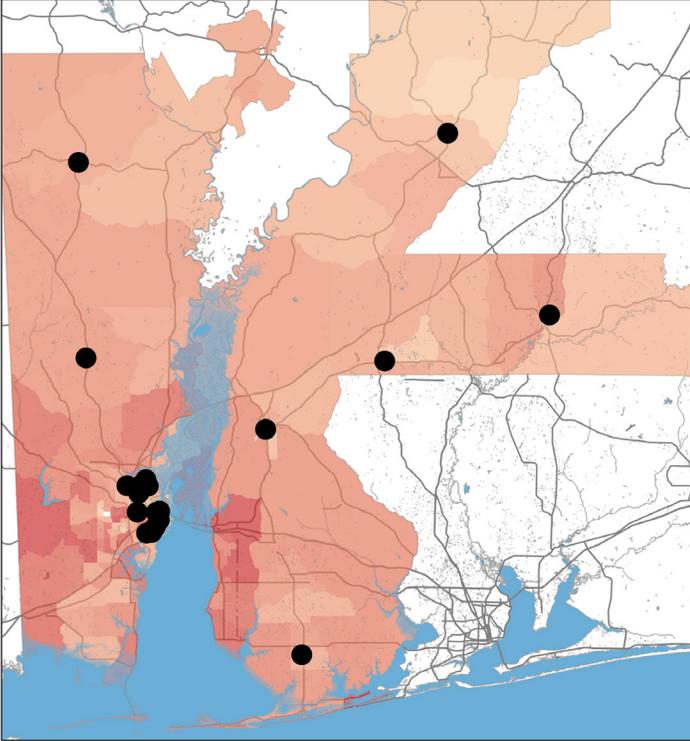
Table 4. Public housing units at risk from sea level rise by Congressional District (Top 20 represented by Democrats)

| District | Partisan Control | Total Buildings | Total Units | Total Residents | Units Lost w/3' SLR | Units Lost w/7' SLR | Units Lost w/10' SLR | Median HH Income | Poverty Rate |
|----------|------------------|-----------------|-------------|-----------------|---------------------|---------------------|----------------------|------------------|--------------|
| NY13 | Democrat | 29 | 33485 | 68536 | 0 | 0 | 7121 | \$23,992.29 | 37.1% |
| FL24 | Democrat | 26 | 6286 | 11495 | 0 | 1750 | 4281 | \$13,562.79 | 43.4% |
| MA07 | Democrat | 62 | 9405 | 17401 | 0 | 1387 | 3823 | \$20,608.48 | 28.8% |
| VA03 | Democrat | 41 | 5749 | 12526 | 0 | 982 | 2729 | \$13,045.71 | 48.2% |
| NJ02 | Democrat | 28 | 3679 | 6187 | 613 | 2316 | 2568 | \$16,254.95 | 31.9% |
| NJ08 | Democrat | 45 | 9343 | 16415 | 0 | 2068 | 2357 | \$18,087.67 | 26.9% |
| MA08 | Democrat | 25 | 4900 | 7829 | 0 | 1272 | 2191 | \$18,147.11 | 32.4% |
| NY11 | Democrat | 7 | 5805 | 12592 | 0 | 1432 | 1432 | \$22,275.11 | 35.3% |
| FL26 | Democrat | 8 | 1921 | 4598 | 588 | 864 | 1390 | \$16,580.67 | 30.0% |
| MA05 | Democrat | 16 | 2943 | 5396 | 0 | 141 | 1302 | \$22,507.72 | 14.8% |
| CT04 | Democrat | 33 | 4057 | 7980 | 0 | 697 | 947 | \$17,389.84 | 32.1% |
| SC06 | Democrat | 18 | 3799 | 8913 | 0 | 944 | 944 | \$12,336.56 | 32.4% |
| CT03 | Democrat | 40 | 3590 | 6064 | 0 | 715 | 863 | \$16,574.84 | 22.8% |
| NJ10 | Democrat | 48 | 7473 | 11922 | 0 | 405 | 793 | \$18,573.09 | 34.9% |
| NJ01 | Democrat | 23 | 2140 | 4002 | 0 | 545 | 692 | \$15,449.64 | 35.7% |
| FL27 | Democrat | 11 | 1949 | 2346 | 0 | 514 | 621 | \$11,304.51 | 26.2% |
| NY04 | Democrat | 14 | 1791 | 2361 | 100 | 474 | 580 | \$20,536.87 | 13.7% |
| SC01 | Democrat | 4 | 832 | 1736 | 0 | 0 | 461 | \$12,363.22 | 29.9% |
| LA02 | Democrat | 52 | 4388 | 9035 | 129 | 279 | 425 | \$14,350.41 | 43.3% |
| CA13 | Democrat | 15 | 1602 | 3314 | 0 | 157 | 348 | \$18,054.40 | 34.4% |

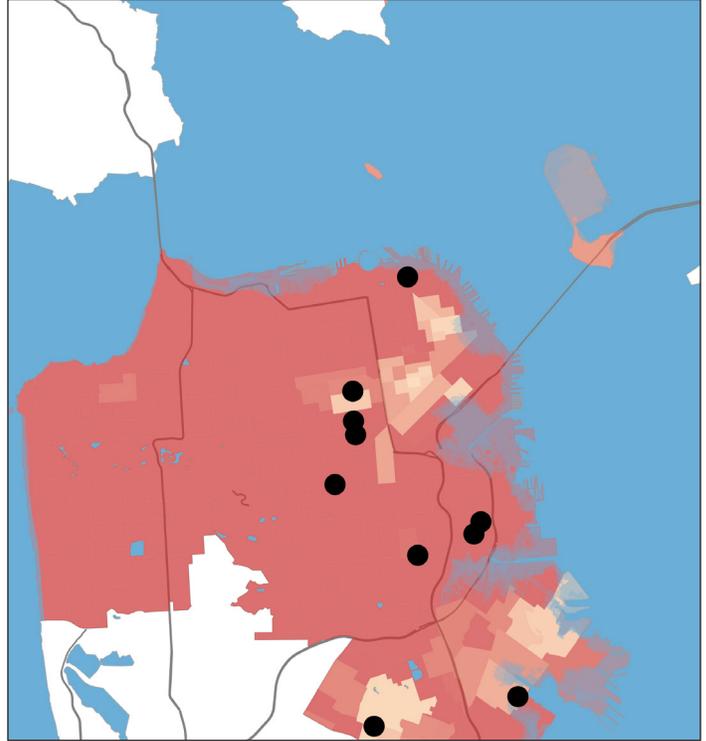
Table 5. Public housing units at risk from sea level rise by Congressional District (Top 20 represented by Republicans)

| District | Partisan Control | Total Buildings | Total Units | Total Residents | Units Lost w/3' SLR | Units Lost w/7' SLR | Units Lost w/10' SLR | Median HH Income | Poverty Rate |
|----------|------------------|-----------------|-------------|-----------------|---------------------|---------------------|----------------------|------------------|--------------|
| FL25 | Republican | 7 | 1117 | 1984 | 0 | 1117 | 1117 | \$19,555.55 | 27.2% |
| NC03 | Republican | 24 | 2464 | 5137 | 0 | 432 | 908 | \$10,844.53 | 34.5% |
| LA01 | Republican | 6 | 1067 | 2101 | 0 | 334 | 632 | \$12,561.50 | 25.8% |
| GA01 | Republican | 22 | 3027 | 6721 | 0 | 217 | 606 | \$12,008.19 | 42.8% |
| LA03 | Republican | 35 | 4152 | 8025 | 58 | 186 | 578 | \$13,258.34 | 27.3% |
| FL06 | Republican | 12 | 1256 | 2973 | 0 | 426 | 569 | \$13,751.81 | 28.5% |
| MD01 | Republican | 10 | 832 | 1392 | 329 | 329 | 540 | \$16,678.35 | 27.5% |
| FL08 | Republican | 6 | 998 | 2158 | 0 | 371 | 533 | \$14,972.16 | 28.8% |
| TX14 | Republican | 14 | 1255 | 2096 | 0 | 154 | 530 | \$14,803.51 | 28.8% |
| FL18 | Republican | 5 | 1188 | 2807 | 0 | 284 | 354 | \$14,562.24 | 43.9% |
| NY02 | Republican | 3 | 476 | 522 | 0 | 0 | 248 | \$20,061.16 | 6.7% |
| AL01 | Republican | 23 | 3812 | 5171 | 0 | 0 | 245 | \$13,457.69 | 38.2% |
| FL19 | Republican | 12 | 1023 | 2271 | 0 | 100 | 242 | \$14,531.31 | 27.9% |
| FL17 | Republican | 9 | 443 | 1054 | 0 | 180 | 205 | \$15,300.95 | 34.3% |
| TX36 | Republican | 17 | 1047 | 2075 | 0 | 66 | 192 | \$14,596.33 | 19.4% |
| FL01 | Republican | 9 | 1198 | 2709 | 0 | 123 | 123 | \$12,864.87 | 24.1% |
| MS04 | Republican | 14 | 1267 | 2428 | 0 | 0 | 27 | \$11,279.90 | 36.7% |
| AK00 | Republican | 14 | 1242 | 3334 | 0 | 0 | 0 | \$29,928.73 | 14.6% |
| AL02 | Republican | 42 | 4129 | 8697 | 0 | 0 | 0 | \$12,085.70 | 31.5% |
| AL03 | Republican | 31 | 4641 | 9013 | 0 | 0 | 0 | \$11,375.08 | 30.4% |

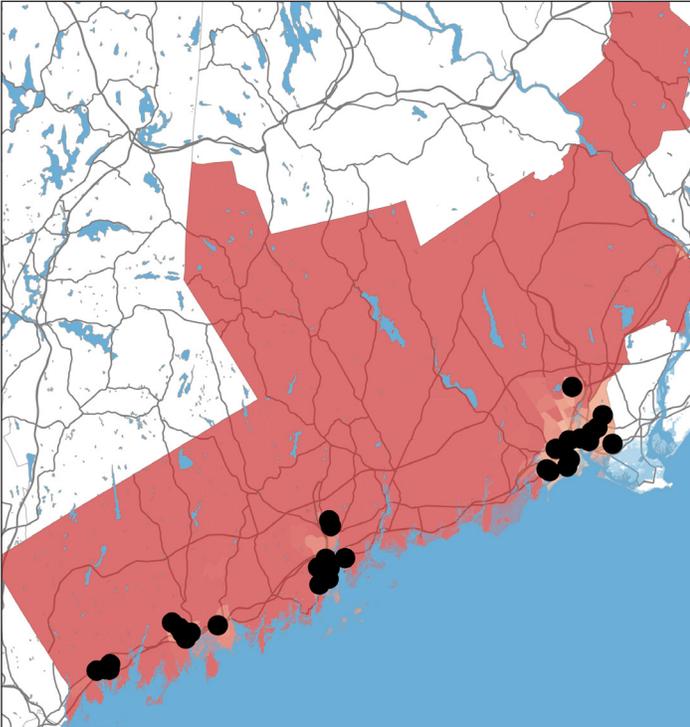
AL01



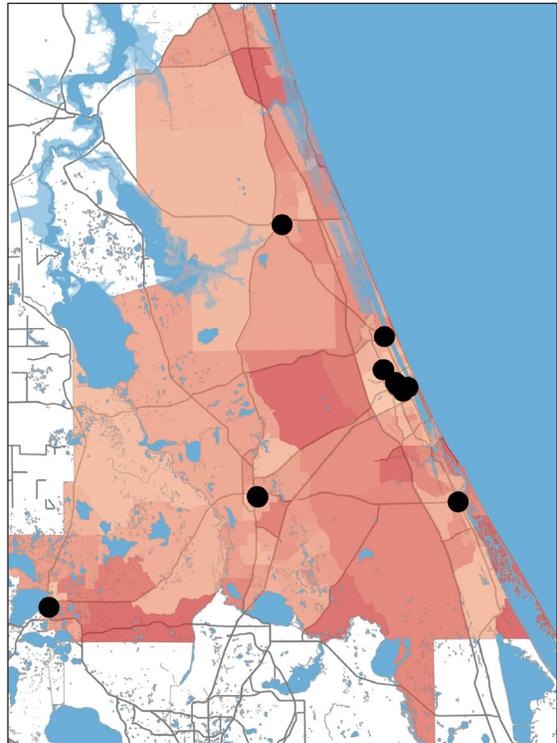
CA12



CT04



FL06

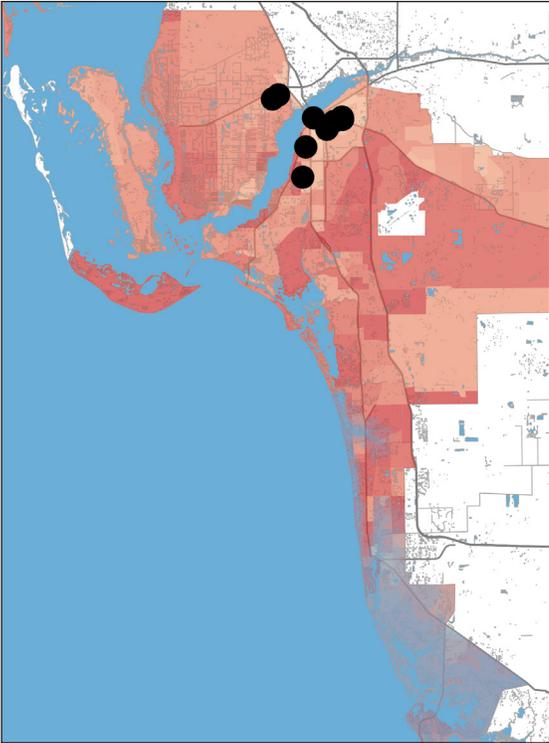


Household income
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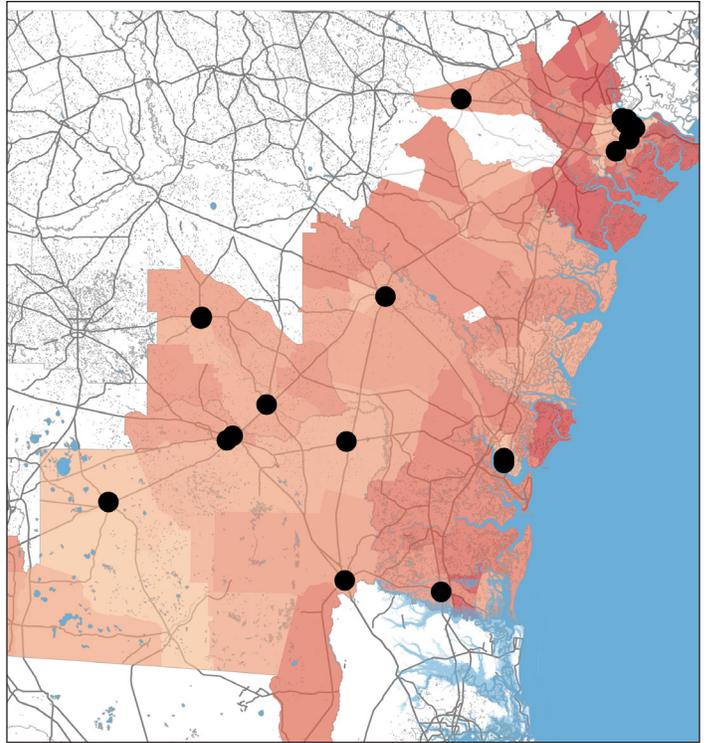
Public housing

3 ft rise 7 ft rise 10 ft rise

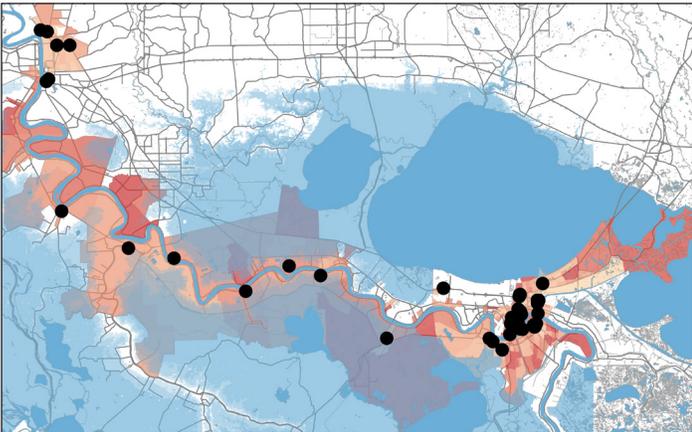
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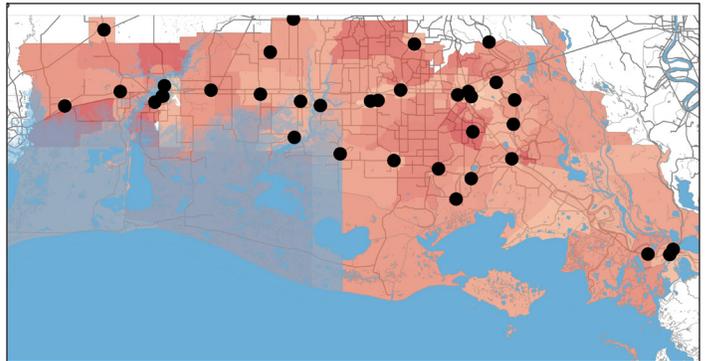
GA01



LA02



LA03

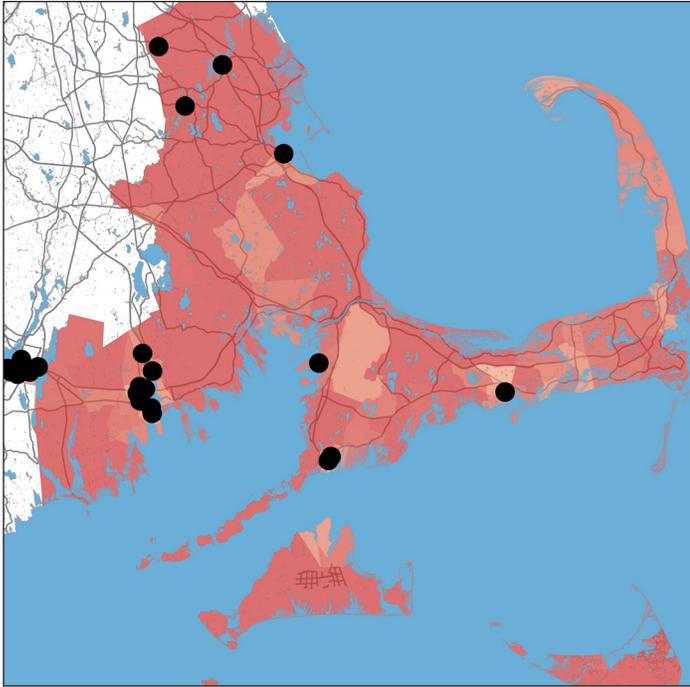


Household income
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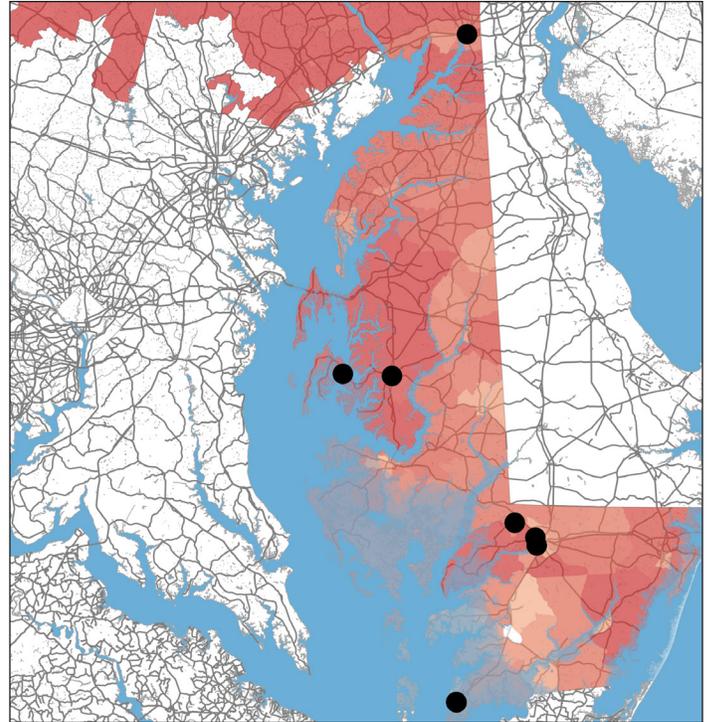
Public housing

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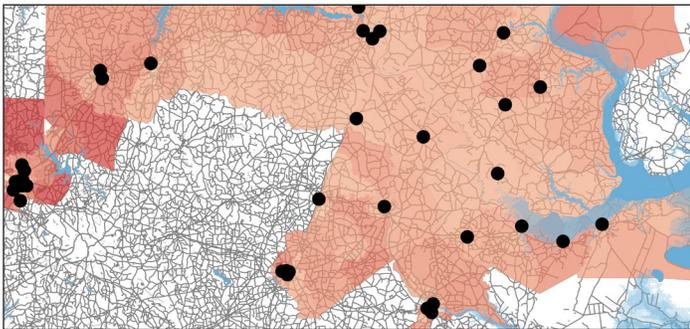
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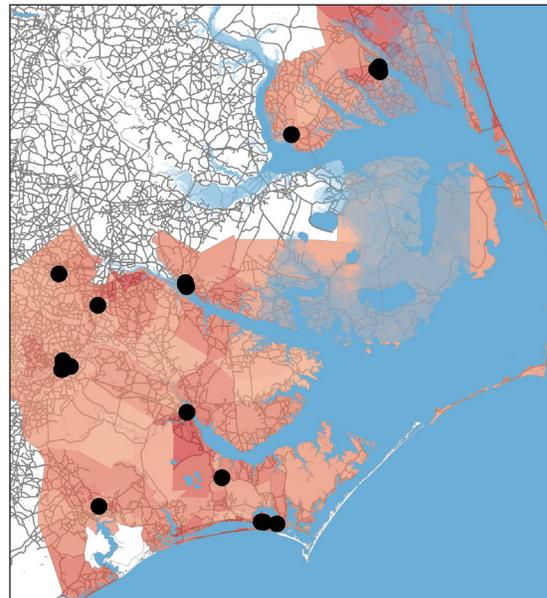
MD01



NC01



NC03

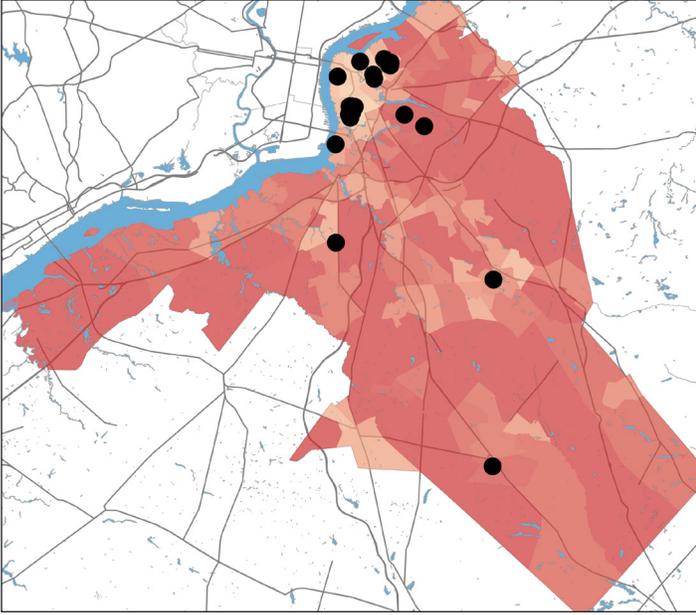


Household income
0 25k 50k >75k

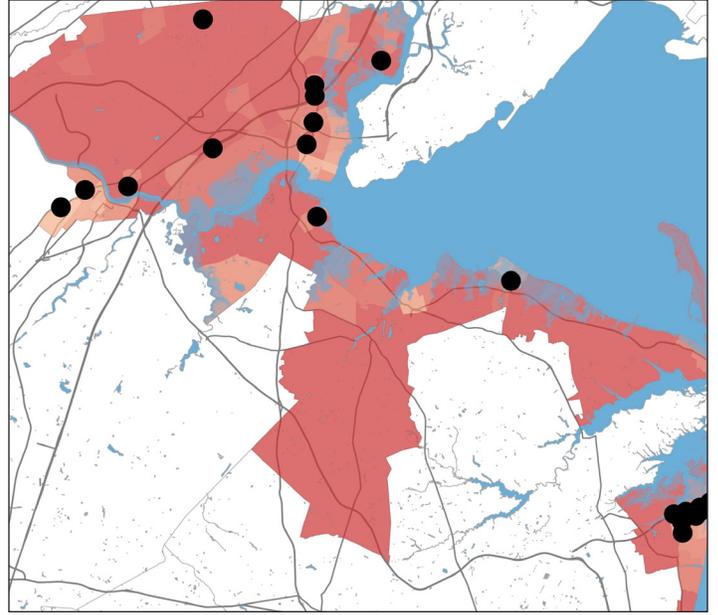
Public housing

3 ft rise 7 ft rise 10 ft rise

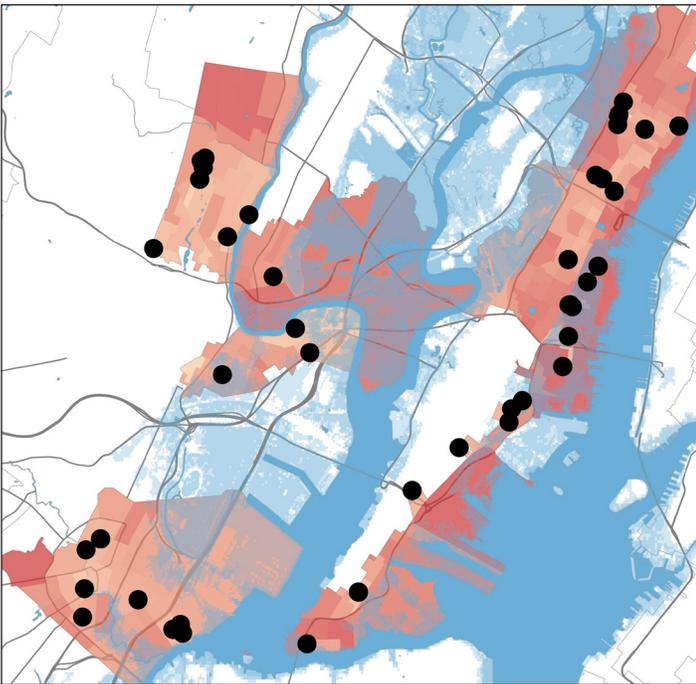
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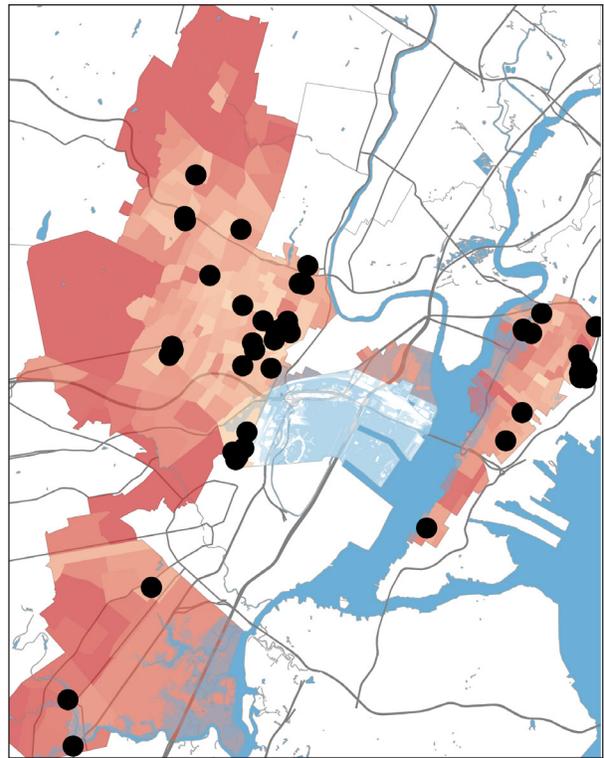
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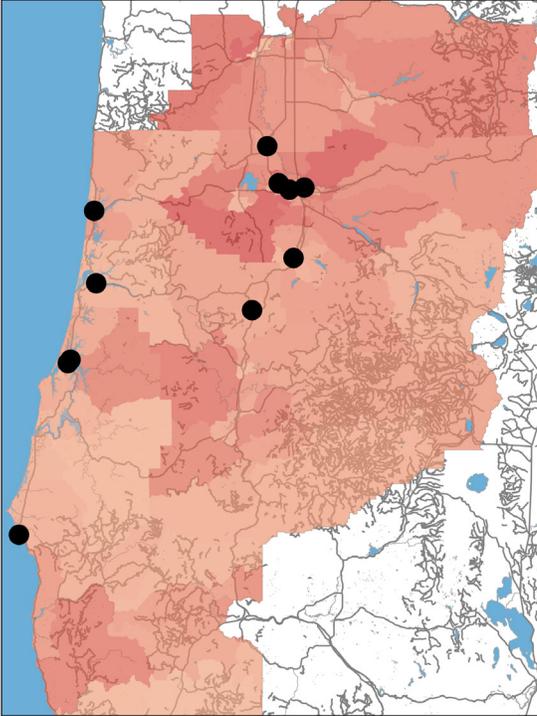


Household income 
 0 25k 50k >75k

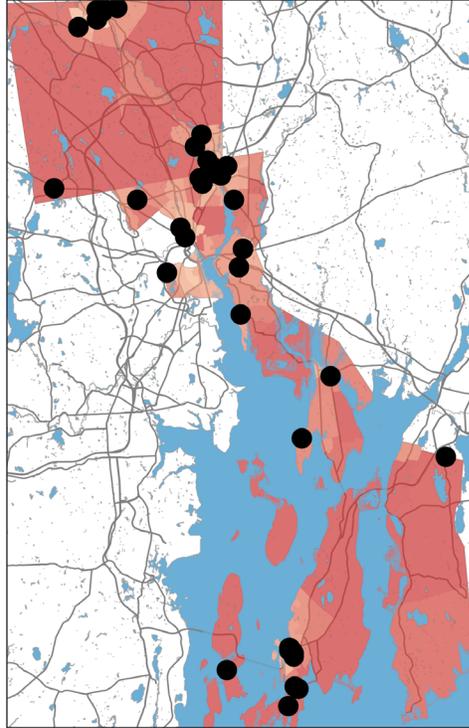
 Public housing

 3 ft rise  7 ft rise  10 ft rise

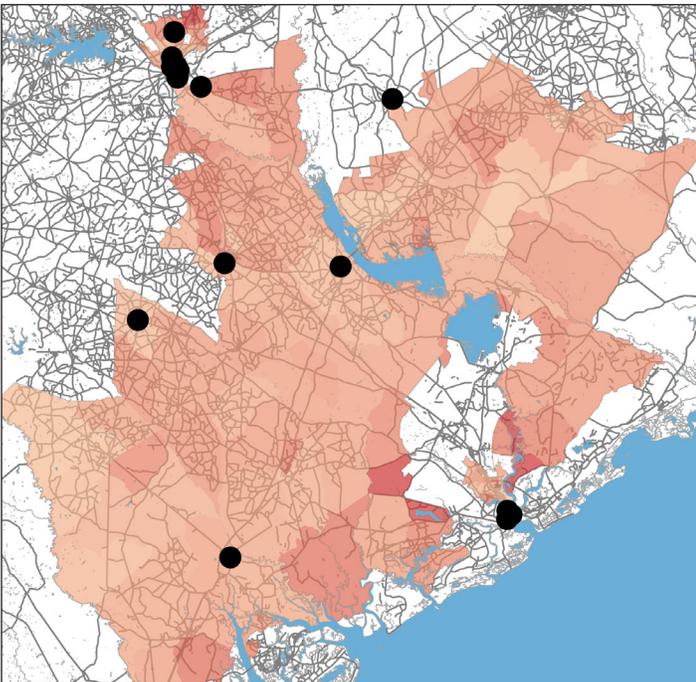
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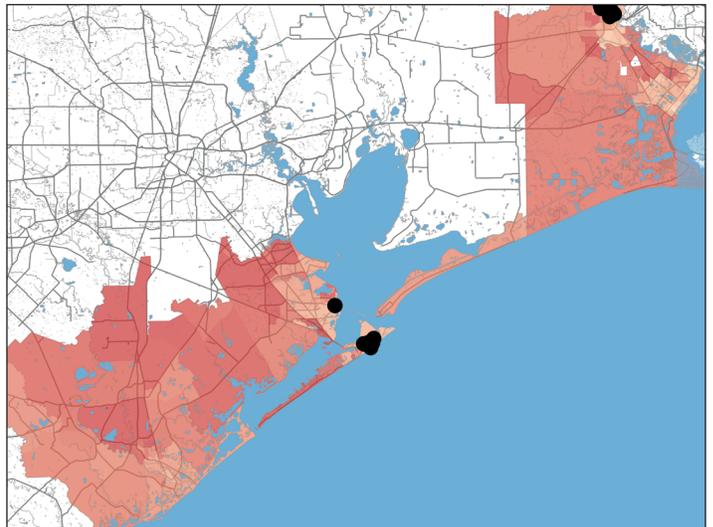
RI01



SC06



TX14



Household income 
0 25k 50k >75k

 Public housing

 3 ft rise

 7 ft rise

 10 ft rise

Adaptation Strategies in a Green New Deal for Public Housing Communities

We have to build 12 million new units of public housing for a variety of reasons, but one of the most important is that we're going to lose a significant number of our existing homes to sea level rise, increased flooding, wildfires, and other impacts of climate change. As we begin to mobilize around the massive investment in public housing construction and upgrades that Reps. Omar and Ocasio-Cortez have proposed, we must also ensure that we make a commensurate investment in the protection and resilience of our public housing communities.

For flood-prone units, these strategies must include a range of options: building-level waterproofing and freeboarding; community-level investments in protective infrastructure; and, in extreme cases, in resettlement to safer locations. These options will need to be tailored to each building and community. But we can get a broad sense of where they might be applied and how they might be incorporated into the proposed program of public housing construction and upgrades.

At the building level, there are two primary adaptation strategies to fold into the Green New Deal's public housing program: **waterproofing for multi-story buildings** and **freeboarding for scattered site homes** (elevating or stiling detached single-family homes). Waterproofing typically involves the use of mold-resistant materials on the bottom 2 floors (and basement), the elevation of all mechanical and electrical systems to the third floor or higher, and the installation of break-away doors and windows that safely dislodge during a flood event. Many public housing buildings also lack HVAC systems—a critical element for residents during extreme heat days that could also be addressed as these upgrades are installed. All of these are intended to transform the basement and lower floors of multi-story buildings into structures that can safely flood—and be restored cheaply afterwards. Of course, this would require displacing a

small number of public housing units—again reinforcing the case for Rep. Omar's Homes for All Act. But those lower floors could also be replaced by the kind of wrap around services and community spaces that are often value-engineered out of public housing communities. This is a common tactic at critical infrastructure facilities like hospitals, power plants, and municipal buildings. The relatively new University of Texas Medical School Hospital on Galveston Island is an excellent example of this kind of adaptation measure.³ In short, the additional measures proposed here are necessary to implement and guarantee the core objectives already detailed in Green New Deal for Public Housing legislative proposals.

At the community level, the primary adaptation strategy is protective infrastructure (sometimes called 'resilient' infrastructure). Though this has historically included single-purpose interventions like seawalls, levees, and other hard barriers, more contemporary work in this vein often focuses on creating flood protection, park space, and other community amenities in a single piece of infrastructure. For public housing communities, this might include the construction of reinforced sand dunes, berms, or other soft forms of protection that are topped by or otherwise integrated with new community parks, gardens, playgrounds, and other landscapes of low-carbon leisure. [The Gowanus Lowlands plan](#) currently in development is an excellent example of this kind of adaptation measure.

For the few communities in which these strategies won't be possible or practical to implement, a Green New Deal for public housing will have to include funding and provisions for planned resettlement—essentially, the managed retreat from buildings that cannot be flood-proofed and to new public housing communities built in safer locations. The most important thing this strategy can accomplish is giving residents agency over when they leave and where they go—and ensuring that they aren't simply forced out when a future storm hits. But this remains the most disruptive (and least popular) strategy and should be employed as sparingly as possible.⁴ All of these measures should be paired with an

investment in wrap-around services, a one-one for housing unit guarantee during any retrofits or relocations, and an expansion of the voucher program to minimize the disruptions for residents.

Public housing is the most important strategic lever to pull in the path to a Green New Deal. To make those investments as beautiful, long-lasting, and vital as possible for residents, they must be coupled with a suite of adaptation measures aimed at protecting public housing communities from the worst impacts of climate change, and building new public housing that is not just permanently off the market, but also permanently safe.

ENDNOTES

1. On Harvey's devastation of Houston and the links to the city's poor housing and planning policy, see Billy Fleming. 2017. "The real villains in Harvey flood: urban sprawl and the politicians who allowed it." *The Guardian*. <https://www.theguardian.com/commentisfree/2017/aug/31/real-villains-harvey-flood-urban-sprawl>
2. See also Daniel Aldana Cohen. 2019. "A Green New Deal for Housing." *Jacobin*. <https://jacobinmag.com/2019/02/green-new-deal-housing-ocasio-cortez-climate> and Daniel Aldana Cohen. 2019. A successful climate plan must also tackle the housing crisis. 2019. *The Guardian*. <https://www.theguardian.com/commentisfree/2019/oct/01/a-successful-climate-plan-must-also-tackle-the-housing-crisis>
3. For more on these strategies, see Wesley Highfield, Walter Gillis Peacock, and Shannon Van Zandt, "Mitigation Planning: Why Hazard Exposure, Structural Vulnerability, and Social Vulnerability Matter," *Journal of Planning Education and Research*, available at: https://www.researchgate.net/profile/Wesley_Highfield/publication/275500447_Mitigation_Planning_Why_Hazard_Exposure_Structural_Vulnerability_and_Social_Vulnerability_Matter/links/581caa6a08aeccc08aec91b0.pdf; and Lizzie Yarina, "Your Seawall Won't Save You," *Places Journal*, available at: <https://placesjournal.org/article/your-sea-wall-wont-save-you/>
4. For more on the subject of managed retreat, see Carolyn Kousky, "Managing Shoreline Retreat: A US Perspective," *Climate Change*, 124(1-2): 9-20, available at: <https://link.springer.com/article/10.1007%2Fs10584-014-1106-3>; and Liz Koslov, "The Case for Retreat," *Public Culture*, 28 (2): 359-387, available at: [https://read.dukeupress.edu/public-culture/article/28/2%20\(79\)/359/85821/The-Case-for-Retreat](https://read.dukeupress.edu/public-culture/article/28/2%20(79)/359/85821/The-Case-for-Retreat).