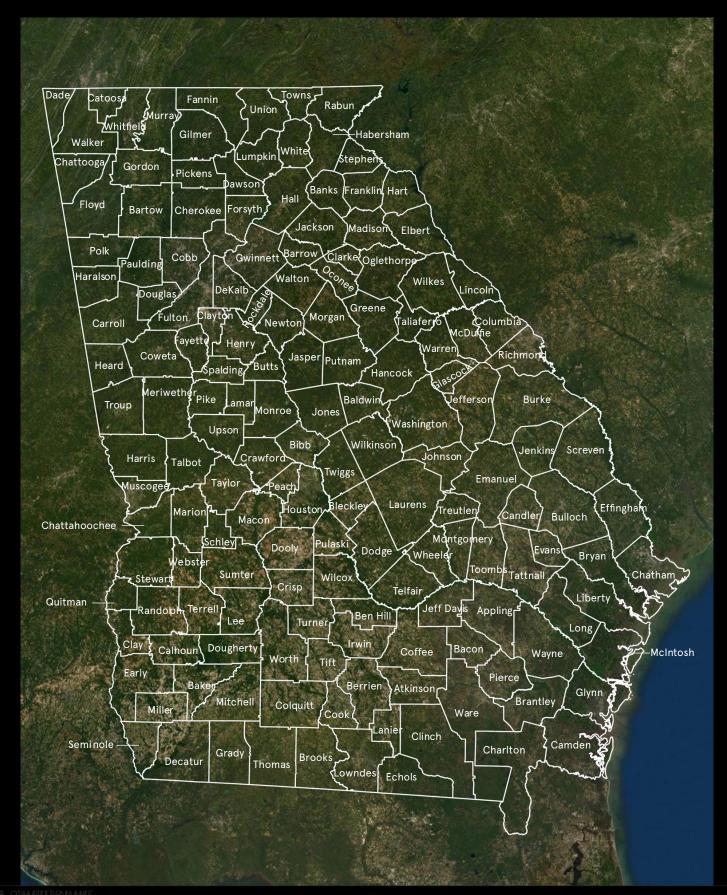
# GEORGIA

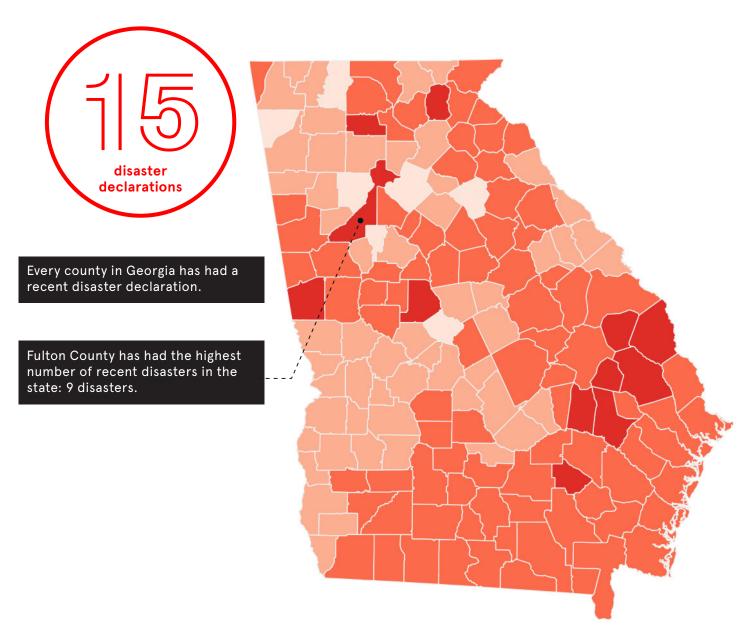


GEORGIA STATISTICS SUMMARY (2011 - 2024)										
15	CLIMATE DISASTER DECLARATIONS									
\$1.6 BILLION	FEMA + HUD POST-DISASTER FUNDING									
10.7 MILLION PEOPLE	POPULATION TOTAL									
\$145	PER CAPITA SPENDING ON CLIMATE DISASTERS									
FULTON COUNTY (9 DISASTERS)	COUNTY WITH THE HIGHEST DISASTER OCCURRENCES									
54	COUNTIES HAVE HAD FIVE OR MORE DISASTERS									
4 MILLION PEOPLE	LIVE IN AREAS WITH VERY HIGH SOCIAL VULNERABILITY (SVI > 0.75)									
5.7 HOURS	TOTAL OUTAGE DURATION (HOURS PER CUSTOMER PER YEAR)									
C+ (2024)	ASCE INFRASTRUCTURE REPORT CARD GRADE									
23	SUPERFUND SITES									
\$9.5 BILLION	CLIMATE INFRASTRUCTURE SUPPORTED THROUGH SMALL INSURANCE SURCHARGE									
\$9.5 BILLION	OF CLIMATE INFRASTRUCTURE COULD BE SUPPORTED THROUGH A SMALL INSURANCE SURCHARGE									

**37** 

# **DISASTER OCCURRENCES 2011–2024**

# FEDERALLY DECLARED MAJOR DISASTERS BY COUNTY



### **Number of Disaster Events**

Major Disaster Declarations (2011-2024)

0 occurences

1 occurrence

2-3 occurences

4-6 occurrences

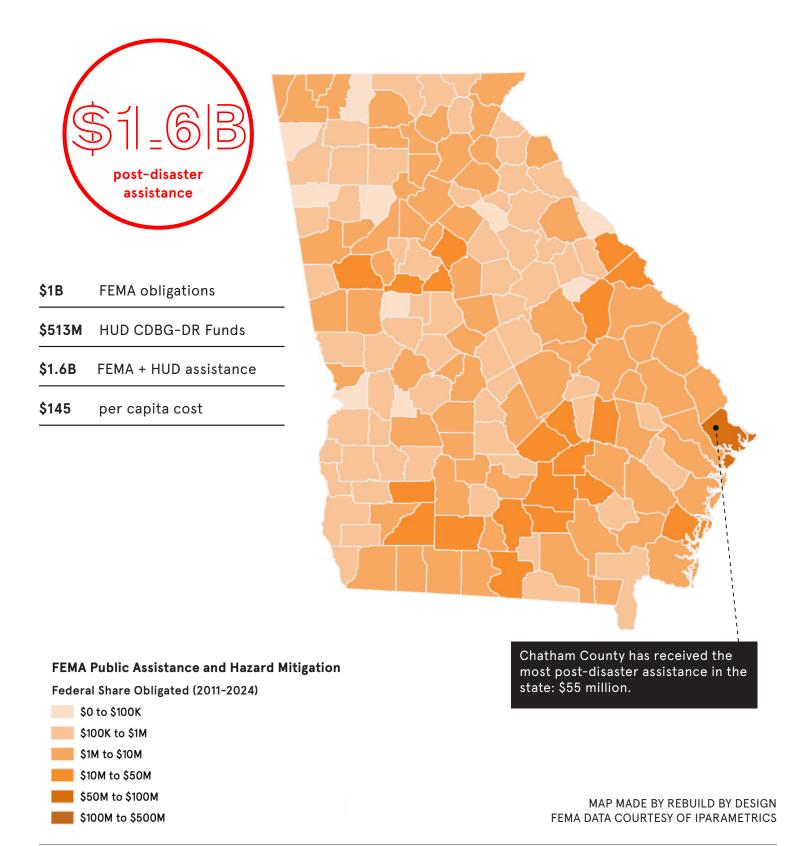
7-9 occurrences

10+ occurrences

MAP MADE BY REBUILD BY DESIGN FEMA DATA COURTESY OF IPARAMETRICS

# FEDERAL ASSISTANCE 2011-2024

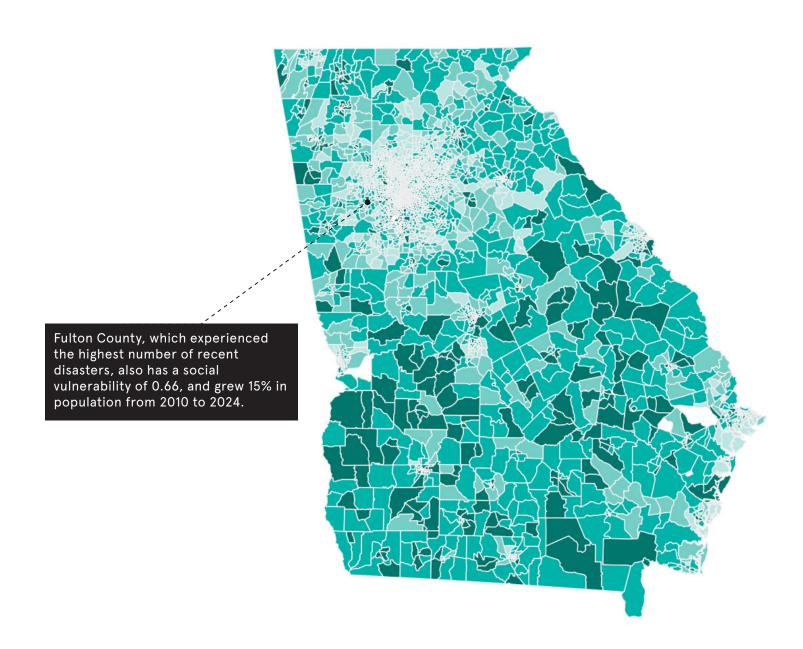
POST-DISASTER PUBLIC ASSISTANCE AND HAZARD MITIGATION FUNDS OBLIGATED BY COUNTY FOR CLIMATE DISASTERS



 $\mathbf{0}$ 

# **SOCIAL VULNERABILITY INDEX 2022**

# AREAS OF GREATEST SOCIAL VULNERABILITY



### Social Vulnerability Index

CDC (2022)

No Value

0.0 - 0.2

0.2 - 0.4

0.4 - 0.6

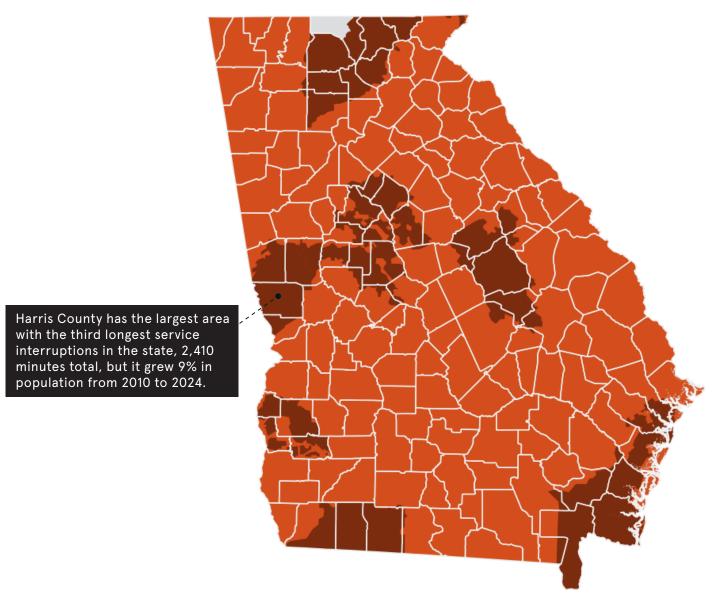
0.6 - 0.8

0.8 - 1.0

MAP MADE BY REBUILD BY DESIGN DATA SOURCE: CDC/ATSDR 2022 SVI

# **ENERGY RELIABILITY 2023**

# **COUNTIES AT GREATEST RISK OF POWER OUTAGES**



Aggregated Annual Electric Outage Duration Including major events - SAIDI\_W\_MED

missing electric outage data

0 - 60 minutes

60 - 120 minutes 120 - 240 minutes

240 - 456 minutes

456- 10,820 minutes

MAP MADE BY REBUILD BY DESIGN SOURCE: U.S. ENERGY INFORMATION ADMINISTRATION 2023

TOTAL: 15 DISASTERS FEMA PA + HM: \$1.0 B HUD CDBG-DR: \$512.5 M FEMA + HUD ASSISTANCE: \$1.6 B GEOID COUNTY NAME # OF D		Total PA Obligations HM		2011  1973: SEVERE STORMS, TORNADOES, STRAIGHT-LINE WINDS, AND ASSOCIATED FLOODING  PA Obligations  HM	4165: SEVERE WINTER STORM  PA Obligations	STORM FLOODING  HM HM	JRRICANE MATTHEW	4294: SEVERE TORNADOES STRAIGHT-LIN	S, AND TORNADOES, STRA	TORMS, IGHT-LINE OODING	4338: HURRICAN PA Obligations HM		2018 4400: HURRICANI PA Obligations H	E MICHAEL 4	4579: TROPICAL S		ERE STORMS AND RNADOES DNS	4685: SEVERE STORMS, STRAIGHT-LINE WINDS, AND TORNADOES  PA Obligations  HM	4738: HURRICANE	E IDALIA 48	321: TROPICAL STOP DEBBY PA HM	2024 4830: HUF	RRICANE HELEI
13000 13000: Statewide 15 13001 13001: Appling County 6 13003 13003: Atkinson County 5	\$206,278,048.20 \$ \$1,337,057.37	\$141,133,580.96 \$6 \$1,293,557.37 \$12,742,516.99	\$43,500.00 \$6,628.05	\$2,877,505.94 \$250,858.00	\$3,665,055.02 \$5,919,911.26	\$664,994.75 \$1,685,447.25 \$752,394.48 \$752,099.00 \$13,556,80	\$3,998,093.00	\$567,181.97	\$594,221.48 \$1,717,788.58 \$1,33 \$419,011.81	156,046.50 \$0.00	\$17,134,949.86 \$9 \$374,464.11 \$70,801.90	9,944,763.52 \$0.00 \$0.00	\$59,202,361.62 \$ \$21,590.72	\$34,293,292.50 \$43,500.00 \$6,628.05	\$3,673,266.09 \$7	1,905,677.72 \$2,771,949	Obligations 1.69 \$1,695,860.5	Obligations  7 \$4,667,181.03 \$2,706,233.6	\$3,551,766.17 \$2 \$231,623.99 \$399,596,34	\$0.00 \$0.00	379,693.76 \$0.00 \$6 \$0.00 \$6	0.00 \$24,950,6 0.00 \$246,8 0.00 \$12,219,9	625.53 \$6 866.74 \$6
13005 13005: Bacon County 7 13007 13007: Baker County 5	\$17,563,090.76 \$2,373,907.59	\$17,512,744.76 \$2,283,720.09	\$50,346.00 \$90,187.50		\$244.04C.0C \$40.750.00	\$41,845.13 \$0.00	70.83 \$0.00	\$24,960.80	\$53,071.07 \$0.00 \$43,017.61	\$0.00 \$0.00	\$2,524,053.72 \$43,749.92	\$0.00 \$0.00	\$467,294.76 \$2,130,146.63	\$50,346.00 \$90,187.50					\$3,356,554.38	\$0.00		\$10,500,0	000.00 \$6
13009       13009: Baldwin County       3         13011       13011: Banks County       4         13013       13013: Barrow County       2	\$634,005.92 \$1,202,214.66 \$264,877.14	\$621,246.92 \$1,149,475.41 \$264,877.14	\$12,759.00 \$52,739.25 \$0.00		\$211,816.06 \$12,759.00	\$51,246.82 \$34,289.25 \$117,524.96 \$0.00					\$409,430.86 \$1,057,679.79 \$147,352.18	\$0.00 \$0.00 \$0.00			\$40,548.80	\$18,450.00							\$0.00 \$0 \$0.00 \$0
13015 13015: Bartow County 2 13017 13017: Ben Hill County 3 13019 13019: Berrien County 6	\$503,474.14 \$899,596.54 \$11,648,181.20	\$474,823.39 \$899,596.54 \$11,648,181.20	\$28,650.75 \$0.00 \$0.00	\$474,823.39 \$0.00					\$51,185.32	\$0.00	\$0.00 \$312,400.26 \$129.659.90	\$28,650.75 \$0.00 \$0.00	***************************************	\$0.00 \$0.00					\$613,664.97	\$0.00	\$0.00 \$(	\$167,8 0.00 \$10,832,8	
13019 13019: Berrien County 6 13021 13021: Bibb County 1 13023 13023: Bleckley County 3	\$11,648,181.20 \$2,421,796.87 \$175,313.11	\$2,421,796.87 \$175,313.11	\$0.00 \$0.00 \$0.00						\$51,165.32	\$0.00	\$129,659.90 \$2,421,796.87 \$85,585.95	\$0.00 \$0.00 \$0.00	, , , , , , ,	\$0.00					\$613,064.97	\$0.00	\$0.00 \$0	5.00 \$10,832,8	\$0.00
13025 13025: Brantley County 6 13027 13027: Brooks County 6 13029 13029: Bryan County 4	\$4,785,682.77 \$4,642,960.53 \$1,633,940.80	\$4,785,682.77 \$4,642,960.53 \$1,633,940.80	\$0.00 \$0.00 \$0.00			\$1,199,7° \$1,386,39			\$757,834.37 \$151,014.35	\$0.00 \$0.00	\$2,023,911.75 \$372,461.15 \$247,541.77	\$0.00 \$0.00 \$0.00	\$100,430.56	\$0.00					\$804,162.83 \$4,019,054.47	\$0.00 \$0.00	\$0.00	0.00 0.00 0.00	\$0.00 \$0 \$0.00 \$0 \$0.00 \$0
13031 13031: Bulloch County 8 13033 13033: Burke County 6	\$9,770,731.43 \$7,451,400.88	\$9,745,670.11 \$7,451,400.88	\$25,061.32 \$0.00		\$248,393.41 \$0.00 \$1,309,537.71 \$0.00	\$2,235,7			\$514,632.84	\$0.00	\$1,083,947.95 \$18,374.20	\$0.00 \$0.00 \$0.00	\$26,978.12	\$0.00 \$0.00					\$5,590,631.34 \$7,069.99	\$0.00 \$0.00	\$0.00 \$6 \$0.00 \$6	0.00 \$45,3 0.00 \$6,026,9	371.73 \$6 969.30 \$6
13035 13035: Butts County 5 13037 13037: Calhoun County 4 13039 13039: Camden County 5	\$12,070,852.59 \$440,947.09 \$3,444,991.23	\$12,056,832.59 \$253,304.11 \$3,391,686,48	\$14,020.00 \$187,642.98 \$53,304.75	\$848,753.83 \$14,020.00	\$951,890.06 \$0.00	\$734,78	87.98 \$53,304.75	\$87,908.35	\$0.00 \$51,593.99	\$0.00	\$1,356,689.11 \$0.00 \$2,624,648.95	\$0.00 \$17,514.48 \$0.00		\$170,128.50				\$8,899,499.59 \$0.0	\$32,249.55	00.02	\$0.00	0.00	\$0.00 \$0 \$0.00 \$0
13043 13043: Candler County 8 13045 13045: Carroll County 4	\$4,777,130.27	\$4,777,130.27	\$0.00 \$13,905.00		\$335,114.83 \$0.00 \$845,578.61 \$0.00	\$1,615,007.48 \$0.00			\$23,154.56	\$0.00	\$1,352,926.95 \$263,912.44	\$0.00 \$0.00 \$0.00	,, -	\$0.00	\$2,096,120.97	\$13,905.00			\$756,446.35	\$0.00	\$0.00	0.00	\$0.00 \$6
13047 13047: Catoosa County 2 13049 13049: Charlton County 4	\$5,020,208.30 \$587,051.32	\$4,950,229.55 \$587,051.32 \$50,990,502.14	\$0.00	\$4,950,229.55 \$42,828.00		¢45.072.0	22 24				\$587,051.32	\$27,150.75 \$0.00							\$0.00	\$0.00		0.00	\$0.00 \$0
13051 13051: Chatham County 4 13053 13053: Chattahoochee County 3 13055 13055: Chattooga County 1	\$55,446,449.17 \$96,785.13 \$28,650.75		\$22,650.75 \$28,650.75			\$57,704.13 \$0.00	\$520,197.53				\$5,917,569.90 \$3 \$16,430.25 \$0.00	\$0.00 \$28,650.75	\$0.00	\$22,650.75							\$0.00	0.00	\$0.00
13057 13057: Cherokee County 3 13059 13059: Clarke County 1 13061 13061: Clay County 3	\$353,238.71 \$430,239.91 \$256,168.35	\$312,790.96 \$430,239.91 \$256,168.35	\$40,447.75 \$0.00 \$0.00	\$5,976.38 \$10,297.00					\$91,701.13	\$0.00	\$80,596.71 \$430,239.91 \$22,632.06	\$30,150.75 \$0.00 \$0.00		\$0.00	\$226,217.87	\$0.00							
13061 13061: Clay County 3 13063 13063: Clayton County 1 13065 13065: Clinch County 4	\$419,255.63 \$4,116,059.38	\$383,104.88 \$4,116,059.38	\$36,150.75 \$0.00						\$91,701.13	φυ.υυ		\$36,150.75 \$0.00		\$0.00					\$3,725,780.69	\$0.00	\$0.00	0.00	\$0.00
13067 13067: Cobb County 1 13069 13069: Coffee County 5 13071 13071: Colquitt County 6		\$26,750.72 \$41,075,880.03 \$24,959,221.12	\$67,650.75 \$0.00 \$40,785.42						\$470,252.38	00.02	\$26,750.72 \$482,414.87 \$1,386,234.15	\$67,650.75 \$0.00		\$0.00 \$15,134.67					\$469,591.53 \$9,648,919.67 \$	\$0.00		0.00 \$40,073,0 0.00 \$12,008,4	·
13071 13071: Colquitt County 6 13073 13073: Columbia County 3 13075 13075: Cook County 6	\$25,728,625.22	\$25,689,514.97	\$39,110.25 \$249,495.75		\$8,351,040.54 \$39,110.25				\$528,954.82	\$0.00 \$0.00	\$241,944.43 \$410,074.11	\$0.00 \$0.00 \$0.00		\$15,134.67					\$355,950.29	\$0.00		\$17,096,5	
13077 13077: Coweta County 4 13079 13079: Crawford County 3	\$131,969.83	\$27,613,640.03 \$131,969.83	\$90,098.25 \$0.00		\$1,221,482.70 \$31,955.25	\$117,225.12 \$0.00			\$407.0F2.0F	ФО ОО	\$1,127,800.04 \$14,744.71 \$439,981.28	\$0.00 \$0.00	\$0.00	\$0.00		\$25,249,341	.75 \$0.0						<b>#0.00</b>
13081       13081: Crisp County       5         13083       13083: Dade County       4         13085       13085: Dawson County       4	\$4,573,103.31	, , , , , , , , , , , , , , , , , , , ,	\$0.00 \$1,953,620.10 \$25,424.25	\$2,119,668.77 \$21,000.00	\$5,524.68 \$992,637.00	\$494,289.76 \$939,983.10 \$858,889.31 \$25,424.25			\$197,652.95	\$0.00	\$0.00 \$65,550.79	\$0.00 \$0.00 \$0.00		\$0.00	\$84,085.59	\$0.00		\$148,292.77 \$0.0					\$0.00 \$0 \$0.00 \$0
13087 13087: Decatur County 4 13089 13089: DeKalb County 5 13091 13091: Dodge County 3	\$9,893,338.17		\$19,950.75 63,588,424.24 \$0.00			\$232,220.33 \$0.00 \$16,88	\$2,750,850.00		\$1,318,047.63	\$0.00		\$19,950.75 \$380,973.49 \$0.00	\$1,498,067.75	\$0.00 \$456,600.75 \$0.00								<b>#00</b> =	\$0.00 \$0 732.81 \$0
13091       13091: Dodge County       3         13093       13093: Dooly County       4         13095       13095: Dougherty County       4		\$1,319,959.95	\$0.00 \$0.00 \$2,495,481.36					\$12,061,756.66	\$224,674.35 \$0.00 \$10,015,059.91 \$2,4	\$0.00 495,481.36	\$311,193.35 \$327,373.28 \$698,980.42		\$923,173.92 \$767,912.32 \$17,434,079.90	\$0.00 \$0.00 \$0.00									732.81 \$0 \$0.00 \$0
13097 13097: Douglas County 3 13099 13099: Early County 3	\$1,554,252.89 \$750,625.17		\$85,925.47 \$24,150.75 \$0.00			\$1,382,430.56 \$85,925.47		\$36,911.87	\$0.00 \$169 183 12	\$0.00	\$13,432.39 \$55,486.46 \$110,570.61	\$0.00 \$24,150.75	\$634,076.09	\$0.00	\$72,464.47	\$0.00			\$75.005.40	20.02	\$0.00	) 00	\$0.00 \$0
13101       13101: Echols County       6         13103       13103: Effingham County       4         13105       13105: Elbert County       3	\$366,110.67 \$1,744,919.59 \$107,404.72	\$1,744,919.59	\$0.00 \$0.00 \$28,500.00			\$1,465,82 \$31,761.24 \$0.00			\$169,183.12	φυ.υυ	\$273,540.29 \$47,143.48	\$0.00 \$0.00 \$28,500.00		\$0.00					\$75,025.40	φυ.υυ	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	0.00	\$0.00 \$0 \$0.00 \$0 \$0.00 \$0
13107 13107: Emanuel County 6 13109 13109: Evans County 5 13111 13111: Fannin County 5	\$1,043,428.29 \$573,336.04 \$677,479.16	\$991,496.88 \$548,605.63 \$609.875.41	\$51,931.41 \$24,730.41 \$67,603.75		\$118,189.62 \$0.00 \$20,905.77 \$30,191.00		\$0.00 \$24,730.41 67.80 \$24,730.41				\$484,539.38 \$200,268.34 \$0.00	\$0.00 \$0.00 \$24,150.75	\$3,769.49	\$0.00 \$0.00	\$96,731.83	\$0.00 \$353,014	24 \$0.0		\$30,819.95 \$	27,201.00	\$0.00	0.00	\$0.00 \$0 \$0.00 \$0
13111 13111: Fannin County 5 13113 13113: Fayette County 3 13115 13115: Floyd County 2	\$2,450,798.85 \$995,848.69	******	\$420,646.49 \$77,495.75	\$918,352.94 \$51,845.00	\$20,905.77 \$30,191.00 \$251,921.26 \$0.00						\$259,458.68	\$24,150.75 \$0.00 \$25,650.75			\$90,731.83	\$0.00 \$353,012	24 \$0.0						
13117 13117: Forsyth County 3 13119 13119: Franklin County 4 13121 13121: Fulton County 9	\$6,682,788.91 \$339,696.95	\$6,654,138.16 \$339,696.95 \$7,524,628.59	\$28,650.75 \$0.00 \$743,537.25	\$415,044.45 \$0.00	\$980,791.60 \$56,646.00	\$2,354,237.45 \$0.00 \$184,932.80 \$0.00 \$1,277,74	49.29 \$366.075.00	¢225 946 02	\$0.00 \$889,315.07	\$0.00	\$91,723.30	\$28,650.75 \$0.00 \$320,816.25		\$0.00	\$2,561,045.10 \$63,040.85	\$0.00 \$0.00		\$30,369.14 \$0.0					\$0.00 \$0
13121 13121: Fulton County 9 13123 13123: Gilmer County 6 13125 13125: Glascock County 4	\$8,268,165.84 \$1,318,888.67 \$71,116.20	\$1,318,888.67	\$0.00 \$18,155.48	\$415,044.45 \$0.00	\$12,050.65 \$0.00 \$34,548.15 \$0.00	\$802,765.51 \$0.00	49.29 \$300,075.00	\$225,846.03	\$0.00 \$889,315.07	\$0.00	\$2,739,146.22 \$33,299.05 \$18,412.57	\$0.00 \$0.00		\$18,155.48	\$133,238.50	\$0.00 \$337,534	96 \$0.0						\$0.00 \$0 \$0.00 \$0 \$0.00 \$0
13127 13127: Glynn County 4 13129 13129: Gordon County 3	\$623,954.15	\$577,668.40	\$5,314,182.00 \$46,285.75 \$64,498.50	\$49,634.88 \$17,635.00		\$11,844,12	21.56 \$5,190,798.75				\$36,471.23	\$123,383.25 \$28,650.75 \$30,562.50	3	\$33,936.00		\$491,562	29 \$0.0		\$929,649.33	\$0.00			\$0.00
13131       13131: Grady County       4         13133       13133: Greene County       4         13135       13135: Gwinnett County       1	\$7,498,601.60 \$195,705.20 \$2,153,619.02	\$156,964.45 \$2,153,619.02	\$38,740.75 \$0.00	\$5,024.87 \$9,673.00		\$40,119.41 \$29,067.75					\$111,820.17 \$2,153,619.02	\$0.00 \$0.00		\$33,936.00					\$122,210.51	\$0.00			\$0.00 \$0 \$0.00 \$0
13137 13137: Habersham County 6 13139 13139: Hall County 3 13141 13141: Hancock County 4	\$5,916,063.41 \$2,521,164.98 \$267,431.41	\$5,869,405.41 \$2,490,693.77 \$267,431.41	\$46,658.00 \$30,471.21 \$0.00		\$34,494.44 \$46,658.00 \$120,458.84 \$0.00	\$575,974.22 \$0.00 \$968,210.58 \$0.00					\$3,018,239.41 \$923,311.18 \$81,908.02	\$0.00 \$30,471.21 \$0.00		\$0.00	\$1,376,521.10 \$599,172.01	\$0.00 \$0.00							\$0.00 \$0 \$0.00 \$0
13143 13143: Haralson County 4 13145 13145: Harris County 3	\$629,443.91 \$198,928.95	\$629,443.91 \$153,402.13	\$0.00 \$0.00 \$45,526.82		\$97,987.73 \$0.00	\$213,423.50 \$0.00 \$75,706.11 \$0.00					\$213,275.76	\$0.00 \$0.00 \$27,526.82		φυ.υυ	\$104,756.92	\$0.00							φυ.υυ φι
13147 13147: Hart County 4 13149 13149: Heard County 5 13151 13151: Henry County 2	\$1,524,438.97 \$324,719.02 \$913,723.49	\$1,524,438.97 \$293,068.27 \$913,723.49	\$0.00 \$31,650.75 \$0.00	\$3,522.99 \$0.00	\$13,243.60 \$0.00	\$438,989.29 \$0.00					\$839,256.21 \$0.00 \$255,893.21	\$0.00 \$31,650.75 \$0.00			\$246,193.47 \$31,609.38	\$0.00 \$0.00 \$244,692	30 \$0.0	\$657,830.28 \$0.0					\$0.00
13153 13153: Hearly Gounty 2 13153 13153: Houston County 2 13155 13155: Irwin County 5	\$1,190,650.81	\$1,188,783.31 \$3,669,858.81	\$1,867.50 \$0.00					\$304,932.21	\$0.00 \$420,698.27	\$0.00	\$840,593.80 \$669,517.95	\$0.00		\$1,867.50 \$0.00				ψ037,030.20 ψ0.0				\$1,180,8	884.88 \$0
13157       13157: Jackson County       4         13159       13159: Jasper County       5         13161       13161: Jeff Davis County       6	\$2,019,635.81	\$7,474,112.55 \$2,019,635.81 \$32,941,103.16	\$0.00 \$0.00 \$0.00	\$20,316.09 \$0.00	\$70,728.09 \$0.00	\$2,842,507.50					\$3,573,843.34 \$240,362.46 \$0.00	\$0.00 \$0.00 \$0.00		\$0.00	\$881,332.60	\$0.00		\$1,688,229.17 \$0.0	\$0.00	\$0.00	\$0.00 \$6	\$176,4 0.00 \$32,887,1	\$0.00
13163 13163: Jefferson County 4 13165 13165: Jenkins County 7	\$24,776,240.49 \$4,473,016.30	\$24,776,240.49	\$0.00 \$341,083.75		\$4,713,442.51 \$0.00 \$2,863,572.81 \$0.00	\$511,36	\$38,350.00				\$554,740.02 \$268,923.55	\$0.00 \$0.00	\$335,120.46	\$0.00 \$302,733.75					\$278,059.90	\$0.00		\$19,172,9 0.00	937.50 \$6 \$0.00 \$6
13167       13167: Johnson County       4         13169       13169: Jones County       3         13171       13171: Lamar County       5	\$5,585,056.24 \$2,009,335.67 \$902,473.66	\$5,585,056.24 \$2,009,335.67 \$843,713.66	\$0.00 \$0.00 \$58,760.00		\$50,435.19 \$0.00 \$757,959.52 \$0.00 \$126,162.79 \$0.00						\$34,029.25 \$1,061,970.53 \$132,082.51	\$0.00 \$0.00 \$0.00	\$189,405.62	\$0.00 \$0.00								\$5,488,8	\$0.00 \$0
13173 13173: Lanier County 4 13175 13175: Laurens County 4	\$308,667.51 \$2,237,328.32	\$308,667.51 \$2,237,328.32	\$0.00 \$0.00		\$59,873.15 \$0.00						\$48,607.52 \$1,031,157.84	\$0.00 \$0.00	\$1,146,297.33	\$0.00					\$260,059.99	\$0.00	\$0.00	0.00	\$0.00 \$0 \$0.00 \$0
13177       13177: Lee County       2         13179       13179: Liberty County       4         13181       13181: Lincoln County       2	\$788,002.01 \$5,461,266.47 \$11,323.30	\$788,002.01 \$5,434,972.35 \$11,323.30	\$0.00 \$26,294.12 \$0.00			\$3,723,10	06.50 \$26,294.12				\$86,959.27 \$802,555.30 \$11,323.30	\$0.00 \$0.00 \$0.00		\$0.00							\$0.00	\$909,3	310.55 \$0 \$0.00 \$0
13183 13183: Long County 4 13185 13185: Lowndes County 6	\$333,416.17 \$35,816,289.99	\$307,347.70 \$35,757,387.99	\$26,068.47 \$58,902.00			\$225,70	\$0.00	\$198,622.80	\$0.00 \$178,943.78	\$0.00	\$81,587.47 \$1,444,077.59	\$26,068.47 \$31,701.00							\$20,988,588.07 \$	27,201.00		0.00 0.00 \$12,935,9	\$0.00
13187       13187: Lumpkin County       6         13189       13189: McDuffie County       3         13191       13191: McIntosh County       4	\$1,725,411.64 \$472,342.87 \$4,777,409.47	\$1,725,411.64 \$423,134.12 \$4,777,409.47	\$0.00 \$49,208.75 \$0.00	\$15,879.90 \$0.00	\$261,321.06 \$28,058.00	\$320,345.55 \$0.00 \$2,174,10	61.81 \$0.00				\$1,048,060.07 \$161,813.06 \$2,592,089.00	\$0.00 \$21,150.75 \$0.00			\$155,415.05	\$0.00 \$185,711	.07 \$0.0				\$0.00 \$(	0.00 \$11,1	\$0.00 \$0 \$0.00 \$0 158.66 \$0
13193 13193: Macon County 3 13195 13195: Madison County 4	\$459,468.14 \$442,518.20	\$459,468.14 \$442,518.20	\$0.00 \$0.00		\$269,645.02 \$0.00	\$299,919.20 \$0.00 \$85,897.31 \$0.00	\$1.5. \$\tag{\psi}\$				\$83,587.18 \$86,975.87	\$0.00 \$0.00	\$75,961.76	\$0.00							,,,,,,		\$0.00
13197       13197: Marion County       3         13199       13199: Meriwether County       5         13201       13201: Miller County       2	\$376,857.66 \$1,641,698.62 \$629,224.77	\$360,357.66 \$1,598,638.87 \$629,224.77	\$16,500.00 \$43,059.75 \$0.00	\$243,177.87 \$20,409.00	\$45,230.49 \$0.00	\$317,151.18 \$16,500.00 \$1,151,124.73 \$0.00					\$21,352.69 \$17,977.61 \$25,243.90	\$0.00 \$0.00 \$0.00		\$0.00 \$0.00				\$141,128.17 \$22,650.7	5				
13205 13205: Mitchell County 5 13207 13207: Monroe County 7	\$16,913,653.31 \$774,207.41	\$16,895,767.26 \$689,742.41	\$17,886.05 \$84,465.00	\$151,191.67 \$39,130.00	\$144,243.08 \$24,134.00	\$89,54	\$0.00	\$798,047.39	\$0.00 \$2,600,216.71 \$11,881.56	\$0.00 \$0.00	\$292,329.47 \$221,157.38		\$12,957,719.90	\$0.00 \$0.00								\$247,4	\$0.00
13209 13209: Montgomery County 5 13211 13211: Morgan County 4 13213 13213: Murray County 1	\$439,972.90 \$652,244.76 \$0.00	\$420,004.15 \$424,276.19 \$0.00	\$19,968.75 \$227,968.57 \$0.00	\$174,031.23 \$202,011.00	\$8,438.35 \$0.00	\$57,073.10 \$0.00 \$120,575.63 \$0.00					\$29,791.66 \$121,230.98 \$0.00	\$0.00 \$25,957.57 \$0.00		\$19,968.75					\$325,684.26	\$0.00			\$0.00
13215 13215: Muscogee County 2 13217 13217: Newton County 6	\$2,799,724.26 \$10,253,962.58	\$2,799,724.26 \$10,210,311.83	\$0.00 \$43,650.75		\$164,407.61 \$0.00	\$2,394,951.10 \$4,679,901.19 \$0.00					\$404,773.16 \$2,265,544.79	\$0.00 \$0.00						\$2,948,056.95 \$22,650.7	5				\$0.00
13219 13219: Oconee County 1 13221 13221: Oglethorpe County 4 13223 13223: Paulding County 3	\$50,800.28 \$146,381.27 \$168,126.29	\$50,800.28 \$146,381.27 \$125,975.54	\$0.00 \$0.00 \$42,150.75			\$9,710.02 \$0.00 \$82,828.24 \$0.00					\$50,800.28 \$48,448.87 \$0.00	\$0.00 \$0.00 \$42,150.75			\$125,975.54	\$0.00						\$5,3	394.14 \$0 \$0.00 \$0
13225 13225: Peach County 2 13227 13227: Pickens County 7	\$1,175,841.62 \$8,091,307.72	\$1,175,841.62 \$8,036,938.72	\$0.00 \$54,369.00	\$397,416.90 \$29,381.00	\$249,752.05 \$0.00	\$1,056,996.24 \$0.00 \$449,533.16 \$24,988.00	40.42				\$1,004,210.18 \$2,057,407.28	\$0.00 \$0.00	\$171,631.44	\$0.00	\$2,819,021.69	\$0.00 \$1,006,811	.40 \$0.0		100	107.00	<b>400.073</b>	0.00	
13229       13229: Pierce County       5         13231       13231: Pike County       4         13233       13233: Polk County       2	\$887,508.91 \$95,612.14 \$40,639.86	\$860,307.91 \$6,569.89 \$40,639.86	\$27,201.00 \$89,042.25 \$0.00	\$40,639.86 \$0.00	\$6,569.89 \$57,542.25	\$124,94	49.13 \$0.00				\$504,686.16 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00						\$0.00 \$31,500.0	\$207,321.63 \$	021,2U1.00	\$23,350.99 \$6	0.00	\$0.00 \$0 \$0.00 \$0
13235 13235: Pulaski County 3 13237 13237: Putnam County 4	\$212,824.13 \$266,563.15	\$212,824.13 \$238,128.94	\$0.00 \$28,434.21						\$88,743.46	\$0.00	\$0.00 \$90,215.42	\$0.00 \$28,434.21	\$212,824.13 \$59,170.06	\$0.00 \$0.00									\$0.00 \$0 \$0.00 \$0
13239       13239: Quitman County       2         13241       13241: Rabun County       5         13243       13243: Randolph County       3	\$120,548.48 \$1,384,046.35 \$754,267.94	\$103,897.73 \$1,384,046.35 \$754,267.94	\$16,650.75 \$0.00 \$0.00	\$1,114,396.74 \$0.00					\$283,283.78	\$0.00	\$16,088.35 \$117,531.83 \$102,449.92	\$0.00 \$0.00 \$0.00		\$16,650.75 \$0.00	\$0.00	\$0.00 \$152,117	7.78 \$0.0						\$0.00
13245 13245: Richmond County 3 13247 13247: Rockdale County 6	\$49,033,885.45 \$3,591,842.56	\$48,892,742.13 \$3,591,842.56	\$141,143.32 \$0.00		\$13,835,058.00 \$91,492.57 \$74,026.94 \$0.00	\$609,50	65.61 \$0.00		, , , , , , , , , , , , , , , , , , , ,		\$490,281.28 \$822,480.03	\$49,650.75 \$0.00	\$1,884,526.65	\$0.00	\$23,243.67	\$0.00						\$34,567,4	402.85 \$0
13249       13249: Schley County       2         13251       13251: Screven County       7         13253       13253: Seminole County       2	\$24,939.99 \$1,912,461.08 \$585,237.91	\$24,939.99 \$1,826,726.80 \$565,587.16	\$0.00 \$85,734.28 \$19,650.75		\$527,154.24 \$0.00	\$651,8	\$10.08 \$25,745.53				\$24,939.99 \$21,696.60 \$0.00	\$0.00 \$0.00 \$0.00	\$21,802.08	\$0.00 \$59,988.75 \$19,650.75					\$595,038.80	\$0.00	\$9,225.00	0.00	\$0.00
13255 13255: Spalding County 4 13257 13257: Stephens County 4	\$17,527,022.17 \$387,077.87	\$17,331,413.42 \$387,077.87	\$195,608.75 \$0.00	\$898,974.14 \$37,268.00	\$254,214.03 \$63,615.00	\$96,388.73 \$0.00					\$592,881.76 \$244,578.81	\$28,650.75 \$0.00			\$46,110.33	\$0.00		\$15,585,343.49 \$66,075.0	0				\$0.00
13259       13259: Stewart County       3         13261       13261: Sumter County       2         13263       13263: Talbot County       2	\$411,139.74 \$6,263,877.83 \$120,671.09	\$411,139.74 \$6,263,877.83 \$120,671.09	\$0.00 \$0.00 \$0.00			\$241,807.74 \$0.00 \$96,606.35 \$0.00					\$37,017.29 \$499,642.27 \$24,064.74	\$0.00 \$0.00 \$0.00	\$5,764,235.56	\$0.00 \$0.00									
13265 13265: Taliaferro County 4 13267 13267: Tattnall County 7	\$108,096.61 \$7,806,476.11	\$90,361.90 \$7,784,593.76	\$17,734.71 \$21,882.35		\$6,755.91 \$0.00	\$78,993.49 \$17,734.71 \$2,226,00	23.07 \$21,882.35		\$305,950.35	\$0.00	\$4,612.50 \$909,903.38	\$0.00 \$0.00	\$64,695.07	\$0.00					\$165,600.93	\$0.00	\$212,420.96	\$3,900,0	\$0.00 \$0 000.00 \$0
13269       13269: Taylor County       3         13271       13271: Telfair County       3         13273       13273: Terrell County       2	· · ·	\$2,235,427.92 \$22,577,252.64 \$349,461.13	\$0.00 \$0.00 \$0.00			\$223,655.08 \$0.00					\$1,351,385.77 \$167,118.13 \$29,870.88	\$0.00 \$0.00 \$0.00	\$66,565.83	\$0.00 \$0.00 \$0.00								\$22,343,5	568.68 \$0
13275 13275: Thomas County 6 13277 13277: Tift County 5	\$4,680,943.03 \$928,697.76	\$4,680,943.03 \$868,295.76	\$0.00 \$60,402.00		<b>0011</b> 102		70.40		\$456,268.16	\$0.00	\$591,261.25 \$279,010.24	\$0.00 \$33,201.00	\$2,503,938.67 \$419,445.74	\$0.00 \$0.00					701,12111	\$0.00 \$ \$27,201.00	T-1,11111		\$0.00 \$0 353.74 \$0
13279       13279: Toombs County       7         13281       13281: Towns County       3         13283       13283: Treutlen County       4	\$33,087,908.03 \$828,679.80 \$210,880.13	\$33,087,908.03 \$802,224.30 \$183,679.13	\$0.00 \$26,455.50 \$27,201.00		\$241,192.88 \$0.00	\$6,4° \$73,926.40 \$26,455.50	78.16 \$0.00				\$1,112,861.78 \$261,553.34 \$77,199.98	\$0.00 \$0.00 \$0.00		\$0.00 \$0.00	\$466,744.56	\$0.00			\$282,786.39 \$38,423.51 \$	\$0.00 \$27,201.00	\$0.00	30,929,6	\$0.00 \$0
13285 13285: Troup County 8 13287 13287: Turner County 5	\$6,318,349.62 \$1,589,987.18	\$6,261,430.62 \$1,565,786.18	\$56,919.00 \$24,201.00	\$226,661.32 \$30,669.00	¥33,23,000			\$71,463.15 \$116,213.55	\$0.00 \$28,835.13 \$0.00 \$809,065.30	\$0.00 \$0.00	\$350,900.32 \$111,275.92	\$0.00 \$0.00	\$1,450,534.91 \$529,231.41	\$0.00 \$24,201.00				\$1,586,543.01 \$0.0					\$0.00
13289       13289: Twiggs County       4         13291       13291: Union County       3         13293       13293: Upson County       5	\$308,493.16 \$142,004.11 \$840,773.12	\$142,004.11	\$123,112.50 \$0.00 \$100,451.00	\$19,192.53 \$11,723.00	\$33,126.94 \$0.00 \$156,195.70 \$51,928.00	\$119,533.88 \$0.00 \$257,806.25 \$6,536.00			\$81,911.21	\$30,264.00	\$97,649.95 \$22,470.23 \$225,216.43	\$0.00 \$0.00 \$0.00		\$123,112.50	\$0.00	\$0.00							\$0.00
13295 13295: Walker County 3 13297 13297: Walton County 2	\$1,039,054.63 \$1,858,102.58	\$983,949.63 \$1,837,102.58	\$55,105.00 \$21,000.00	\$745,585.75 \$22,262.00 \$69,953.90 \$21,000.00			EE TO				\$47,398.43 \$1,767,148.68	\$0.00 \$0.00							Ac	A		0.00	Ф0.00
13299       13299: Ware County       6         13301       13301: Warren County       3         13303       13303: Washington County       4	\$113,456.44	\$1,172,695.15 \$113,456.44 \$3,665,107.87	\$0.00 \$0.00 \$0.00		\$49,362.67 \$0.00 \$2,210,096.39 \$0.00		55.56 \$0.00		\$103,994.13	\$0.00	\$258,700.73 \$64,093.77 \$1,038,536.48	\$0.00 \$0.00 \$0.00		\$0.00					\$677,244.73	\$0.00	\$0.00	0.00	\$0.00 \$0 \$0.00 \$0 \$0.00 \$0
13305 13305: Wayne County 5 13307 13307: Webster County 3	\$1,293,286.95 \$119,326.25	\$1,266,085.95 \$119,326.25	\$27,201.00 \$0.00		ψ0.00	\$576,66 \$67,419.75 \$0.00	\$0.00				\$655,513.28 \$21,012.51	\$27,201.00 \$0.00	\$30,893.99	\$0.00					\$33,891.30	\$0.00	\$0.00	0.00	\$0.00
13309 13309: Wheeler County 3 13311 13311: White County 7 13313 13313: Whitfield County 3	\$22,113,600.95 \$558,969.61 \$2,170,548.87	\$22,113,600.95 \$471,022.61 \$2,100,205.87	\$0.00 \$87,947.00 \$70,343.00	\$1,474.58 \$58,998.00	\$12,322.49 \$0.00 \$283,154.61 \$70,343.00	\$62,403.27 \$28,949.00					\$577,703.86 \$171,231.17 \$0.00	\$0.00 \$0.00 \$0.00		\$0.00	\$121,449.90	\$0.00 \$102,141	.20 \$0.0					\$20,746,0	\$0.00 \$0
13313 13313: Whitfield County 3 13315 13315: Wilcox County 4 13317 13317: Wilkes County 5	\$144,180.39 \$1,872,758.94	\$120,037.89 \$1,161,529.44	\$24,142.50 \$711,229.50		\$283,154.61 \$70,343.00 \$85,439.47 \$711,229.50	\$71,135.75    \$0.00   \$297,659.67    \$0.00			\$47,754.89	\$0.00	\$4,280.34 \$707,294.55	\$0.00 \$0.00 \$0.00	\$68,002.66	\$24,142.50									\$0.00 \$0 \$0.00 \$0
13319 13319: Wilkinson County 3	\$273,882.39	\$177,748.89	\$96,133.50 \$19,650.75				47.00	\$139,212.14	\$0.00 \$640,258.38	\$0.00	\$67,951.92 \$431,992.26	\$0.00 \$19,650.75	\$109,796.97	\$96,133.50 \$0.00	040.0	1000 000 77	00 01						\$0.00 \$0 \$0.00 \$0

# **APPENDIX**

# IMIAIPINIG THIE IIMIPACT

### **DATA VISUALIZATION TOOLS**

It is evident the U.S. is already paying a steep price for this challenge. Rebuild by Design partnered with APTIM and iParametrics to create the following visual tools to demonstrate how climate events have affected each state. The set of six maps depicts which areas have been hit the hardest by recent climate events, where recovery funds are focused, where those individuals with high social vulnerabilities live, and which areas have the least energy reliability.

The U.S. needs to change the way it is making funding decisions. Where we make priority investments is equally important to what we invest in. Returns on investments (ROI) in the form of social benefits to communities needs to be part of grant evaluations. The U.S. need to utilize new decision-making frameworks that are forward-looking. The final map in the set includes an example of a new decisionmaking framework that takes into account current vulnerabilities and future climate risks. This is one example of how physical and social vulnerability indicators could inform where investments in adaptation infrastructure can yield high returns in social benefits to the most impacted communities. Our team recognizes, however, that there are other decision-making frameworks to explore, and further research is needed to understand which indicators should be included in any state-specific model. Given the ever-present constraints on funding availability, the intent of presenting these maps together is to prompt investments that address multiple known vulnerabilities simultaneously within projects, furthering comprehensive climate adaptation planning.

The following data are designed as a tool to help communities understand their risks to make better-informed choices with higher returns on investment, though each state should determine their own framework for investment.

There are always many ways to present these data. For the purposes of this report, we chose to analyze the years 2011–2024. The following six maps and two tables are presented in this format with the following considerations and limitations:

### **GEOGRAPHIC MAP**

The map provides topographic and geographic context for each state and its surrounding areas, indicating whether the state encompasses coastal, riverine, lake, alpine, or desert land.

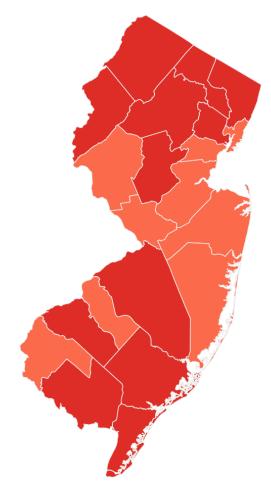


GEOGRAPHIC MAP. SOURCE: ESRI WORLD IMAGERY BASEMAP

## **DISASTER DECLARATIONS (RED)**

This map shows federally declared climate disasters by county from 2011-2024 – providing a snapshot of the magnitude of climate disasters across the country in recent history. This report only identifies federally declared disasters, as there is no entity that collects and publishes state disaster declarations. It should be noted that the declarations shown in this report do not reflect every climate event that has occurred between 2011-2024; the report instead only shows those which have met the cost threshold for a federal disaster declaration. Therefore, the findings overall underestimate the number of occurrences and the suffering that some communities have experienced.

According to the Stafford Act, as amended in May 2021, a "major disaster" includes "any natural catastrophe (including any hurricane, tornado, storm, high water, winddriven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought), or, regardless of cause, any fire, flood,



DISASTER OCCURRENCES SOURCE: FEMA 2011-2024 MAP MADE BY REBUILD BY DESIGN

or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under this Act to supplement the efforts and available resources of States, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby."

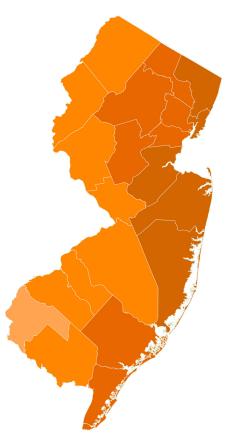
Importantly, extreme heat waves do not fit the criteria for federal disaster declarations despite being the leading cause of deaths among climate hazards. Likewise, sea level rise is not included in this definition despite the threat it poses to numerous communities, including damage to property, loss of land, and displacement.

It should be noted that while most disaster declarations are due to climate events, there are a few instances of disasters due to other natural hazards, such as earthquakes and volcanic eruptions. Though these events are not increasing in magnitude or frequency due to climate change, the severity of their impact may be connected. As climate impacts degrade household and critical infrastructure, communities may become more vulnerable to other natural hazards. Retrofitting infrastructure after these events often requires the same measures as floods, tornadoes, fires, etc., so these events were included in the report to demonstrate the need to prioritize multi hazard adaptation approaches.

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### FEDERAL ASSISTANCE (ORANGE)

The map shows the amount of federal dollars allocated to counties through FEMA's Public Assistance and Hazard Mitigation Grant Programs between 2011-2024 which allocates funding to individual counties and statewide. The map does not show where "statewide" allocations were spent within the state, but rather only shows county allocations. However, these statewide allocation amounts are included in the Disaster Declaration table at the end of each chapter and included in the "FEMA Total" provided next to the map. The adjacent table adds HUD's Community Development Block Grant Disaster Recovery funds – which are only available to states after a disaster – to the FEMA Total for an estimate of federal post-disaster spending in each state.



FEDERAL ASSISTANCE SOURCE: FEMA (HA+PM) 2011-2024 MAP MADE BY REBUILD BY DESIGN

The Disaster Declaration tables provided at the end of each chapter show all federal Disaster Declarations declared between 2011-2024 and the corresponding FEMA obligations associated with those events.

However, in some instances, FEMA continues to obligate funds for years following a declaration. Some states have received funds for events that took place

between 2011-2024 after 2024, so the total sum of funds associated with that event are not captured. All FEMA funds allocated to counties between 2011-2024 are shown in the federal assistance map; however, they do not show up in the Disaster Declaration table if their corresponding event took place prior to 2011. For example, counties in the State of Illinois are still receiving funds from a 1960s storm. The funds obligated to those counties are included in the map, but that event is not included in the Disaster Declaration table at the end of the chapter.

There are additional sources of federal funding made available to governments or individuals in response to disasters, such as the U.S. Army Corp of Engineers (USACE) projects, Small Business Administration (SBA) loans, and private insurance payouts, which are not included in this report because they are harder to uniformly track and/or must be paid back. Therefore, our findings underestimate the total support available to states and individuals post-disaster.

Since disaster aid is allocated to repair physical damage to property, events such as extreme heat, which largely creates physical damage to persons and not property, rarely qualify for federal disaster recovery aid. Additionally, there is only a shallow understanding of the economic impact of social and health-related costs and environmental degradation after a disaster.

# **SOCIAL VULNERABILITY INDEX (GREEN)**

Social vulnerability refers to the potential negative effects on communities caused by external stresses on human well-being. Such stresses include natural or human-caused disasters or disease outbreaks. The factors that determine social vulnerability are directly tied to social determinants of health or the social, economic, and physical factors - such as race, socioeconomic status, and environmental conditions - that influence health. Socially vulnerable populations fare the worst during a disaster and often take longer to recover. The Center for Disease Control/ Agency for Toxic Substance and Disease Registry Social Vulnerability Index (CDC/ATSDR SVI) uses 15 U.S. census variables to help local officials identify communities that may need support before, during, or after disasters. The map presents the SVI on a census block



SOCIAL VULNERABILITY SOURCE: CDC/ATSDR 2022 MAP MADE BY REBUILD BY DESIGN

level, indicating where the most socially vulnerable populations within each county live. The 15 indicators are grouped into four themes:

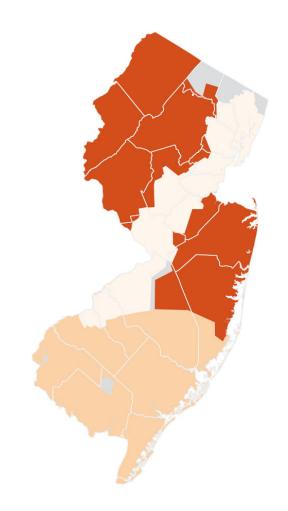
- Socioeconomic Status (below poverty, unemployed, income, no high school diploma);
- Household Composition & Disability (aged 65 or older, aged 17 or younger, older than age 5 with a disability, single-parent households);
- Minority Status & Language (minority, speak English "less than well"); and
- Housing Type & Transportation (multi-unit structures, mobile homes, crowding, no vehicle, group quarters).

Social Vulnerability Index data are not being used to make post-disaster assistance funding decisions. HUD only requires Low and Moderate Income for a portion of their funding. FEMA does not consider it in their allocations.

# **ENERGY RELIABILITY (BROWN)**

Climate events often lead to energy disruptions for hours, days, or weeks. This map shows the annual average interruption time (in minutes) across the different energy utility providers within a state. Regions (or utility territories) in the darkest shade, on average, experience longer energy outages. These data are aggregated by utility territory, not county, meaning more than one provider can serve a county or group of counties.

Viewing the Energy Reliability Map next to the SVI Map, one can begin to infer which regions have the most socially vulnerable residents and are served by the least reliable energy providers. Energy reliability is increasingly becoming related to climate disasters and weather events. Inclusion of these maps is to support evaluation of need for concurrent flood and energy resilience projects.



ENERGY RELIABILITY SOURCE: US ENERGY INFORMATION ADMINISTRATION 2023 MAP MADE BY REBUILD BY DESIGN

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### System Average Interruption Duration Index (SAIDI)

is one of the performance metrics used to measure the reliability of an electric utility's service. This metric measures the total time (in minutes) an average customer experiences a non-momentary power interruption over a one-year (calendar) period.

A Major Event Day (MED) is another metric which occurs when the SAIDI exceeds a specific threshold within a given day and tends to reflect outages on the longer end of the spectrum. The data presented in this report shows a metric of SAIDI combined with MED to highlight and report electric reliability in areas (utility territories) irrespective of the root cause of the interruption. The Energy Reliability Map displays the SAIDI\_W\_MED metric for utility territories and highlights areas that are susceptible to electric system vulnerabilities based on reliability performances. These vulnerabilities serve as an indicator as to where investments and improvements in the distribution grid should be focused.

Electric utilities experience power interruptions due to a variety of issues. Those issues include inclement weather, vegetation management practices, utility practices, maintenance patterns, and capital investment strategy, among others, which all play a part in a utility's overall reliability performance. The U.S. Energy Information Administration produces an Annual Electric Power Industry Report which utilizes data collected from U.S. electric utilities reflecting their reliability performance against certain industry standards and performance metrics. Utilities have the flexibility to report interruptions according to duration and frequency either with major events, without major events, or both.

The annual SAIDI is the summation of the individual SAIDIs for each non-momentary interruption event over the entire year (2023):

 $SAIDI = \frac{\sum (Duration of Interruption \times No. of Sustained Customer Interruptions)}{Total No. of Customers Served}$ 

For utilities that report SAIDI metrics using the Institute of Electrical and Electronics Engineers (IEEE) standards, "non-momentary" interruptions are those lasting

longer than five minutes. A Major Event Day (MED) is another metric which occurs when the SAIDI exceeds a specific threshold within a given day and tends to reflect outages on the longer end of the spectrum.

Utilities have certain flexibilities when reporting with these metrics. Including MED in the SAIDI metric (SAIDI\_W\_MED) provides an overall picture of the electric reliability experienced by customers. Excluding MED from the SAIDI metrics (SAIDI\_WO\_MED) tends to separate power interruption events by their durations, which provides an indicator of the source of the power interruption (i.e., distinguishes a Major Event vs. Systematic Operation interruption).

Our methodology utilizes SAIDI\_W\_MED as the primary measurement indicator for the electric reliability experience of the end user (customer). Our SAIDI\_W\_MED metric highlights the reported electric reliability in areas (utility territories, counties, and states) irrespective of the root cause of the interruption. Our metric does not exclude interruptions categorized as MEDs.

This report endeavors to highlight areas across the national electric distribution network (utility territories) that are susceptible to electric system vulnerabilities based on historical reliability of performance. We view vulnerabilities caused by major events (longer duration outages) on par with vulnerabilities caused by systematic failures (shorter duration outages) and believe they should equally drive electric grid investment and improvement decisions. These investments should also incorporate solutions aimed at mitigating systemic vulnerabilities that stem from issues like vegetation management practices, distribution automation improvements to major event vulnerabilities with root causes embedded in grid hardening, distribution generation schemes, and Automated Metering Infrastructure (AMI) upgrades aimed at minimizing customer interruption numbers and durations.

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