

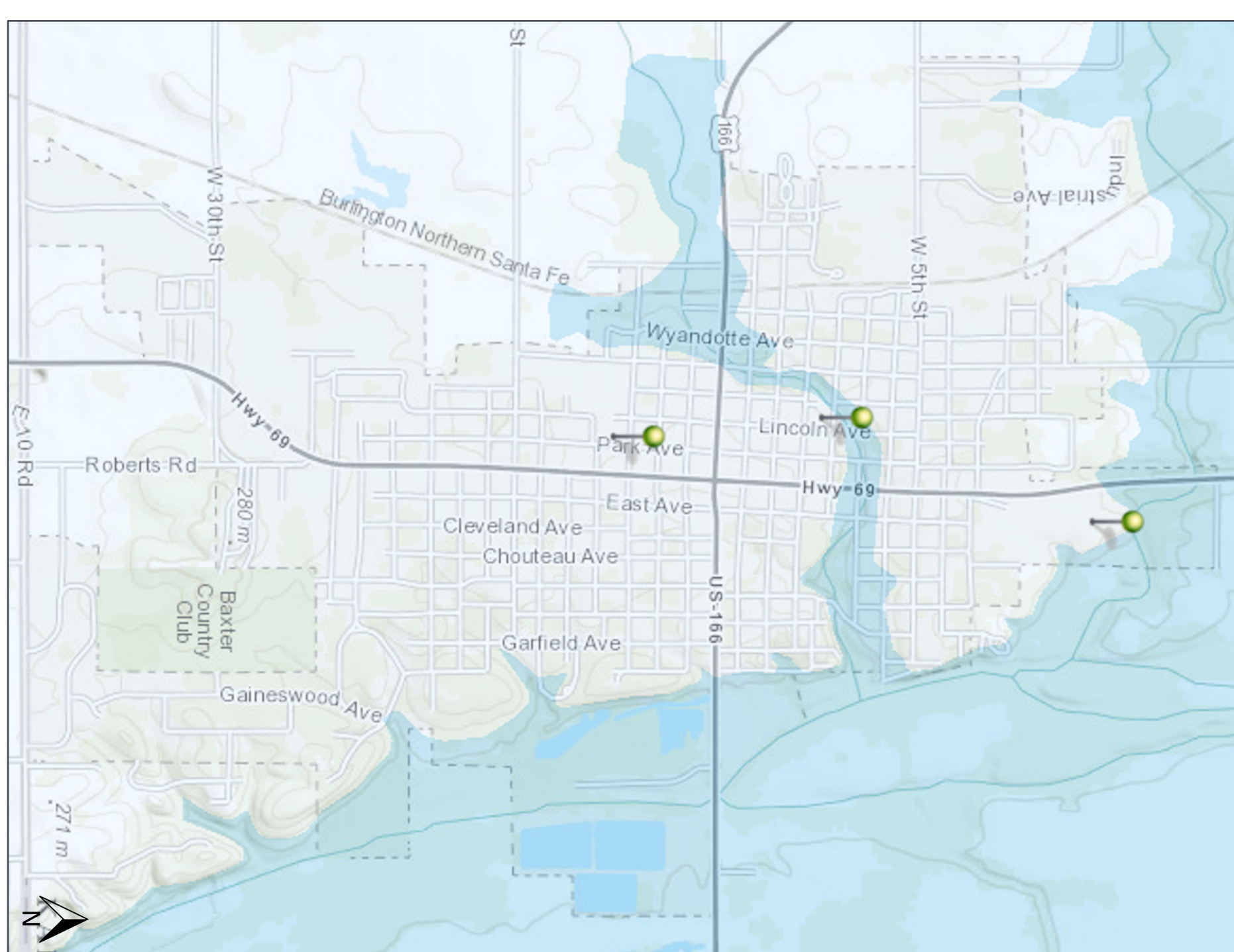
# Mapping Responsibility: Preparedness for Tornado Disasters in Baxter Springs, KS, USA

**Abstract:** On April 27, 2014 an EF-2 tornado touched down in Baxter Springs, Kansas, USA. There were no fatalities, however 69 homes and various businesses were heavily damaged or destroyed. Nevertheless, almost two years after the disaster, the town has made incredible strides toward recovery and has not since experienced another major tornado event. This research, which took place during the summer of 2015, sets out to evaluate the town's preparedness for future tornado disasters. Qualitative data was collected through the use of interviews and 'pledges' – cards on which community members pledged their responsibility in terms of preparing for future disasters – and data analysis is still underway. Through the use of GIS software, the results will be mapped in an attempt to visually demonstrate the town's preparedness for future tornadoes. Preliminary findings suggest that the community has remained vigilant in their preparations for future disasters, for example with the installation of three new FEMA certified storm shelters. With the next tornado season approaching, this research will result in a museum exhibit for the local museum in Baxter Springs.

**Key Literature:** Tornadoes are a result of the storms caused by a clash between air masses (Tao:2014). They are only destructive when they make contact with the ground, last about 30 minutes and move at speeds between 50-200 km/hr (Bryant:1991). Tornadoes affect localized geographical areas, but due to their high frequency, they cause more deaths than earthquakes and hurricanes combined (NIST:2014). Baxter Springs is located at the heart of 'Tornado Alley' and is therefore vulnerable to tornado disasters. Paul and Stimers (2015) argue that the post-disaster recovery phase can be an opportunity to address and reduce such vulnerability. For example, educational initiatives can be used to enhance people's knowledge about the risks of tornado hazards (Curtis and Fagan:2013), and improved warning systems can give residents more time to find shelter (NOAA:2011).



**Methods:** Qualitative data was collected mainly through the use of interviews, which were semi-structured in nature to allow the participants to expand on their responses and ideas (Thomas:2013). A survey of the local businesses and city buildings was also conducted, in order to determine the prevalence of Emergency Response Plans. Finally, community members were encouraged to 'pledge' their responsibility for future tornado disasters. Data analysis is still underway, and a GIS is being used to analyze and present the data. The final result of this project will be a museum exhibit for the local museum of Baxter Springs, to serve as an educational tool.



## Preliminary Findings:

- Three FEMA certified storm shelters (depicted to the left by the green 'pins'), one at every school, have been constructed, with the primary function of providing shelter to the community's students.
- There is a major flood zone in the eastern part of the city (depicted in light blue). This has major implications for the construction of basements and storm shelters, as they may flood as a result of the heavy rainfall that accompanies tornadoes
- Access to public storm shelters remains an issue
- Access to private storm shelters remains problematic
- Discovery of a large basement in the Post Office

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