Appendix N
METHODS FOR DEVELOPMENT OF EVIDENCE–BASED EXPLANATION OF DECISION–MAKING IN THE JOPLIN TORNADO

The main analysis technique used to develop an evidence–based explanation of decision–making in the Joplin tornado was the analysis method framework (Framework) originally developed by Ritchie and Spencer (1994). The Framework allows the analyst to classify and organize survivor data into themes, concepts, and categories (Ritchie, Spencer, and O'Connor 2003), which can later be developed into a model.

This technique involved a four–step process: (1) data indexing, (2) data sorting, (3) data description, and (4) pattern detection. First, data indexing helps the analyst to organize or manage the data from interview transcripts. All interview transcripts were loaded into Atlas TI. Using a pre–developed code book (containing all categories and accompanying definitions that would be used to tag data later on in the process), analysts applied relevant codes (or data labels) to sections of text in each transcript (Richards and Richards 1994).

The next step was to sort the data so that the text with similar content or properties was located together (Ritchie, Spencer, and O'Connor 2003). In order to complete this step, NIST analysts ran "queries" within Atlas TI that allowed them to capture all text on a particular code or set of codes from all interviews (or a particular set of interviews). What resulted from each query was a document that contained all of the original text from each interview that corresponded with the particular code or set of codes.

Once the data were indexed and sorted, NIST analysts worked to describe the data. All data within a code or category were investigated to identify the range of the content and dimensions within the theme. In other words, the data within each main category was explored for axes of variation so that new, sub–categories could be developed. Once the subcategories within each main category were fully developed, a Microsoft Excel spreadsheet was created to organize all of this new data. A new row was added for each interviewee and all of the columns associated with each person contained data for each main category and the associated subcategories. As the analyst combined and condensed the data using the subcategories, the data became more abstract in nature, and the subcategories could be used in the next stage of the analysis.

The last stage in the Framework was pattern detection. This process allowed the analyst to find links and connections between two or more phenomena in the data (Ritchie, Spencer, and O'Connor 2003). During pattern detection, the data in the spreadsheet were sorted by a variety of factors, including the types of cues perceived, the interpretations developed from these cues, and the actions taken in response to the storm. Each time a behavioral trend was identified among the codes, categories, or subcategories, the analyst developed diagrams and memorandums to document the trend. Within the memorandums, the analyst noted how the level of matching was distributed across the data by recording what percentages of the interviewees were involved in a given behavioral trend. As multiple trends were identified, they were combined into a larger diagram known as an evidence–based explanation of decision–making. A model

to depict this explanation was developed for the 2011 Joplin tornado (see Fig. 4–41 in Chapter 4). The model highlights the factors that influenced NIST interviewees (the sampled survivors, i.e., "decision–makers") to make decisions and take certain types of actions before the storm hit.

REFERENCES

Richards, Lyn and Tom Richards. 1994. "From Filing Cabinet to Computer." Pp. 146–172 in *Analyzing Qualitative Data*, edited by A. Bryman and R.G. Burgess. London: Routledge.

Ritchie, Jane and Liz Spencer. 1994. "Qualitative Data Analysis for Applied Policy Research." Pp. 173–194 in *Analyzing qualitative data*, edited by A. Bryman and R. G. Burgess. New York, NY: Taylor & Francis.

Ritchie, Jane, Liz Spencer, and William O'Connor. 2003. "Carrying out Qualitative Analysis." Pp. 219–262 in *Qualitative Research Practice, A Guide for Social Science Students and Resarchers*, edited by J. Ritchie and J. Lewis. Thousand Oaks, CA: Sage.