ROAD TO CONSTRUCTION AND MANAGING COMMUNITY SAFE ROOMS

CITY OF BIRMINGHAM
DEPARTMENT OF PLANNING, ENGINEERING & PERMITS
MARCH 5, 2019

COMMUNITY SAFE ROOMS PROJECT

- Hazard Mitigation Planning and Risk Assessment
- April 27, 2011
- Grant Funding
- Community Safe Rooms
  - Construction Type
  - Locations
  - Procurement Challenges
  - Partnerships
  - Operation and Maintenance Plan
  - Notification and Outreach

HAZARD MITIGATION PLANNING

- Stafford Act: (Robert T. Stafford Disaster Relief and Emergency Assistance Act, 1988)
  - Provides legal basis for undertaking a risk-based approach to reducing natural hazard risks through mitigation planning.
  - Requires development and adoption of a FEMA-approved hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance.
  - Authorizes the following grant programs:
    - Hazard Mitigation Grant Program (HMGP) - following a Presidential major declaration
    - Pre-Disaster Mitigation Grant Program (PDM) – for Pre-Disaster programs, projects and planning efforts
    - Public Assistance Grant Program (PA) – to quickly respond and recover from major disasters or emergencies
    - Fire Management Assistance Grant Program (FMAG) – to control fires on public or privately owned forests or grasslands destructive enough to constitute a major disaster.

JEFFERSON COUNTY MULTI-HAZARD MITIGATION PLAN

- Multi-jurisdictional Plan (33 Jurisdictions)
- Initially Approved 10/09; Last Updated in 2014
- Approved by AEMA and FEMA

RISK ASSESSMENT

- HAZARD IDENTIFICATION AND RISK ASSESSMENT (44 CFR 201.6)
  - Description of the type, location, and extent of all natural hazards that can affect each jurisdiction.
  - Information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction.
  - Description of each identified hazard’s impact on the community.

TORNAADOES AND (EXTREME WIND) SEVERE STORMS

- In an average year, approximately 1,000 tornadoes are reported across the United States, resulting in over 1,500 injuries and 80 deaths.
- The most-violent tornadoes, with wind speeds of 250 mph or more, are capable of tremendous destruction. Damage paths can be more than one mile wide and 50 miles long.

Most tornadoes form from thunderstorms. You need warm, moist air from the Gulf of Mexico and cool, dry air from Canada. When these two air masses meet, they create instability in the atmosphere.
JEFFERSON COUNTY TORNADO PROFILE

• Typically occurs within a 20-mile radius of the center of Jefferson County during the Spring months of March, April, and May, and significantly more frequently in the afternoon and evening, rather than the morning.

• Jefferson County tornadoes, on average, tend to be severe and the average intensity of tornadoes overall is rated as an F-2 category (113-157 mph).

TORNADO HISTORY IN JEFFERSON COUNTY

• Jefferson County has been visited by at least one tornado annually from 1952 to 2014.

• During this period, the county experienced a total of 95 events, averaging about 1.5 per year.

• These tornadoes have accounted for 109 deaths and 1,008 injuries and over $1 billion in property damage.

PRATT COMMUNITY TORNADO PATHS

At least 7 tornadoes have struck some portion of the Pratt Community since 1956, making its tornado risk much greater than any other Community in the City of Birmingham.

SUPER OUTBREAK

The April 25-28, 2011, “Super Outbreak” was one of the worst tornado outbreaks in U.S. history. It destroyed more than 321 lives, injured 2,775 and was responsible for $12.2 billion in total damage, making it the costliest tornado outbreak in U.S. history.

APRIL 27, 2011

• EF-4 tornado leveled much of the Pratt Community

• 1,500 structures damaged or destroyed citywide

• Almost 500 homes destroyed or rendered uninhabitable resulting in more than 1,000 residents being displaced in Pratt Community

• Important public facilities destroyed within Pratt Community
**FEMA-1971-DR-AL**
- Alabama Severe Storms, Tornadoes, Straight-line Winds, and Flooding
- Major Disaster Declaration declared on April 28, 2011
- Birmingham became eligible for HMGP Funding
- Coordinated with Community Stakeholders and Submitted Grant Applications for Construction of 20 Safe Rooms throughout the Pratt/Ensley Communities
- Four of the Six Approved Safe Room Grant Applications were directly related to HMGP DR 1971 (Pratt City Park, Smithfield Estates Park, South Hampton School, and North Sherman Heights Park).
- Two Additional Safe Rooms, Jimmie Hudson Park (HMGP 4032 – Declared February 1, 2012); and Howze Sanford Park (PDM 2013) were also approved.

**COMMUNITY SAFE ROOMS**
- **Construction Type**
  - Monolithic Dome Structure capable of resisting the 100 mph missile impact resistance test as required by FEMA. Must meet FEMA 361 Code.
  - Steel-reinforced, concrete Building
- Construction begins with placement of a ring beam footing and the pouring of a circular steel-reinforced concrete slab floor; then a stem wall is erected to give the building straight walls.
- Roofing is with an airform tarp made of tough, single ply roofing material which is attached and then inflated. Airform is then sprayed with three inches of polyurethane foam, and a grid of steel rebar is attached to the foam.
- A shotcrete layer of 4-8 inches is also sprayed throughout the structure.

**COMMUNITY SAFE ROOM LOCATIONS**

<table>
<thead>
<tr>
<th>Location</th>
<th>Neighborhood</th>
<th>Capacity</th>
<th>Square Footage</th>
<th>Initial Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pratt City Park</td>
<td>North Pratt</td>
<td>888</td>
<td>5,027</td>
<td>$873,589.58</td>
</tr>
<tr>
<td>Jimmie Hudson Park</td>
<td>Sandusky</td>
<td>183</td>
<td>1,256</td>
<td>$281,195.00</td>
</tr>
<tr>
<td>Smithfield Estates Park</td>
<td>Smithfield Estates</td>
<td>1,644</td>
<td>9,161</td>
<td>$1,531,661.39</td>
</tr>
<tr>
<td>South Hampton School</td>
<td>North Pratt</td>
<td>3,485</td>
<td>8,171</td>
<td>$1,350,647.23</td>
</tr>
<tr>
<td>Howze Sanford Park</td>
<td>Central Pratt</td>
<td>807</td>
<td>3,848</td>
<td>$689,063.00</td>
</tr>
<tr>
<td>North Sherman Heights Park*</td>
<td>Sherman Heights</td>
<td>220</td>
<td>1,984</td>
<td>$188,480.62</td>
</tr>
</tbody>
</table>

* Under Construction

**JEFFERSON COUNTY SAFE ROOMS**

<table>
<thead>
<tr>
<th>Location</th>
<th>Address</th>
<th>Capacity</th>
<th>Open</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Adamsville</td>
<td>609 Spring Street, Adamsville, AL 35005</td>
<td>299</td>
<td>During Severe Weather</td>
</tr>
<tr>
<td>City of Brookside</td>
<td>2711 Municipal Lane, Brookside AL 35036</td>
<td>300</td>
<td>During Severe Weather</td>
</tr>
<tr>
<td>City of cabinvile</td>
<td>800 Cherry Avenue, Birmingham, AL 35202</td>
<td>130</td>
<td>Special Events</td>
</tr>
<tr>
<td>City of Trussville</td>
<td>1011 Bradleyshire Drive, Trussville, AL 35173</td>
<td>100</td>
<td>During Severe Weather</td>
</tr>
<tr>
<td>Tannehill State Park</td>
<td>Pinhoti Camp Ground</td>
<td>132</td>
<td>During Severe Weather</td>
</tr>
<tr>
<td>Ragley Fire Station</td>
<td>Daily use for surrounding citizens</td>
<td>30</td>
<td>During Severe Weather</td>
</tr>
</tbody>
</table>

**PROCUREMENT CHALLENGES**
- Bids Received Were Substantially Over Budget
- Construction Type Questioned
- Combining Projects in One Bid Package
- Overall Funding Shortfalls
- Period of Performance
- Requested Additional State/FEMA Funding
- CDBG Funding and Challenges
- Davis Bacon Requirements

**PARTNERSHIPS**
- City of Birmingham Mayor’s Office
- Traffic Engineering Department
- Federal Emergency Management Agency (FEMA)
- Pennsylvania Office (PDM)
- City of Birmingham Fire and Rescue Service Department
- Birmingham Police Department
- Community Development Department
- Finance Department
- Planning and Zoning Department
- Law Department
- Traffic Engineering Department
- Community Emergency Response Team (CERT) Program
- Community Safety and Health Program (CSHP) Program
- Local Community Leaders
- Consultant Teams
- Traffic Engineering
- Historic Properties
- Windstorm Mitigation
- Construction Teams
- Fire and Rescue Service Department
- All Hazard Construction
- Alabama Building Commission
- Birmingham City Schools
- Birmingham Park and Recreation Board
OPERATIONS AND MAINTENANCE PLAN

- Coordination Meetings
  - To review the City of Birmingham’s Community Safe Room Operation and Maintenance Plan with key safe room management personnel consisting of the Birmingham Fire and Rescue Service Department, Birmingham Police Department, Department of Public Works, the Department of Planning, Engineering and Permits, and Jefferson County Emergency Management Agency.
  - To understand the purpose, operational procedures, maintenance requirements, roles, and responsibilities of the community safe rooms in order to ensure compliance with all local, county, and federal regulations and grant requirements.

O & M PLAN INITIAL RESPONSES

- Birmingham Fire and Rescue Service Department
  - Acknowledged staffing challenge associated with being the designated Safe Room Managers especially if the safe rooms will open after normal business hours in which there would be a need to utilize overtime personnel.
  - Limited BFRS staff identified the need to quickly reconstitute CERT program in order to receive additional assistance with managing safe rooms.

- Birmingham Police Department
  - Police Chief initially not prepared to obligate a full-time officer to staff the community safe rooms.
  - Security implications related to overall crowd control, State Gun Policy, etc.

- Department of Public Works
  - Prepared to respond to staffing needs at the community safe rooms and will utilize on call staff to act as building managers and provide maintenance and custodial services as indicated in the Plan.

O & M PLAN CHALLENGES

- Lack of Resources
- EOC Liaison Role
- Notification Process and Procedures
- Activation and Deactivation Procedures
- Safe Room Supplies (e.g., Food, Snacks, Water)
- Reconstituting CERT Program
- Access and Keys
- Traffic Control (Pedestrian and Vehicular)
- Special Needs Groups
- Notification and Enforcement of Rules
- Weather Cancellation or Expiration Notifications
- Long-Term Recovery
- Training and Exercises

O&M PLAN COMPONENTS

- PURPOSE / SCOPE
- AUTHORITIES
- ASSUMPTIONS
- IMPLEMENTATION
- CONCEPT OF THE OPERATIONS
- EXERCISE AND TRAINING
- ROLES AND RESPONSIBILITIES
- PLAN MANAGEMENT AND MAINTENANCE
- APPENDIX (Supplies, Specific Job Duties, Forms, etc.)
Community Safe Room Manager/ Shift Supervisor
Birmingham Fire and Rescue Service Department

- Ensure proper safety measures are in place to guard against the entry of unauthorized individuals.
- Ensure proper safety measures are in place to guard against the entry of unauthorized individuals.
- Work with the Community Safe Room Manager in ensuring the security of all medical supplies and equipment.
- Work with registration staff to enlist their help in referring people who may have health problems to the Health Services Unit.
- Ensure that conditions are sanitary in the community safe room. The Community Safe Room Manager should be kept advised about these noticeable trends in illness to the local health department.
- Look for unreported health problems of Community Safe Room occupants and take necessary action to care for these problems.
- Treat minor injuries.
- Assess and refer the seriously ill and injured for health care.
- Determine the health needs of all safe room occupants and arrange to meet those needs.
- Assist with arrangements for essential health items.
- Plan Maintenance and Training Coordination

Building Manager
Department of Public Works

- Conduct pre-evacuation inspections, assessing general condition of facility and dining areas.
- Assist Safe Room Manager with pre-evacuation safety checks.
- Coordinate with local authorities and evacuated facility staff to confirm that doors and windows remained closed during the storm.
- Coordinate with law enforcement to ensure security personnel were stationed inside and outside of safe room.
- Ensure that Community Safe Room residents are receiving updated information about the disaster; the recovery process, and all of the resources available to them.
- Ensure that Community Safe Room residents are receiving updated information about the disaster; the recovery process, and all of the resources available to them.
- Establish contact with Building Manager and determine the appropriate location for radios. The location should be isolated, suitable for optimal reception, and have access to generator-powered outlets.
- Attend all staff meetings with Operation Team.
- Ensure proper safety measures are in place to guard against the entry of unauthorized individuals.
- Conduct pre-evacuation inspections, assessing general condition of facility and dining areas.
- Assist Safe Room Manager with pre-evacuation safety checks.
- Coordinate with local authorities and evacuated facility staff to confirm that doors and windows remained closed during the storm.
- Coordinate with law enforcement to ensure security personnel were stationed inside and outside of safe room.
- Ensure that Community Safe Room residents are receiving updated information about the disaster; the recovery process, and all of the resources available to them.
- Establish contact with Building Manager and determine the appropriate location for radios. The location should be isolated, suitable for optimal reception, and have access to generator-powered outlets.
- Attend all staff meetings with Operation Team.
- Ensure proper safety measures are in place to guard against the entry of unauthorized individuals.
- Conduct pre-evacuation inspections, assessing general condition of facility and dining areas.
- Assist Safe Room Manager with pre-evacuation safety checks.
- Coordinate with local authorities and evacuated facility staff to confirm that doors and windows remained closed during the storm.
- Coordinate with law enforcement to ensure security personnel were stationed inside and outside of safe room.
- Ensure that Community Safe Room residents are receiving updated information about the disaster; the recovery process, and all of the resources available to them.
- Establish contact with Building Manager and determine the appropriate location for radios. The location should be isolated, suitable for optimal reception, and have access to generator-powered outlets.
- Attend all staff meetings with Operation Team.
- Ensure proper safety measures are in place to guard against the entry of unauthorized individuals.
- Conduct pre-evacuation inspections, assessing general condition of facility and dining areas.
- Assist Safe Room Manager with pre-evacuation safety checks.
- Coordinate with local authorities and evacuated facility staff to confirm that doors and windows remained closed during the storm.
- Coordinate with law enforcement to ensure security personnel were stationed inside and outside of safe room.
- Ensure that Community Safe Room residents are receiving updated information about the disaster; the recovery process, and all of the resources available to them.
- Establish contact with Building Manager and determine the appropriate location for radios. The location should be isolated, suitable for optimal reception, and have access to generator-powered outlets.
- Attend all staff meetings with Operation Team.
**Registration Unit**  
**Birmingham Fire and Rescue Service Department and CERT Volunteers**

- Check that residents entering the safe room are recorded through the registration process.
- Meet residents entering or leaving the safe room and administer the registration process to ensure that everyone is registered.
- Provide assistance to residents who may be unfamiliar with the registration process or have special medical needs.
- Ensure that residents enter and leave the safe room through the designated entrance and exit points.
- Assist Safe Room Manager with posting signage where needed.
- Place reception desk near the entrance to welcome those entering the community safe room, to answer their questions, and to direct them toward the registration tables.
- Determine and set up the appropriate number of registration tables to ensure that everyone entering is registered within a reasonable period of time.
- Post signs directing persons to the registration area, and post signs clearly marking the registration desk or tables.
- Train staff and CERT volunteers in the registration process to ensure smooth operations.
- Record vital information on the Community Safe Room log as deemed necessary by the Safe Room Manager.
- Assist the Safe Room Manager in providing residents with information about the disaster, the recovery process, and resources available to them.
- Assist the Safe Room Manager in monitoring disaster and response efforts, and plan for closing of the community safe room.
- Assist the Safe Room Manager with tracking expenditures and resources as needed.
- Assist the Safe Room Manager with providing residents with updates on the disaster and recovery efforts.
- Record information on the Community Safe Room log as deemed necessary by the Safe Room Manager.
- Ensure that all safe room residents have been accounted for.

---

**COMMUNITY OUTREACH**

- Community-wide Meetings
- Neighborhood Meetings
- Brochures with Frequently Asked Questions
- CERT Training Presentation and Education on Liability Waiver
- Safe Room Tour
- Website to be Updated
- Safe Routes to Safe Rooms Campaign

---

**WHAT IS A SAFE ROOM?**

- Safe Rooms are rooms or structures specifically designed to resist wind pressures and flying debris associated with an extreme wind-like event, such as tornadoes.
- They are meant to be used as personal life protection from the elements in the case of these storm events.

---

**HOW SHOULD I GET TO THE SAFE ROOM?**

- Parking is very limited, so it is recommended that guests walk to the Safe Rooms. Directional signs will help guide vehicular and pedestrian traffic.
- Residents served by the Community Safe Rooms will be within a five to ten minute walking distance from the site.
- Each Safe Room should only accommodate residents within the “Intended Occupant Zone”. Residents should not attempt to cross highways, railroad tracks, bridges and other similar facilities or areas with major topographic features, such as hills or low lying areas.
SAFE ROUTES TO SAFE ROOMS

- Reviewed Existing Sidewalk Conditions from Sidewalk Master Plan
- Met with Traffic Engineering to identify safe vehicular and pedestrian routes and appropriate signage
- Identified traffic calming techniques needed

PRATT CITY PARK
Completed February 2017

JIMMIE HUDSON PARK
Completed February 2017

SMITHFIELD ESTATES PARK
Completed April 2017

SOUTH HAMPTON
Completed January 2019

HOW/WHEN WILL I KNOW IF THE SAFE ROOM IS OPEN?

- Residents are strongly encouraged to monitor severe weather threats. Once the threat is identified, Safe Room Managers will be on standby and/or notified to open the Safe Rooms.
- Residents will also be provided notifications via the Everbridge Citizen Alert Notification System. To sign up, visit:

Jeffcoema.org (click on red button titled Everbridge Citizen Alert)
WHAT IF I HAVE SPECIAL MEDICAL NEEDS?

- All guests with special medical needs should be self-sufficient and are urged to travel with a companion who may provide needed assistance.

- In the case that the guest requires specialized care due to health and medical concerns, they should evacuate to a hospital, nursing home, or other specially equipped facility whenever possible. Prior arrangements should be made with specialty staff and agencies.

WHAT SHOULD I BRING TO THE SAFE ROOM?

- Only bring necessary items for an emergency. Prescription medications and a two-hour supply of non-perishable food will suffice.

- Unfortunately, household pets are not allowed in the Community Safe Rooms. Only trained service animals are allowed per the Americans with Disabilities Act of 1990 (ADA).

SUMMARY / LESSONS LEARNED

- Safe Rooms help mitigate tornado risks by reducing loss of life

- The CERT program is vital to the operations and staffing of Safe Rooms

- Funding to construct and maintain Safe Rooms is critical

- If dealing with out-of-state consultants, engage a local firm when developing cost estimates

- Safe Room locations must be adequately planned in order to ensure population “at risk” is being served

- Coordination from multiple departments, agencies, and volunteers needed to ensure successful planning and operation

- Operation and Maintenance Plans must be well developed and implemented to meet FEMA 361 Guidelines

- Outreach must be intentional and provide guidance to all residents utilizing Safe Rooms

- The O&M Plan is a Living Document. Training must be provided regularly to provide guidance to Safe Room managers and other stakeholders, especially after use of Safe Rooms.