Madison County’s response to the April 27th, 2011 storms
# Madison County Demographics

## Huntsville/Madison County Demographic Summary

<table>
<thead>
<tr>
<th></th>
<th>Madison County</th>
<th>City of Huntsville</th>
<th>City of Madison</th>
<th>Huntsville Metro Area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>POPULATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010 Census</td>
<td>334,811</td>
<td>180,105</td>
<td>42,938</td>
<td>417,593</td>
</tr>
<tr>
<td>2013 Census</td>
<td>346,892</td>
<td>186,254</td>
<td>45,799</td>
<td>435,737</td>
</tr>
<tr>
<td>% Growth</td>
<td>3.6%</td>
<td>3.4%</td>
<td>6.7%</td>
<td>4.3%</td>
</tr>
<tr>
<td><strong>HOUSEHOLDS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012 American Community Survey</td>
<td>131,263</td>
<td>74,778</td>
<td>15,895</td>
<td>162,449</td>
</tr>
<tr>
<td><strong>RACE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>69.1%</td>
<td>62.5%</td>
<td>76.1%</td>
<td>71.7%</td>
</tr>
<tr>
<td>Black</td>
<td>24.0%</td>
<td>31.1%</td>
<td>13.7%</td>
<td>21.9%</td>
</tr>
<tr>
<td>Asian &amp; Pacific Islander</td>
<td>2.4%</td>
<td>2.2%</td>
<td>6.2%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Other Races</td>
<td>4.5%</td>
<td>4.2%</td>
<td>4.0%</td>
<td>4.1%</td>
</tr>
<tr>
<td><strong>INCOME &amp; AGE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Household Income</td>
<td>$77,819</td>
<td>$70,546</td>
<td>$110,359</td>
<td>$75,389</td>
</tr>
<tr>
<td>Median Household Income</td>
<td>$58,242</td>
<td>$48,632</td>
<td>$92,138</td>
<td>$55,614</td>
</tr>
<tr>
<td>Per Capita Income</td>
<td>$31,367</td>
<td>$30,299</td>
<td>$41,490</td>
<td>$30,072</td>
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<tr>
<td>Median Age</td>
<td>37.1</td>
<td>36.8</td>
<td>36.4</td>
<td>37.3</td>
</tr>
</tbody>
</table>

*Source: U.S. Census Bureau, 2014
2006-2012 American Community Survey 5-Year Estimates*
Huntsville Built Infrastructure

- **Employment**
  - Redstone Arsenal – 33k people
  - Scientists and engineers
  - Cotton farmers

- **Transportation**
  - Tennessee River: Major barge traffic and commerce/recreation
  - Whitesburg Bridge
  - Hwy 565

- **Infrastructure**
  - 9 water systems
  - 6 wastewater utilities
  - Solid waste steam plant for Arsenal
  - 8 electrical transmission feeds

- **Buildings**
  - US Space and Rocket Center
  - 3 school systems
  - 6 colleges and universities
  - Sprawling downtown area with buildings mostly under 6 stories
  - Trending from agriculture to residential in rural areas

- **Other large employers**
  - Polaris
  - Toyota
  - Boeing, Raytheon, SAIC, Northrop Grumman, Lockheed Martin
  - Intergraph
  - Chrysler
  - City of Huntsville
• April 3, 1974
  – 148 tornadoes in 13 states
  – 301 deaths

• In comparison, April 27, 2011
  – 226 reported tornadoes across the Southeast
  – 313 deaths.

• Alabama
  – 71 tornadoes
  – 248 deaths
  – Also had 35 reported tornadoes on April 15th.
The previous record for the number of tornadoes in the US in one month was 542 in May, 2003.

The previous record for the month of April was 267.

The national average number of tornadoes for April is 161.

In April 2011, 875 tornadoes were reported.
• Five days prior to the event we were receiving briefings from the National Weather Service.

• There was high confidence that we would have a significant severe storm event on the 27th.

• Our community was well informed and most were as prepared as they could be.
Warnings started coming in between 3 and 4 a.m.

Over the next 18 hours, 92 tornado warnings would be issued by NWS HUN.

There were 28 warnings in Madison county alone.
NATIONAL WEATHER SERVICE ACTIVITIES

- NWS and local Media were often tracking several storms simultaneously.
ALL HANDS ON DECK at EMA – HUNTSVILLE
EMA Huntsville Storm Tracking
A P R I L  2 7 ,  2 0 1 1  T O R N A D O E S  –  M O R E  F U N  F A C T S

• The Huntsville WFO issued 92 tornado warnings between 4AM and 9PM CDT on April 27th which is incredible considering there were a total of 67 tornado warnings in their coverage area for the entire year of 2010!

• In addition to the tornado warnings, there were also 31 severe thunderstorm warnings and 7 flash flood warnings.

• Local television went wall to wall that morning, with less than two hours of normal programming for the next twenty-four hours.
Huntsville WFO Coverage Area (14 Counties)

April 27, 2011

- Tornado Warnings: 92
- Severe Thunderstorm Warnings: 31
- Flash Flood Warnings: 7
APRIL 27, 2011 TORNADO TRACKS

National Weather Service Huntsville
Preliminary Tornado Tracks
April 27, 2011

Note: EF-Rating reflects highest wind speed along entire tornado path.
APRIL 27, 2011 TORNADOES AFTERMATH

• Tornadoes trained across the northern 2/3 of the state for nearly 18 hours. As many as four storm tracks overlapped each other.

• The swarm of tornadoes
  – Killed 248 people across Alabama
  – Destroyed or heavily damaged more than 13,000 buildings

• American Red Cross Alabama statewide assessment
  – 6,237 single-family homes destroyed
  – 5,039 homes heavily damaged
  – 1,890 mobile homes
  – Heaviest losses were in Tuscaloosa and Birmingham
  – Many other areas in Alabama devastated
AFTERMATH IMAGES OF APRIL 27 TORNADOES
PROFOUND INFRASTRUCTURE DAMAGE

• Two miles of 500KV TVA transmission lines were destroyed.
• The majority of North Alabama was out of power 5 to 7 days.
• Generators were brought in to keep water systems and other infrastructure running.
LESSONS LEARNED

• Current and accurate Public Information is critical to an organized response
• County Commissioners and Mayors worked together to provide Mutual Aid
• Decision makers at Huntsville Utilities and TVA who could provide information were identified
MORE LESSONS LEARNED

• Cell phone coverage unreliable or interrupted
  – Backup generators at cell towers ran out of fuel
• Hundreds of thousands of dollars lost to food spoilage at schools and retail businesses as well as families
• Traffic backed up as people waited in line to get gas in areas that still had power
• Radio stations stopped normal programming and went wall to wall with call in information sharing for the duration of the outage
• A dark to dawn curfew was enforced during the power outages in most counties
SOCIAL AND ECONOMIC DAMAGES FROM STORMS

• Some internet providers were offline for several days
• VOIP phone systems were down
• Businesses were closed and employees couldn’t work. Revenue was lost. Income was lost.
• Schools and daycare centers were closed
• Many of those that couldn’t work volunteered to help in the damaged areas
MORE SOCIAL AND ECONOMIC DAMAGES

- People could not access their bank accounts and credit cards were useless.
- Major retailers like Wal-Mart, Costco, Sam’s and Target managed to open by day three making the situation better.
- Local utilities had to wait for TVA lines to come up before they could begin restoration in their areas.
- Millions and Millions of cubic yards of debris have been picked up and processed.
TRANSITION TO A MORE RESILIENT COMMUNITY

Since April 27, 2011
HUNTSVILLE AND MADISON COUNTY PREPAREDNESS

• Through our VOAD, a Long Term Recovery Committee was established
• Responders reviewed and updated their plans to include lessons learned
• Schools, hospitals, banks and many other private sector businesses focused on being prepared for a prolonged power outage
PROTECTING THE PUBLIC

• Hundreds of home owners installed safe rooms with and without federal assistance
• Community storm shelters were built where feasible as funding was available
Huntsville Mayor Tommy Battle initiated “Exemplar City”, economic development activities in the areas of Geo/Energy/Cyber to support community-wide operations led from private sector.

1. Blueprint for Safety
   – GeoQ platform (NGA)
2. Blueprint for Sustainability
   – Energy Usage Benchmark
3. Blueprint for Security
   – Giga-Bit City
BLUEPRINT FOR SAFETY

• Incorporating Geo Metrics into day to day response operations
• TechVet, putting new and emerging technology together with responders
• Real time exercises with real time imagery and GPS for situational awareness.
BLUEPRINT FOR SUSTAINABILITY

• Energy Usage Benchmark (Contracts awarded)
• Long Range Urban Planning, build energy surety into future years and reducing dependence on generators and fossil fuel
BLUEPRINT FOR SECURITY

- Giga-Bit City (RFP in place) Hi-speed Internet access city wide
- Cyber Huntsville, cyber attack /defense exercises
- Public Private collaboration for cyber security preparedness, response and recovery
Questions?
Questions???