

RAA
2022



Social Infrastructure Investments

For Most in Need | Most at Risk Communities

NAIC—CIPR Industry and Regulator Dialogue

October 14

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Building Social Infrastructure in Vulnerable Communities



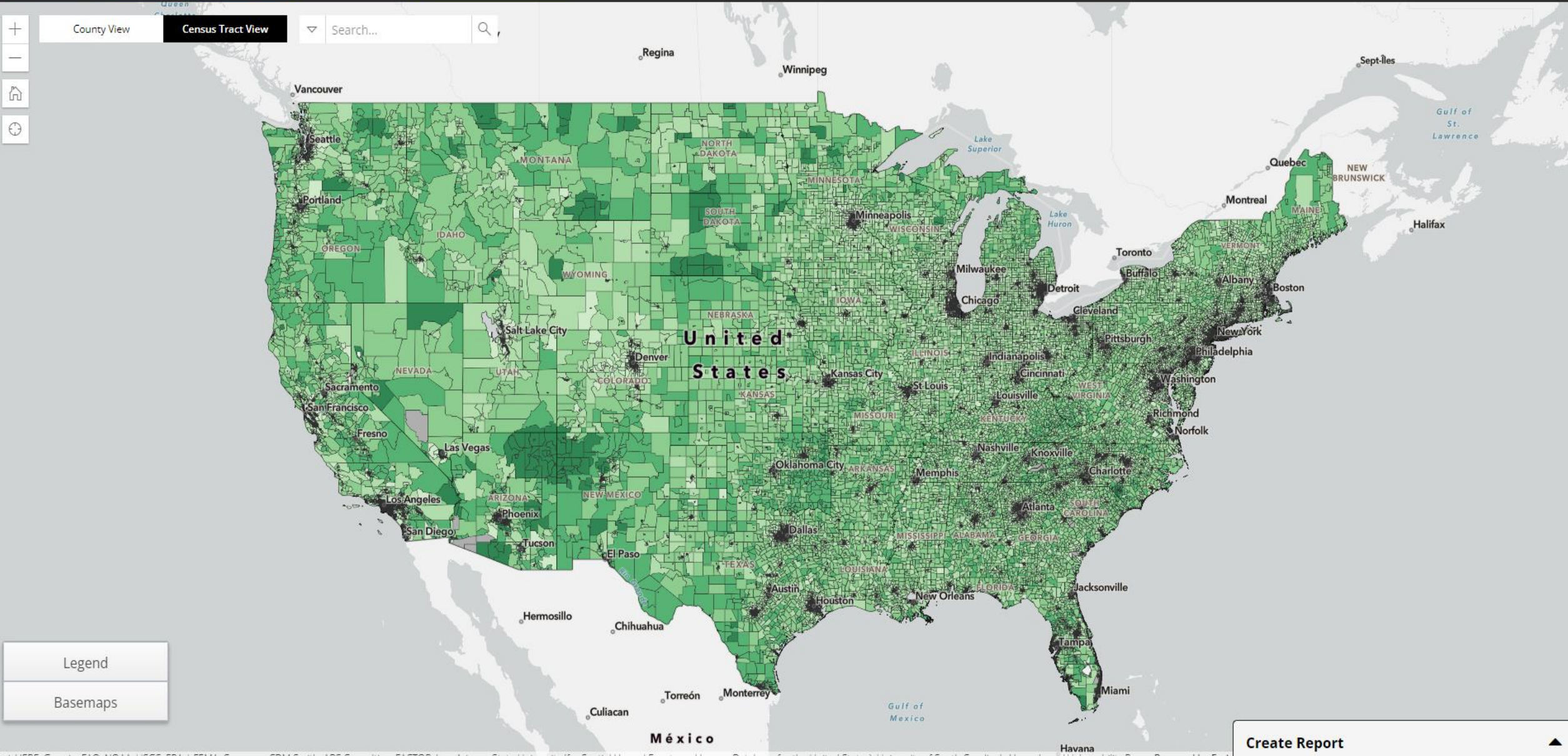
- **Framework for investing in social infrastructure**
- **Tools for assessing social vulnerability**
 - **National Risk Index**
 - **Resilience Analysis and Planning Tool**
 - **Social Vulnerability Index**
- **Community Disaster Resilience Zones (CDRZ) Act of 2022**
 - **Identification and designation**
 - **Focus investment in resilient infrastructure**
- **Housing is infrastructure!**

Identify and Designate Most in Need / Most at Risk



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- **For communities most in need and most at risk of natural disaster(s)**
- **Data-driven assessment at census tract-level:**
 - **Hazard risk, scores, and ratings**
 - ✓ **Loss exposure**
 - ✓ **Social vulnerability**
 - ✓ **Community resilience**
 - ✓ **Population and housing demographics**
 - ✓ **Agricultural loss impact**
 - **Incorporate additional socio-economic data from the Census Bureau, RAPT, etc.**



State

AZ

District

(None)

Tract Congressional Districts

(All)

County Name

Maricopa

Census Tract FIPS Code

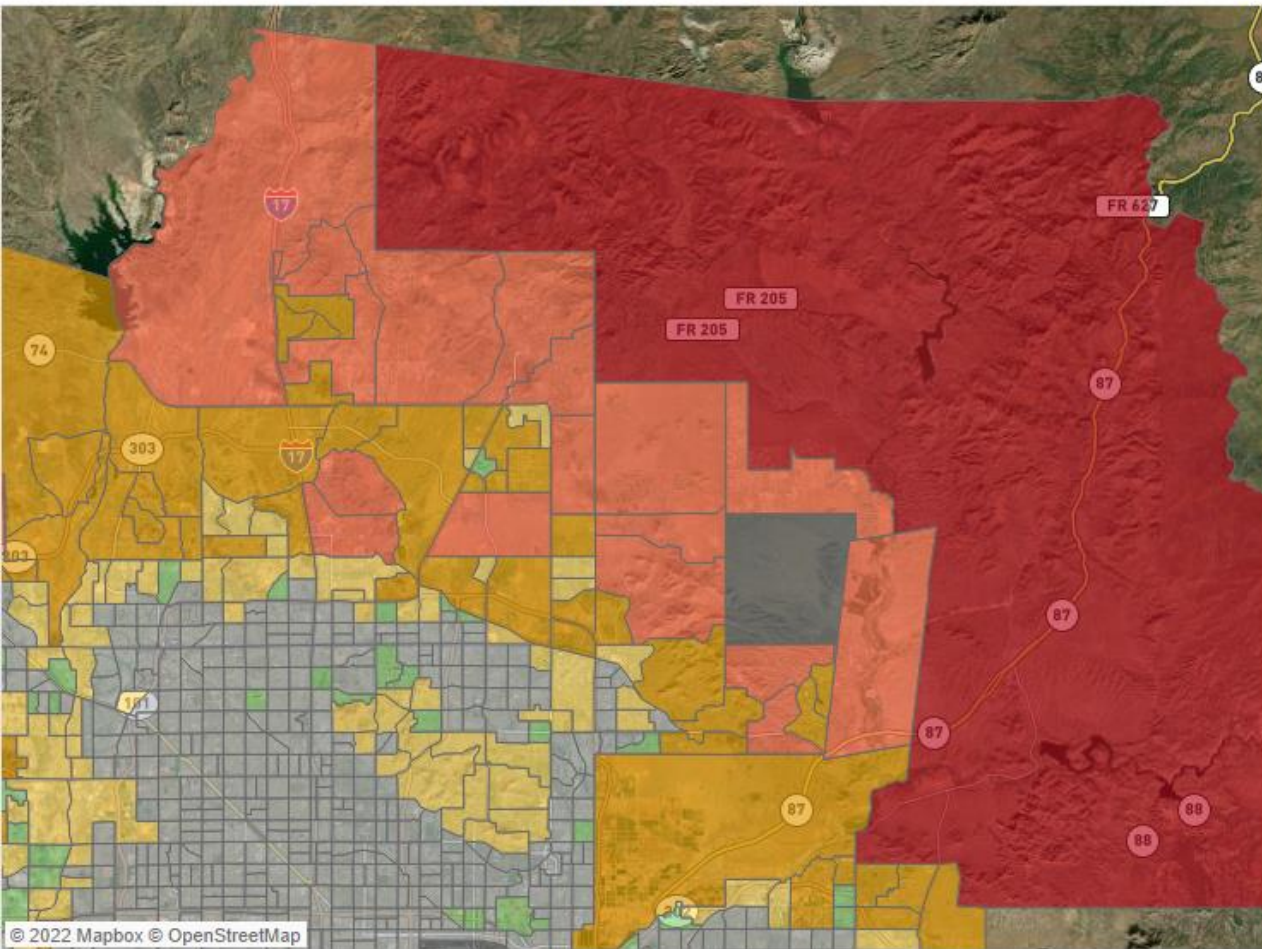
(All)

Hazard

Wildfire

Source: FEMA's National Risk Index www.fema.gov/nri

Map - Wildfire



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Not Applicable

Very Low

Relatively Low

Relatively Moderate

Relatively High

Very High

Census Tract Social Vulnerability - Wildfire



Hazard	Expected Annual Loss Population Equivalence	Expected Annual Loss Agricultural Value	Expected Annual Loss Building Value	Expected Annual Loss Total
Wildfire	2,170	13	12,283,305	12,285,488
Earthquake	792,591		11,242,985	12,035,576
Riverine Flooding	2,637,275	125,848	1,941,728	4,704,852
Strong Wind	405,924	31	3,890,806	4,296,761
Heat Wave	2,682,616	1,528,263	1	4,210,879
Hail	4,974	177	4,164,027	4,169,178
Tornado	770,492	1,144	676,612	1,448,248
Lightning	952,842		91,459	1,044,301
Hurricane	95,048	2,975	102,060	200,083
Landslide	5,516		10,129	15,645
Winter Weather	3,606	0	56	3,662
Drought		63		63
Cold Wave	0	0	0	0
Volcanic				
Tsunami				
Ice Storm				
Coastal Flooding				
Avalanche				
Grand Total	8,353,054	1,658,515	34,403,168	44,414,737

State

PA

District

(None)

Tract Congressional Districts

(All)

County Name

Philadelphia

Census Tract FIPS Code

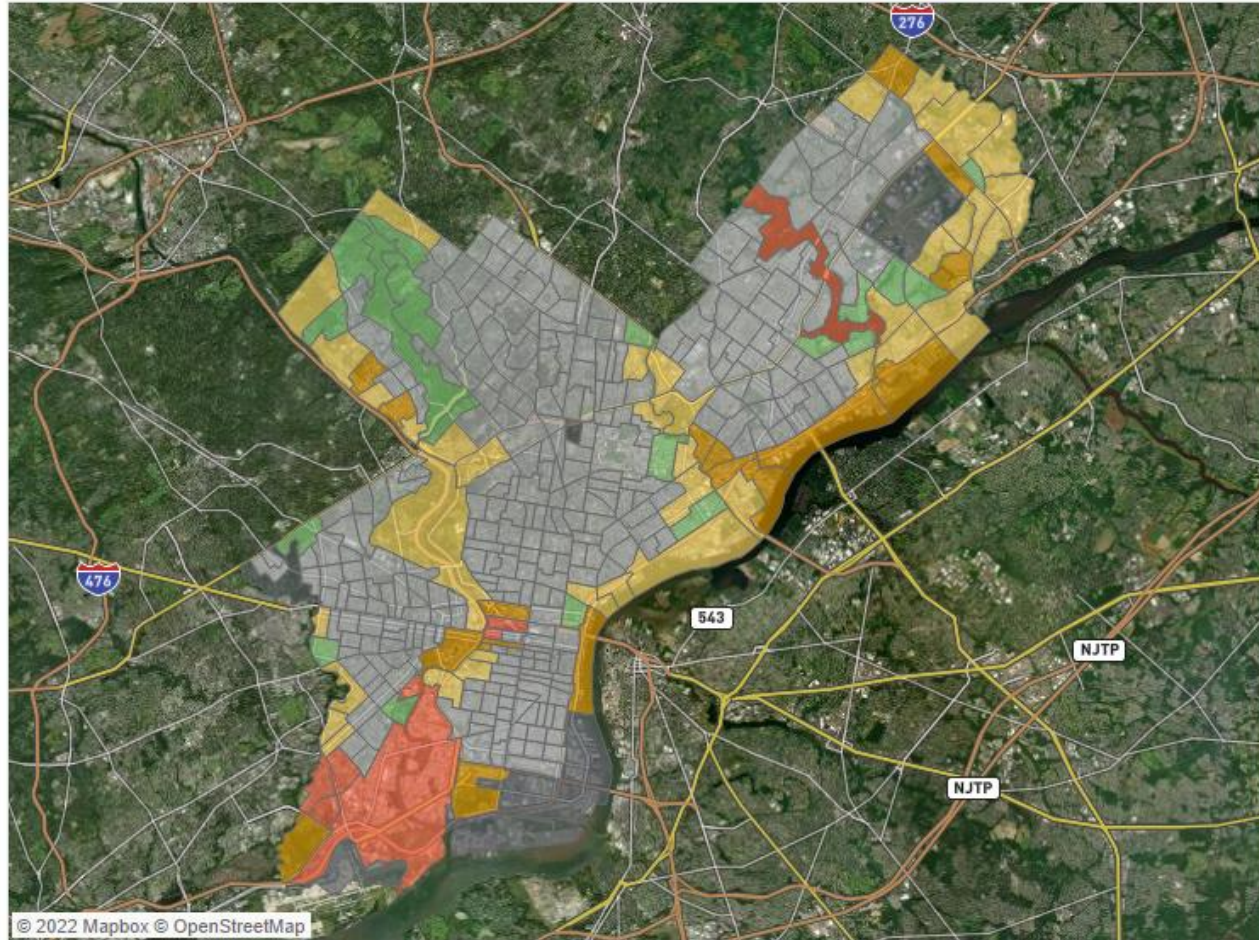
(All)

Hazard

Source: FEMA's National Risk Index www.fema.gov/nri

Riverine Flooding

Map - Riverine Flooding



Not Applicable

Very Low

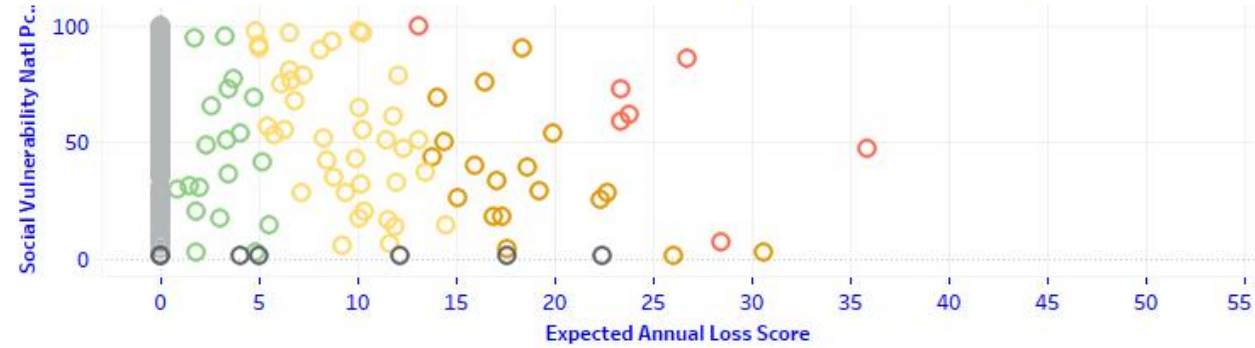
Relatively Low

Relatively Moderate

Relatively High

Very High

Census Tract Social Vulnerability - Riverine Flooding

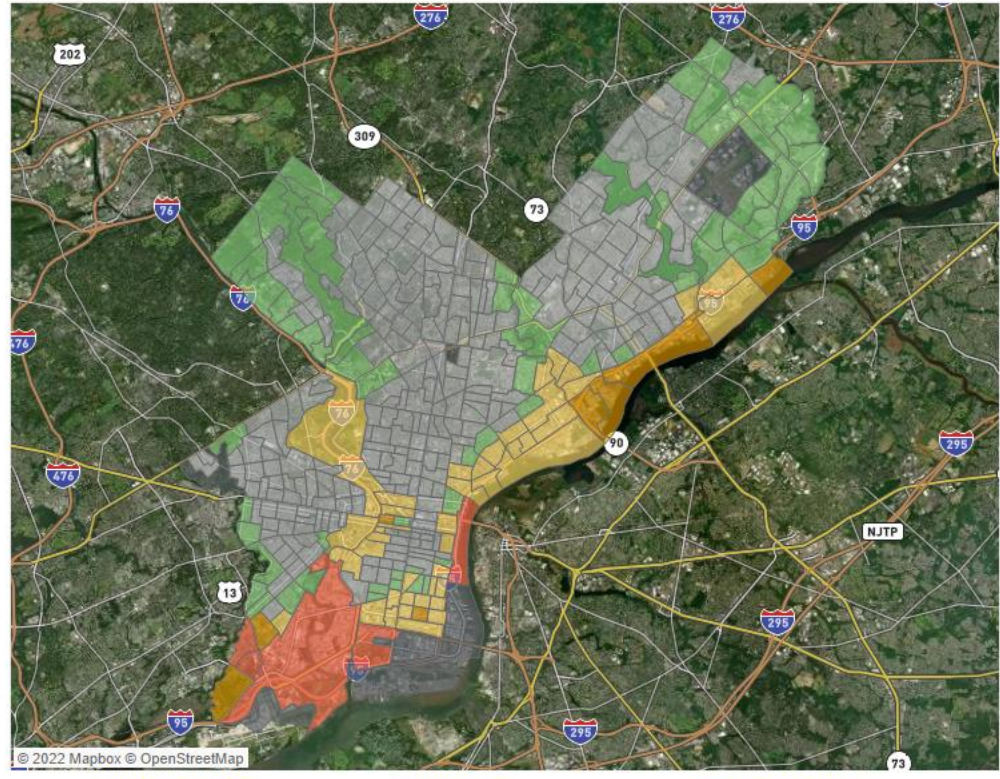


Hazard	Expected Annual Loss Population Equivalence	Expected Annual Loss Agricultural Value	Expected Annual Loss Building Value	Expected Annual Loss Total
Heat Wave	21,139,005	120	73	21,139,198
Tornado	7,270,889	3	3,518,106	10,788,998
Coastal Flooding	91,619		8,090,241	8,181,860
Riverine Flooding	1,606,231	0	1,897,854	3,504,086
Lightning	2,728,651		5,970	2,734,621
Earthquake	124,222		2,583,867	2,708,089
Strong Wind	1,371,784	1	399,708	1,771,492
Winter Weather	1,436,325	0	172,205	1,608,530
Ice Storm	566,116		87,853	653,970
Hail	1,569	195	181,292	183,055
Landslide	10,082		19,445	29,527
Hurricane	27,402	573	785	28,760
Drought		8,409		8,409
Wildfire	37	0	2,846	2,884
Cold Wave	0	0	0	0
Volcanic				
Tsunami				
Avalanche				
Grand Total	36,373,932	9,302	16,960,244	53,343,477

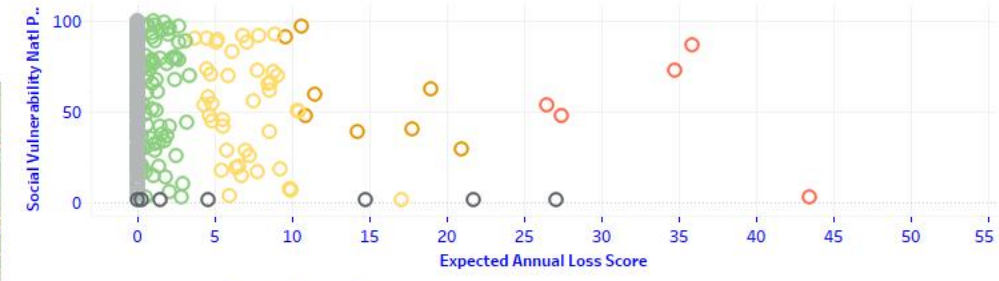
Hazard: (Multiple values)

Hazard: Coastal Flooding Source: FEMA's National Risk Index www.fema.gov/nri

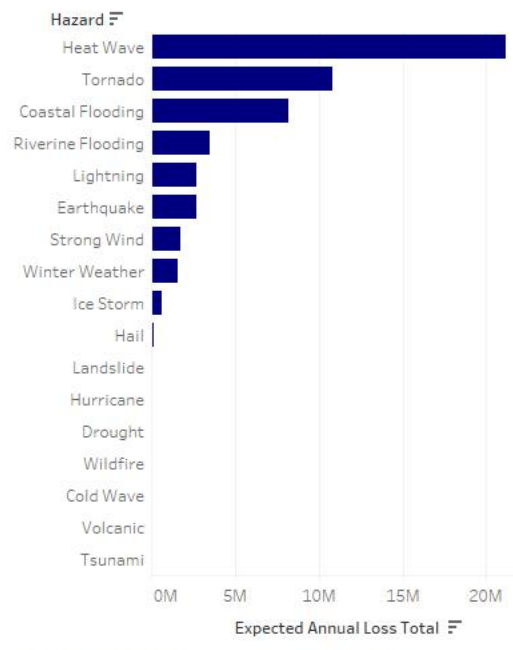
Map - Coastal Flooding



Census Tract Social Vulnerability - Coastal Flooding



Total Expected Annual Loss



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Volcanic				
Tsunami				
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■ Insufficient Data
 ■ No Rating
 ■ Not Applicable
 ■ Very Low
 ■ Relatively Low
 ■ Relatively Moderate
 ■ Relatively High
 ■ Very High

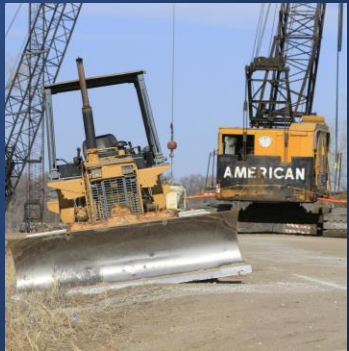


Data Driven Approaches to Building Resilience Infrastructure



- **Federal, state and local gov't.**
 - **Whole-of-gov't approach**
 - **Justice 40 Initiative**
 - **Coordination with state gov't and DOIs**
- **Corporations and business community**
 - **ESG focused investment & charitable giving**
- **Philanthropic foundations**
 - **Coordinated focus**

Public and Private Funding For Resilience Projects



- **Provide menu of funding options for resilience projects**
- **Structure tax and financing features to focus investment**
 - **Direct pay bonds (subset of Build America Bonds)**
 - **Private activity bonds**
 - **CDFIs**
 - **Transferrable tax credits**
 - **Community-level projects**
 - **Individual homeowner retrofits**
 - **Corporate and individual charitable contribution tax credits (vs. tax deductions)**
- **Waive required matching funds for FEMA's Building Resilience Infrastructure and Communities (BRIC) Program**
- **Prioritize and set aside HUD, USDA, and other federal program funding**

Potential for Insurance Sector Investment in Infrastructure Resilience Projects

2020 Bond Investments Held by US Insurance Industry

Industry Type	US State/Territory		US Special Revenue		Total US & Corp Bonds	
	US Govt Bonds	Bonds	US Municipal Bonds	Bonds		
Life	185,832,760,268	18,242,952,712	22,495,542,799	329,316,820,234	2,636,418,049,325	3,192,306,125,338
Property/Casualty	122,186,583,161	25,599,438,727	90,444,516,724	263,947,095,419	565,076,060,624	1,067,253,694,655
Health	22,688,378,041	2,524,831,714	3,091,528,078	40,639,194,901	92,525,502,307	161,469,435,041
Total Insurance Industry	330,707,721,470	46,367,223,153	116,031,587,601	633,903,110,554	3,294,019,612,256	4,421,029,255,034

5-yr Bond Reinvestment Potential

Life Industry Bond Investments Maturing In The Next 5 Yrs.	716,395,832,017
Property/Casualty Industry Bond Investments Maturing In The Next 5 Yrs.	516,335,438,268
Total Insurance Industry	1,232,731,270,285

Disaster Resilience Infrastructure Projects (Hypothetical Examples by Hazard Type)							
Financing/ Funding Instrument	Subsidy/Incentive	Flood	Cold Wave/Ice Storm	Wind & Hail (hurricane, tornado, straight-line)	Wildfire	Earthquake	Heat Wave/Drought
Taxable Direct Pay Bonds	State/local government bond issuer with federal direct pay subsidy (e.g., similar to recovery zone bonds 75% subsidy--a subset of Build America Bonds)	Community flood wall	Enhanced community emergency shelters	Retrofit/rebuild public facilities & communications systems (e.g., town halls, emergency response, schools, etc.) with greater resilience	Purchase land for fuel breaks	Retrofit/rebuild public facilities (e.g., town halls, schools, etc.) with greater resilience	Projects to increase water storage capacities
Private Activity Bonds	Federal tax exemption conduit for private activities that support resilience	Stormwater management project	Public utility co-op retrofit investment	Affordable housing projects with resilience components	Public Utility Co-op retrofit investment	Affordable housing projects with resilience components	Smart water management & irrigation projects
Charitable Tax Credit	Tax credit (as opposed to a tax deduction) for charitable funding of resilience projects	Nature based solution (e.g., mangrove forest planting, coral reef restoration)	Ice dam home retrofit grant program	Wind home retrofit grant program	Nature-based solution, e.g. TNC "Living with Fire" project to treat land with mechanical thinning, hand-thinning, reforestation and restoration of aspen and meadow landscapes	EQ home retrofit grant program	Nature based solution (e.g., beaver restoration project to increase groundwater recharge and create wetlands)
Individual Tax Credit	Tax credit for homeowners making housing resilience improvements	Elevation of housing above flood plain	Home insulation retrofits	Home roof retrofits	Ignition restraint construction activities	Structural strengthening retrofits	Water conservation home retrofits
Federal Matching Fund Grants	Reduced matching fund requirements for Stafford Act resilience program projects (i.e. FEMA's BRIC program)	Flood mitigation construction activities (e.g., culverts, gates, walls, etc.)	HVAC installation and improvement projects for schools and other critical local government buildings	Safe room shelter projects for tornadoes; renewable energy upgrades to communications and first responder facilities	Defensible space activities projects	Earthquake mitigation for public utilities and critical infrastructure	HVAC installation and improvement projects for schools and other critical local government buildings