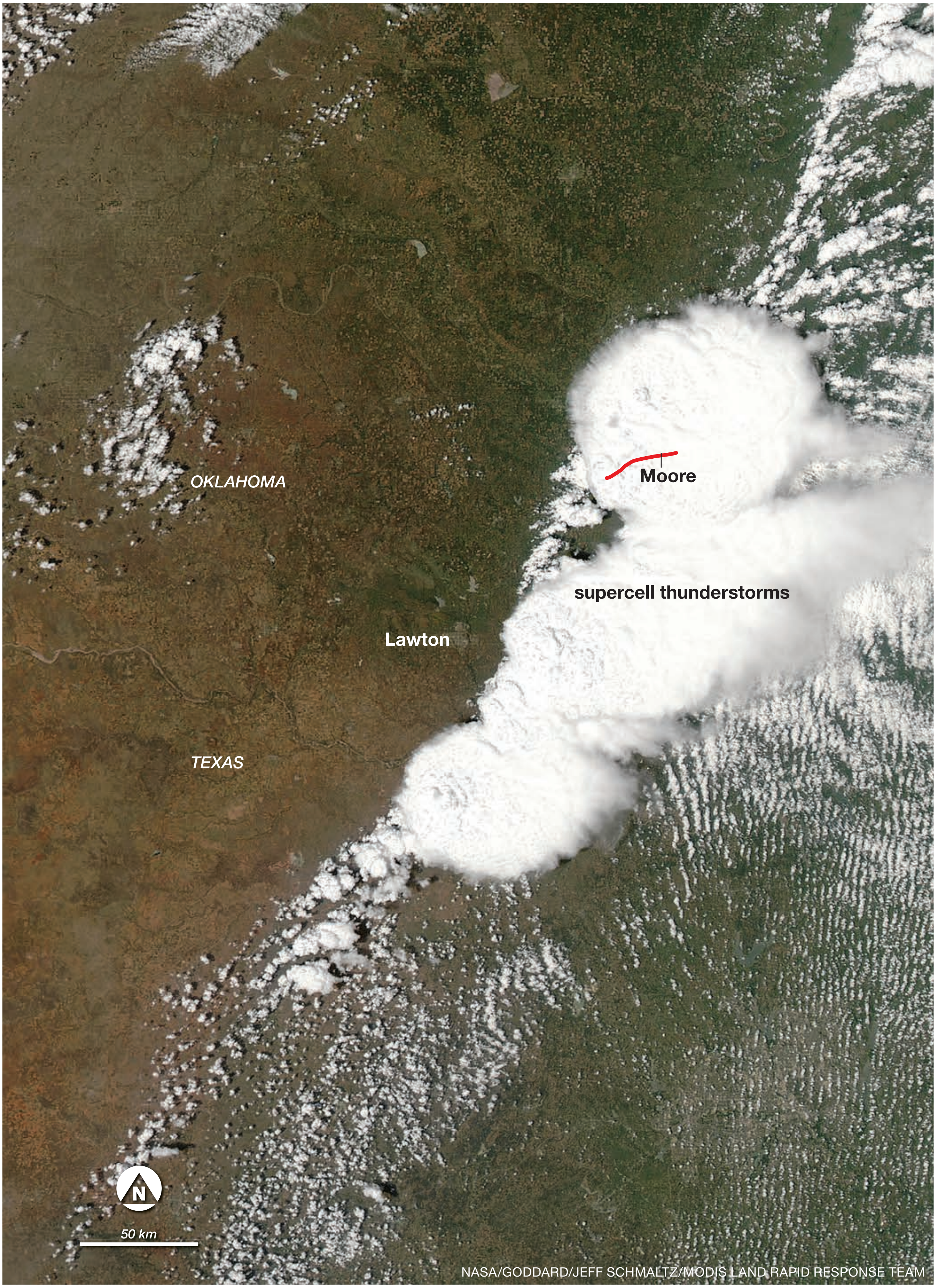
Formal Observation Report

Tornado: Moore, Oklahoma, May 20, 2013

Safe Room Performance, Observations, and Conclusions

FEMA P-1020 / August 2014

FEMA


Moore
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NASA/GODDARD/JEFF SCHMALTZ/MODIS LAND RAPID RESPONSE TEAM

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Unless otherwise noted, all photographs in this document were taken by the authors.

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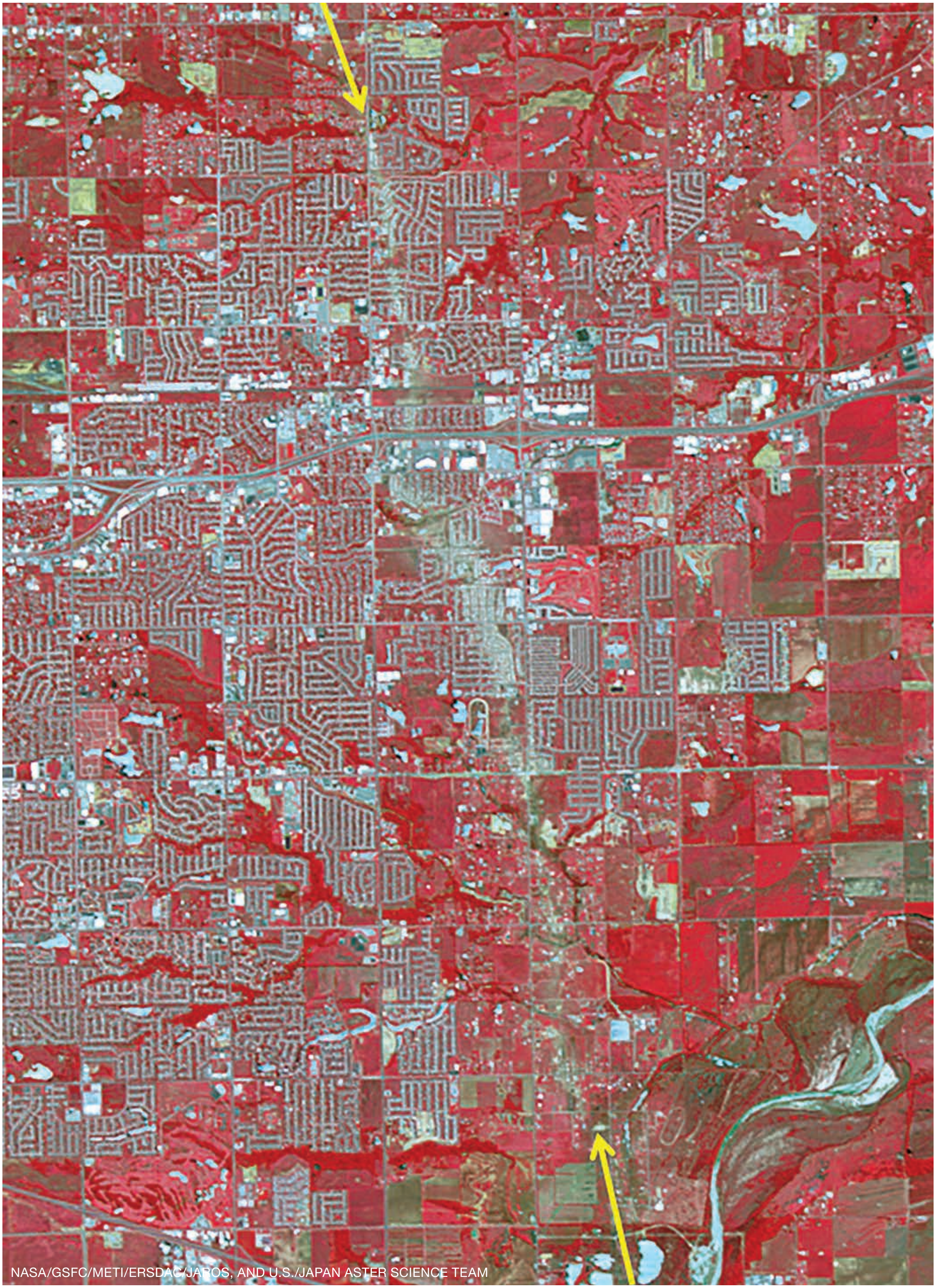
Executive Summary

This report details the observations made after the 2013 Moore tornado, an EF-5 tornado that destroyed homes and buildings, and took the lives of 24 residents of Moore, OK. After the event, the FEMA Building Science Branch deployed a team of safe room experts to assess the performance of safe rooms and storm shelters impacted by the event. Table 1 summarizes the conclusions developed based on this event.

Table 1. Summary of Observation Report Conclusions and Recommendations

TOPIC	CONCLUSION	RECOMMENDATIONS
Above- and Below-Ground Safe Rooms	Above-ground safe rooms that were adequately constructed performed successfully and protected occupants from direct impact.	Conduct outreach to consumers to dispute the misconception that above-ground safe rooms cannot protect occupants.
Registering Safe Rooms	Many safe room owners were unaware or unwilling to register their safe rooms with local first responders.	Conduct outreach to promote the registering of safe rooms with local first responders.
Safe Room Wall Construction	The insulated concrete form (ICF) waffle grid safe room observed appeared to have construction flaws that affected performance and exposed vulnerabilities.	Conduct outreach and update guidance to caution against using waffle grid walls in safe rooms.
Risk Awareness	Based on field interviews, many more safe rooms were privately funded and installed than anticipated. High awareness of safe rooms can be attributed at least in part to the awareness of grant programs.	Continue to promote safe rooms through grant programs, publications, training courses, conference presentations, and other means of outreach.
Compliance of Older Structures	Older shelters constructed before FEMA P-320 and P-361 generally did not have adequate doors (in particular due to locking mechanisms).	Conduct outreach to educate consumers regarding the need for an adequate door and how to select a safe room door.
Slab-On-Grade Anchoring	Some prefabricated shelter installers are verifying the adequacy of concrete slab foundations, but others are not performing the verification.	Review and strengthen regulations regarding installation of safe rooms on slab-on-grade foundations.
Flood Risk	Flush-to-ground or flush-to-slab shelters pose a risk of flooding. Shelters with a 1- to 2-inch lip at the surface entrance provided better protection from water run-off entering the structure.	Conduct outreach to help consumers and manufacturers understand the residual risk of flooding (including flash flooding) and ways to mitigate it.
Homeowner Awareness	Homeowners need to be informed of safe rooms in their home, which should have signage as required by ICC 500.	Conduct outreach to enhance consumer understanding and awareness of safe rooms.


NASA/GSFC/METI/ERSDAC/JAROS, AND U.S./JAPAN ASTER SCIENCE TEAM

SECTION 1
Introduction, Goals, and Objectives

The Federal Emergency Management Agency (FEMA) Building Science post-storm investigation team began its study of the Moore, OK tornado in Oklahoma City on Monday, May 27 and ended on Wednesday, May 29, 2013. The team included Tom Reynolds and Omar Kapur from URS, Ron Wanhanen and Danielle Brown from FEMA Region 6, and Melissa Moore from the Oklahoma Department of Emergency Management (OEM). The team focused its efforts on safe rooms and storm shelters in the path of the tornado in order to analyze their performance, functionality, and use. Safe room owners were interviewed when possible to determine details such as the date of installation, manufacturer, cost, grant funding used (if any), and if the shelter was used during the storm.

1.1 Oklahoma Safe Room Programs

The SoonerSafe Safe Room Rebate Program was started in 2011 by OEM for homeowners, who can receive a 75 percent rebate of up to $2,000 on an eligible safe room. Funding for the SoonerSafe program is provided by the FEMA Hazard Mitigation Grant Program. Previous OEM/FEMA programs that were established after the May 3, 1999 and May 8, 2003 tornados funded almost 10,000 safe rooms statewide. Safe room rebate programs are also available from some communities in Oklahoma that have grant funding programs separate from the SoonerSafe program.

TERMINOLOGY

Safe rooms and **storm shelters** are buildings, structures, or portions of a building that are designed and built for the purpose of providing safe refuge from storms that produce high winds, such as tornadoes.

Safe rooms, as used in this document, are structures or spaces that meet or exceed the criteria from FEMA P-361, *Design and Construction Guidance for Community Safe Rooms.*

Storm shelters, as used in this document, adhere to the standards for tornado shelters in ICC-500, International Code Council (ICC)/National Storm Shelter Association (NSSA), *Standard for the Design and Construction of Storm Shelters.*

FEMA guidelines were initially available starting in 1998, and the ICC-500 was first introduced in 2008; therefore, any structures built before this, or built afterward without knowledge or willingness to comply with these standards, are referred to in this report as **shelters**. The label of shelter is also used for structures that were used for refuge that may meet or exceed FEMA P-361 or ICC 500 criteria, but for which there was no verification present. It is not always clear from visible inspection of a structure whether it complies with either, both, or neither of the design criteria.

The FEMA design criteria were developed as a quality assurance measure for homeowners and business owners installing shelters. If in compliance with these criteria, they can be assured that the shelter they purchase will provide them with “near absolute-protection” during a tornado.

1.2 National Weather Service Event Summary

A tornado of up to EF-5 level winds hit the Newcastle, south Oklahoma City, and Moore areas of Oklahoma on May 20, 2013. The tornado was reported to have lasted for 39 minutes from 2:56 pm to 3:35 pm CDT over a 14-mile stretch with a maximum diameter of 1.1 miles.[1] The tornado touched down in northern Newcastle and traveled east through Moore and southern portions of Oklahoma City.

The National Weather Service (NWS) ranks this as the ninth deadliest tornado on record for Oklahoma. There were 24 fatalities, 7 of which were children at Plaza Towers Elementary School and 9 of which were within one-quarter mile of the elementary school.[2] Another school, Briarwood Elementary School, was also in the path of the tornado, but no fatalities occurred there. The NWS also ranks this tornado as the costliest Oklahoma tornado on record, with a total damage cost of $2 billion.[3]

1.3 Previous Tornadoes in the Area

The City of Moore and surrounding areas have experienced three tornadoes with an intensity of EF-4 or greater, including the 2013 event, in the past fifteen years. An F-5 tornado occurred May 3, 1999 and an F-4 tornado on May 8, 2003, both of which destroyed large sections of Moore. Figure 1 shows the tracks of the three tornadoes, the 2013 tornado track (multi-colored outline) crossed through the western end of the 1999 tornado track (green outline), but the majority of the 1999 tornado track and the entire 2003 track (red outline) were just north of the 2013 track.

Although the 1999 Moore tornado was a tragedy, it was also a catalyst for the safe room movement—the reaction to that event helped produce many positive developments:

- Research and development of safe room guidance
  1. FEMA's safe room guidance, FEMA P-320, *Taking Shelter from the Storm: Building a Safe Room for Your Home or Small Business*, was originally released in 1998, but was updated in 1999, after the 1999 Moore tornado event.
  2. FEMA P-361, *Design and Construction Guidance for Community Safe Rooms*, which provides safe room design criteria for both community and residential safe rooms, was first released in 2000.
- FEMA grant funds for safe rooms, as discussed in Section 1.1.
- The development of ICC/NSSA 500, *Standard for the Design and Construction of Storm Shelters*, which was the first referenced storm shelter standard into the *International Building Code* and *International Residential Code* in 2009.

The recent history of tornadoes in this area made the 2013 event particularly significant. While traveling to impacted areas of the 2013 tornado, the team was able to speak to many shelter owners that had survived the storm in their shelter. Some owners had installed them on their property through FEMA-funded grant programs after the 1999 tornado had destroyed their homes, and had survived the 2013 event in those same safe rooms.

1.4 Locations Observed

The team used the FEMA and SoonerSafe databases of storm shelters to obtain a list of addresses that had safe rooms within the path of the storm. Several other shelters not listed in either database were discovered while surveying the damage path or through word of mouth from interviewing homeowners in the area.

Due to the history of tornadoes in this area, there were many safe rooms listed in the databases. Between the FEMA and SoonerSafe databases, the team had a list of over 1,100 FEMA-funded safe rooms identified in the Oklahoma City, Moore, and Newcastle areas, though only 118 were located inside the track or within 400 yards (see Figure A-1 for safe rooms in and around the

1 http://www.srh.noaa.gov/oun/?n=events-20130520
2 http://www.srh.noaa.gov/oun/?n=tornadodata-ok-deadliest
3 http://www.srh.noaa.gov/oun/?n=tornadodata-ok-costliest

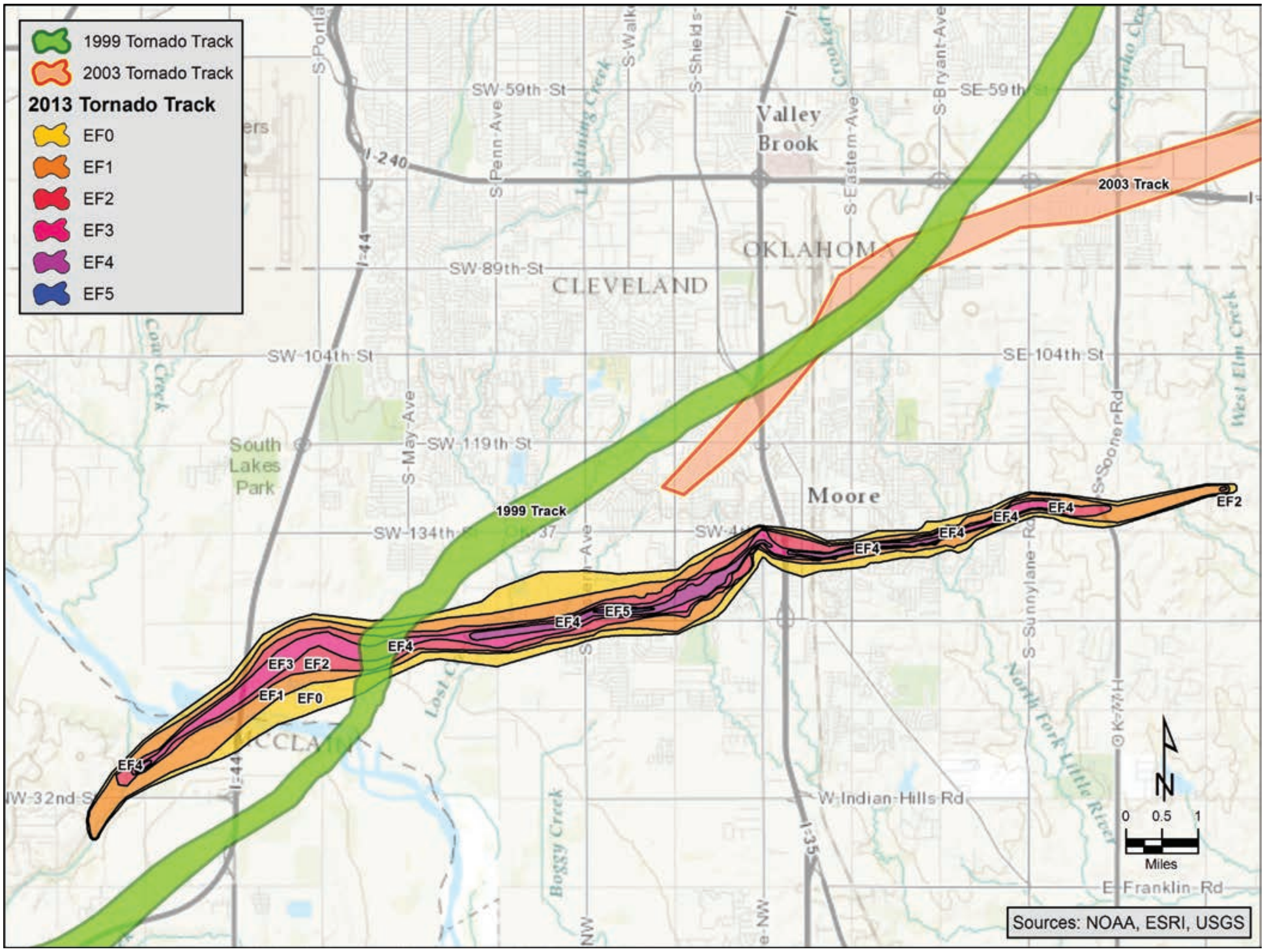


Figure 1: Approximate tornado tracks for the 2013 event (multi-colored outline), 2003 event (red outline), and 1999 event (green outline)

tornado track). Privately purchased safe rooms, storm shelters, and shelters had been installed in many more homes than anticipated and were responsible for saving many lives; however, many homeowners said their shelters were not registered, either because they were not aware it was an option to do so, or they were afraid of privacy issues.

1.5 Local Resources Utilized

Local resources were used to provide access and technical support during this investigation. Support was provided by representatives of FEMA and OEM, and by the mapping and modeling resources of the FEMA Modeling Task Force (MOTF). Once in the field, the team met with the Texas Tech University Team, led by Larry Tanner, who was able to share findings and provide insight to improve the observations of the team.

SECTION 2
Safe Room Observations

The majority of the safe rooms, storm shelters, and other shelters observed were below ground. Above-ground safe rooms that are properly constructed and installed provide near-absolute protection; however, many of the owners reported they built below ground because they believed that being above ground in a tornado was not safe, regardless of how robust the structure was. Homeowners need to be aware that any shelter, above- or below-ground, that does *not* meet design and construction guidelines will not provide near-absolute protection.

Below-ground shelters installed in garages have several concerns that homeowners need to be aware of as well. Flooding is a common issue that is not often considered when shelters are installed in a covered area such as a garage. The issue is when the garage is destroyed and water is able to infiltrate the area. Flash flooding during or after a tornado event, or leaking from damaged or cut water lines, could flow into the shelter. Another issue is cars parked above the shelter that could prevent either ingress before the storm or egress after the storm has passed. If egress were to become blocked after a storm in any type of shelter, having the shelter registered with the local first responders, city, county, or applicable agency for the specific location would ensure that the shelter would be one of the first places first responders could check for survivors and make sure no one is trapped.

ABOVE-GROUND SAFE ROOM ANCHORAGE

In addition to the observations below, some above-ground shelters were found to be anchored to existing slabs, and the homeowners indicated that the installers did not verify the capacity of the slab (including whether reinforcement existed) to resist the required design loads.

A number of these shelters were installed shortly after the tornado that hit the same area on May 3, 1999, and several were found that had survived both the 1999 and 2013 tornadoes. The shelters described in this report are indicative of the shelters seen throughout the investigation, with a few notable differences. A summary table of observations is presented in Appendix B.

2.1 Above-Ground

This section describes the above-ground shelters that were observed during the investigation. These provide a good indication of the success of above-ground shelters despite the current stigma against them due to incorrect media reporting and myths that the only safe place in a severe tornado is below ground.

Observation 1: This above-ground shelter (Figure 2) was observed in a heavily damaged neighborhood near Briarwood Elementary School. The homeowner was not present at the time of inspection. The shelter was made of prefabricated metal and installed in the garage, which was mostly destroyed, as was the rest of the home. It appeared to have remained intact.

Figure 2.
Observation 1: Above-ground shelter that performed well in a heavily damaged area (Oklahoma City, OK)

Observation 2: This shelter (Figure 3 left) was located in Oklahoma City in an area of heavy damage. No owners were present at the time of the investigation. It was approximately a 4 to 6 inch-thick concrete dome. It appeared to be an older structure, possibly from the post-1999 tornado reconstruction, though it could not be determined if it had been constructed to any design criteria. The door was visibly damaged, and debris such as insulation, mud, and dirt were found inside the shelter (Figure 3 right). It was not clear whether anyone had taken refuge within it.

Figure 3.
Observation 2: Dome structure within the path of the tornado (left), the inside of the dome structure door was covered with small debris (right) (Oklahoma City, OK)

Observation 3: This metal above-ground shelter was located near Plaza Towers Elementary in a heavily damaged area of Moore, OK (Figure 4). There was nothing left of the home or nearby homes. The homeowner was not present at the time of the visit and the door was locked. It appeared to have been installed in the garage of the home on a thick concrete slab. The side of the structure showed numerous marks from where wind-borne debris had impacted it, but it was otherwise in good condition.

Figure 4.
Observation 3: Above-ground shelter located near Plaza Towers Elementary School (Moore, OK)

Observation 4: This above-ground, concrete shelter (Figure 5 and Figure 6) was located in a newer neighborhood of Moore, OK, with many of the homes built in the early 2000s or later. No owner was home at the time of the visit. Most of the neighborhood was not in the direct path of the tornado and was not heavily damaged. This structure was one of the few site-built shelters the team found. Interviews with nearby neighbors indicated that the builder who constructed a number of homes in the neighborhood had included these shelters, although not every homeowner was aware of this. A nearby neighbor indicated that he had taken refuge in his garage, which experienced some breaching, and was unaware that the builder had constructed a shelter in his home until after the event when he talked to neighbors.

The neighbors did not know whether anyone had used the shelter in Observation 4 for refuge. The shelter's exterior was exposed due to loss of the building around it, allowing the team to observe more of the structure. The shelter was also a master bedroom closet and appeared to have at least a 6-inch thick concrete roof slab (see Figure 6). The shelter performed well although it had small debris particles and mud inside, which had entered through the inadequately screened ventilation holes.

Figure 5.
Observation 4: Above-ground shelter that was also a walk-in closet for the master bedroom (Moore, OK)

Figure 6.
Observation 4: Red arrow pointing to the entrance of the shelter (left) and a close-up of the concrete roof slab (right) (Moore, OK)

Observation 5: This above-ground structure seen by the team was an insulated concrete form (ICF) waffle grid shelter located in Newcastle, OK. The homeowner was not available at the time of the visit, but the team interviewed neighbors who indicated that the interior surface of the structure had been perforated in two locations by metal windborne debris. The neighbor said the homeowners and their children were in the structure at the time of the tornado. The father was standing against the back wall when the two metal debris pieces punctured through the structure on either side of him, but did not strike him. The family made it through the tornado safely.

The team observed one metal wind-borne debris element that penetrated through the exterior wall (Figure 7). The metal debris was sticking out of the exterior wall approximately 8 inches and was embedded at least 24 inches through the shelter wall. The waffle grid thickness could be confirmed. The metal debris penetrated the thin section of the wall. The end of the metal debris sticking out of the wall was very sharp.

On closer examination, it appeared that there were many voids in the exterior ICF wall. These voids likely weakened the wall's resistance to wind-borne debris impacts and allowed the debris to penetrate the thin section of the waffle grid.

It is unknown what year this shelter was constructed, but this type of waffle grid construction is no longer one of the prescriptive plan material options in the 2014 edition of FEMA P-320. While ICF waffle grid safe rooms may still be designed and constructed per FEMA P-361 criteria, extreme care should be taken with all ICF walls when vibrating the concrete to ensure consolidation of concrete and eliminate voids in the wall. Likewise, care should be taken not to over-vibrate concrete and segregate the aggregate. Furthermore, when verifying that the selected waffle grid type has passed the tornado missile performance criteria described in FEMA P-361, it is important to look for the exact waffle grid type that passed since many different variations are available.

Figure 7.
Observation 5: ICF structure penetrated by metal wind-borne debris elements (Newcastle, OK)

Observation 6: This shelter (Figure 8) located in the Newcastle area was in the garage of a home and used by the homeowner during the 2013 tornado event. While the team was not able to speak with the homeowner, the neighbors indicated the garage had collapsed around the structure and they had helped remove debris to rescue her.

Figure 8.
Observation 6: Concrete shelter in the garage of a home that was completely destroyed; the site was already bulldozed at the time of the investigation (Newcastle, OK)

2.2 Below-Ground

This section depicts the variety of below-ground shelter types observed during this investigation. The team observed many more below-ground shelters than above-ground. Homeowners indicated a variety of reasons, such as they were cheaper, did not require as much space in the home or could be placed outdoors, and the myth that the only safe place during a severe tornado is below ground.

Observation 7: This below-ground shelter (Figure 9) was located in a heavily damaged area of Oklahoma City, OK. It was successfully used by four family members of the property owner who was at work at the time of the tornado. There was 2 feet of standing water from rain when they exited the shelter after the tornado passed, and the shelter was completely full by the time the investigation team arrived. The homeowner reported there were fatalities at a neighbor's house, where occupants took refuge in an interior closet.

Figure 9.
Observation 7: Below-ground shelter in a heavily damaged area (red arrow indicates entrance) (Oklahoma City, OK)

Observation 8: This outdoor below-ground shelter (Figure 10) was constructed in 2003 in Moore, OK. The owner was present when the team arrived, and indicated that his entire family and their pets took refuge in the shelter during the tornado, though the home was not badly damaged as they were located outside of the track. The door to the shelter appeared to be an older style that did not have sufficient locking mechanisms, but the family did not experience any issues when taking refuge in the structure.

Figure 10.
Observation 8: Outdoor below-ground shelter located at a house with minimal damage (Moore, OK)

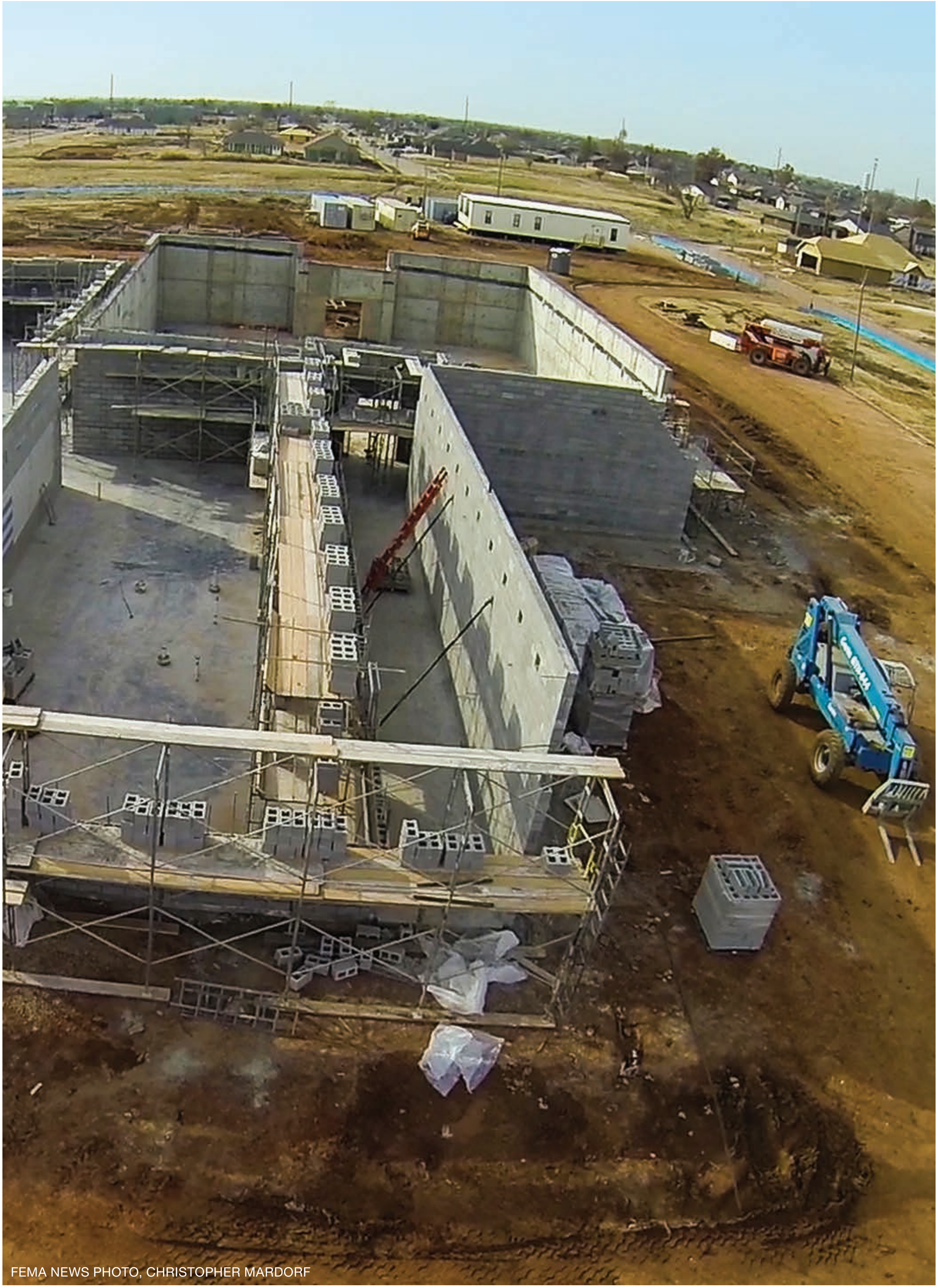
Observation 9: The team traveled to the area of the 2013 tornado track that overlapped with the 1999 tornado in Oklahoma City. According to a neighbor, this clam-style safe room built outside the home (Figure 11) was installed shortly after the 1999 tornado, so it was not impacted by the 1999 event. It was installed with financial assistance from OEM/FEMA. This safe room was equipped with an exterior vent that sustained damage but was still attached to the shelter. Many of the outdoor shelters with exterior vents had been either seriously damaged or completely blown off, leaving a 6-inch hole at the top of the shelter. Vents should be special impact-resistant models, or baffles should be provided to prevent missiles, rain, and debris from entering the shelter.

The neighbor interviewed by the team said there were six occupants in the safe room when the tornado struck, including the 92-year-old owner, a woman who was 9 months pregnant, and her 18 month old daughter. The owner was able to make it in and down the narrow stairs safely. The safe room performed well.

Figure 11.
Observation 9: Below-ground safe room (red arrow) installed after the 1999 tornado; the door of the clam-style safe room had only one lock, but newer standards require more than one lock (Oklahoma City, OK)

Observation 10: This below-ground shelter was located in the garage of a home (Figure 12) in a relatively newer neighborhood in Moore, OK. The owner was present at the time the team arrived. His home was not badly damaged, but nearby homes had moderate damage. The man and his mother had taken refuge in the shelter. There was a classic car the homeowner was restoring parked over the shelter during the tornado; the car had no tires and was raised on cinder blocks. The homeowner and his mother had to climb underneath the car to access to the shelter. The homeowner shared with the team that he realized the need to be better prepared, as his car could have been blown off the cinder blocks and fallen on top of the shelter, trapping them. He was unaware that he could submit the GPS coordinates and address of his shelter to the local fire department to be one of the first places they would check for survivors trapped in shelters.

Figure 12.
Observation 10: Shelter underneath a car in a garage (Moore, OK). The red arrow shows where the raised lip can help prevent water penetration from minor flooding.



FEMA NEWS PHOTO, CHRISTOPHER MARDORF

SECTION 3
Conclusions and Recommendations

Several conclusions and recommendations can be drawn from the observations made by the investigative team after the 2013 tornado event in Oklahoma:

Above-ground safe rooms, storm shelters, and shelters that were adequately constructed, although far fewer in number than below-ground safe rooms and shelters, performed successfully and protected occupants from the wind pressures and wind-borne debris generated by this tornado event.

> **Recommendation:** Conduct outreach to consumers to dispute the misconception that above-ground safe rooms cannot protect occupants.

Many safe room and shelter owners were either not aware that they should **register the location** of their structure with local first responders in the event that they are trapped after a tornado or were fearful that providing their location on a registry would somehow limit their personal control over the structure.

> **Recommendation:** Conduct outreach to promote the registering of safe rooms with local first responders.

The **ICF waffle grid structure** observed by the team was penetrated by at least one wind-borne debris element, providing an example of a shelter that did not perform adequately. The number of voids that were observed in the exterior wall indicates that careful attention must be paid when pouring concrete in an ICF wall.

> **Recommendation:** Conduct outreach and update guidance to caution against using waffle grid walls in safe rooms.

Based on field interviews, more safe rooms, storm shelters, and shelters were constructed **without government assistance** than anticipated, indicating that safe room awareness has been steadily increasing. Grant programs have been successful at increasing the number of safe rooms and at raising awareness of the importance of safe rooms.

> **Recommendation:** Continue to promote safe rooms through grant programs, publications, training courses, conference presentations, and other means of outreach.

Older shelters constructed before safe room guidance (FEMA P-320 and P-361) and storm shelter requirements (ICC 500) were in place generally did not have **adequate locking mechanisms** on doors.

> **Recommendation:** Conduct outreach to educate consumers regarding the need for an adequate door and how to select a safe room door.

Prefabricated shelter installers are starting to verify the **adequacy of concrete slabs** on which shelters are mounted, but some still are not performing this verification. It is important for contractors to verify proper installation to resist all forces when installing prefabricated shelters.

> **Recommendation:** Review and strengthen regulations regarding installation of safe rooms on slab on grade foundations.

Flush-to-ground shelters pose a risk of flooding. Shelters with a 1- to 2-inch lip at the surface entrance provided better protection from water run-off entering the shelter.

> **Recommendation:** Conduct outreach to educate consumers and manufacturers regarding the residual risk of flooding (including flash flooding) and the placement of safe rooms in flood-prone areas.

Homeowners need to be informed of safe rooms installed in their homes; these areas should have **signage** as required by ICC 500.

> **Recommendation:** Conduct outreach to enhance consumer understanding and awareness of safe rooms. Safe rooms located in a home should have signage as required by ICC 500—especially if ownership transfer is being considered. Realtors working in areas with a high risk for tornadoes should also promote building safe rooms and shelters in a home for sale to increase awareness.

APPENDIX A. Maps of Safe Room Locations

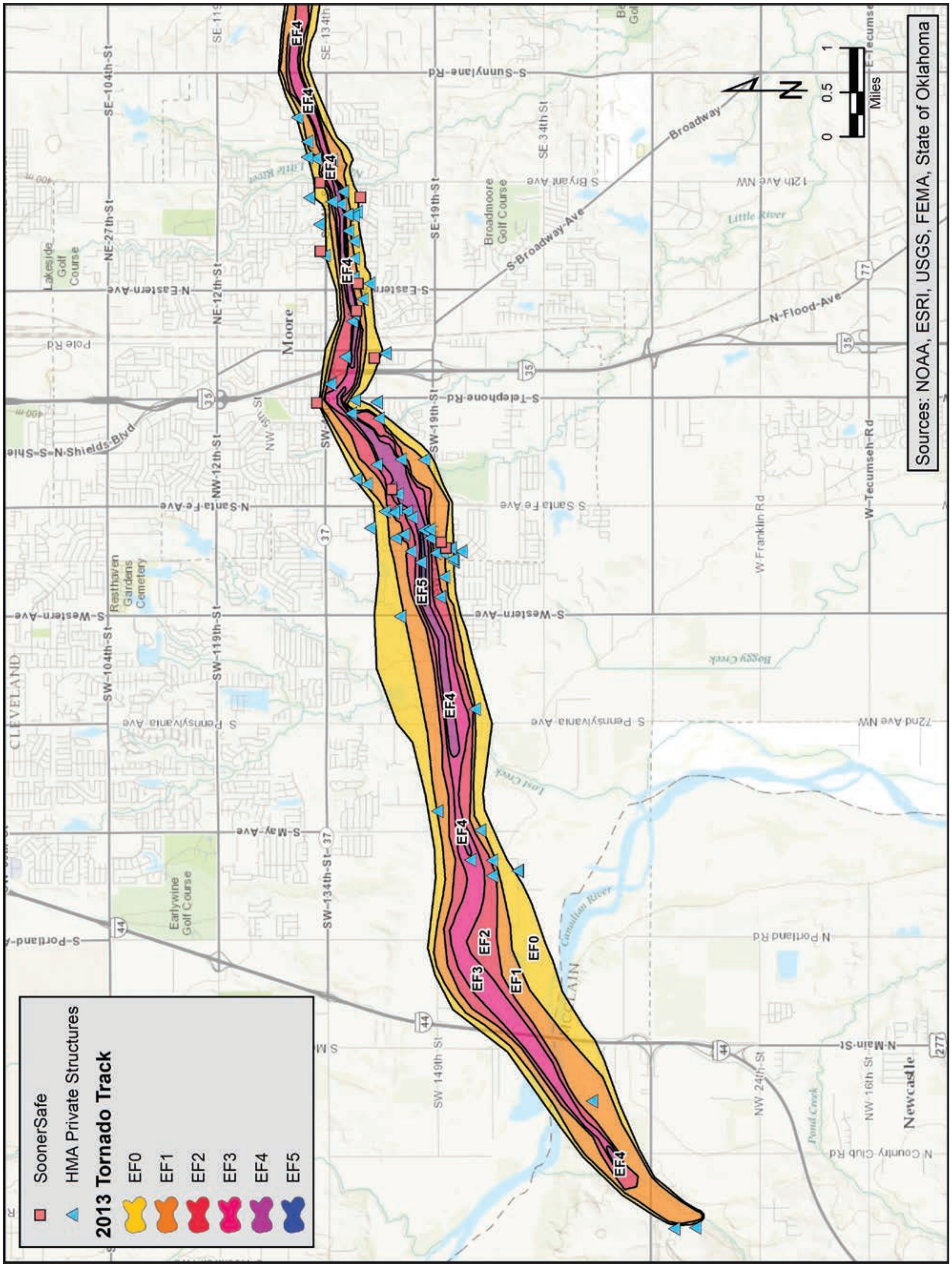


Figure A-1. Map showing the known locations of residential safe rooms and shelters in relationship to the 2013 tornado track.

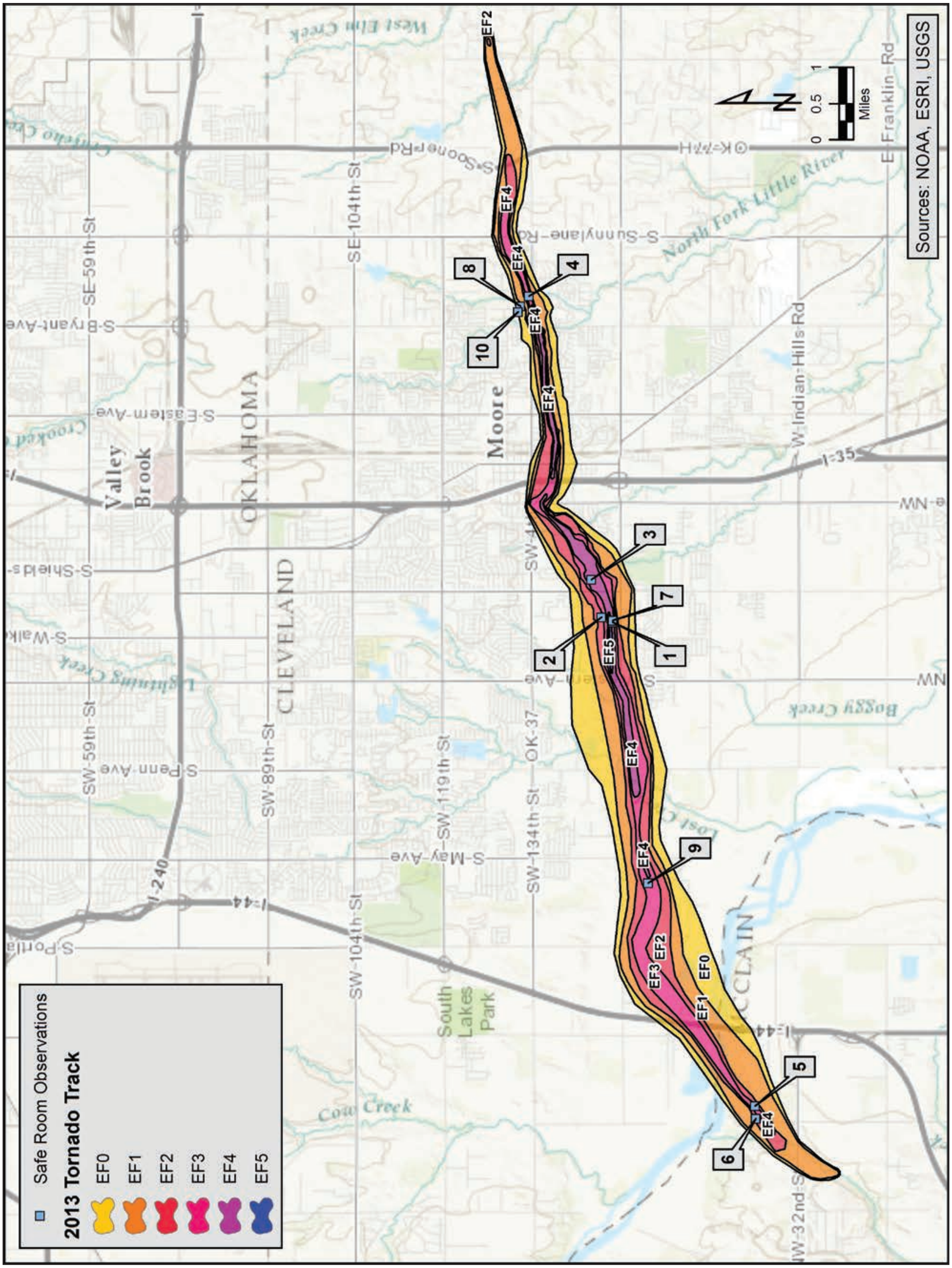


Figure A-2. Map showing observation locations with respect to the 2013 tornado track.

APPENDIX B. **Summary Table of Observations**

Table B-1. Summary of Observations Highlighted in the Report

Observation	Above or below ground	In damage path?	Site-built or prefabricated?	Used during event?	Material type	Location	Remarks
1	Above ground	Yes	Prefabricated	Unknown	Steel	Oklahoma City	Prefabricated metal and installed in a garage. Entire surrounding home was destroyed, structure remained intact.
2	Above ground	Yes	Site-built	Unknown	Concrete	Oklahoma City	Unusual dome structure made of concrete. Door failed and dirt and debris were inside the structure.
3	Above ground	Yes	Prefabricated	Unknown	Steel	Moore	Surrounded by destroyed structures. Appears to have been used, but homeowner not present to interview.
4	Above ground	Yes	Site-built	Yes	Concrete	Moore	Site-built shelter within a home, built as new construction.
5	Above ground	Yes	Site-built	Yes	ICF	Newcastle	Waffle grid exterior wall was penetrated by metal wind-borne debris at thin section; significant voids observed in wall construction.
6	Above ground	Yes	Prefabricated	Yes	Concrete	Newcastle	Surrounding home completely destroyed, occupant was trapped and rescued by neighbors.
7	Below ground	Yes	Prefabricated	Yes	Concrete	Oklahoma City	Family was protected but reported 2 feet of standing water from rain by the time the tornado passed and they could exit.
8	Below ground	No	Site-built	Yes	Concrete	Moore	Door did not have adequate locking mechanism.
9	Below ground	Yes	Prefabricated	Yes	Concrete	Oklahoma City	Owner had been impacted by 1999 tornado and installed safe room afterwards with FEMA grant funding.
10	Below ground	No	Prefabricated	Yes	Concrete	Moore	Structure was underneath a car in garage, homeowner did not register coordinates with first responders.

GETTY IMAGES

APPENDIX C. Safe Room References and Resources

References

FEMA P-320, *Taking Shelter From the Storm: Building a Safe Room For Your Home or Small Business*, 3rd Edition, 2008.
http://www.fema.gov/safe-room-resources/fema-p-320-taking-shelter-storm-building-safe-room-your-home-or-small-business

FEMA P-361, *Design and Construction Guidance for Community Safe Rooms*, 2nd Edition, 2008.
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ICC and NSSA. 2008. *Standard for the Design and Construction of Storm Shelters,* ICC 500. Birmingham, AL.

Resources

Department of Homeland Security (DHS) Emergency Planning and Preparedness Guidance:
http://www.Ready.gov

FEMA: http://www.FEMA.gov

FEMA Safe Rooms: http://www.fema.gov/safe-rooms

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