



MURRAY AND TRETTEL, INCORPORATED

March 27, 2012

ComEd
Lincoln Centre Two
Two Lincoln Centre
Oakbrook Terrace, Illinois 60181

Re: Rebuttal Testimony for Weather Event July 27-29, 2011
Docket No. 11-0588

Introduction:

I, Thomas R. Piazza, Certified Consulting Meteorologist and President of Murray and Trettel, Inc. of Palatine, Illinois, have been asked by the Commonwealth Edison Company (“ComEd”), to prepare a report in response to the direct testimony of Illinois Commerce Commission Staff witness Mr. Greg Rockrohr, Staff Ex. 1.0, regarding the Severe Weather Event that occurred in ComEd’s service territory on July 27 through July 29, 2011.

Specifically, I will provide a direct link between the severe weather conditions experienced across ComEd’s service territory and the individual outages that occurred by preparing graphics and tables on a more granular scale to directly link wind speeds with specific interruptions. In the process of formulating my conclusions and opinions expressed in this report, I have examined the weather data reports, images and maps, documents and other information and reports listed in Appendix A.

Background and Supporting Information:

Radar images are from the National Weather Service Doppler Radar Sites in Davenport, IA (“KDVN”) and Romeoville, IL (“KLOT”).

Wind speed reports used in this report are either actual measured winds or estimated wind speeds made by this author that are based upon the associated damage descriptions for that particular event, using the guidelines outlined in, A Recommendation for an Enhanced Fujita Scale.

The term “wind gust” is defined as the maximum three (3) second wind speed which is measured at ten (10) meters, or 33 feet above the ground. This is the standard National Weather Service surface wind anemometer height. The maximum wind speed gusts determined by this author in this testimony can be assumed to be accurate plus or minus 5 mph.

Outage information was supplied in a spreadsheet file by ComEd. This outage file contained all the outages for the storm event on July 27-29, 2011, from the Start_Date_Time: 7/27/2011 at 20:10 through 7/29/2011 at 18:10. The latitude and longitude for each outage ID in this file pinpoints the location of the associated equipment affected by the severe weather. Therefore, all maximum wind speed gusts and times presented by this author are for the equipment locations supplied by ComEd.

The “Meteorological” time frame of this severe weather event is defined as the time frame that the severe weather, causing the outages, began and ended in the ComEd service territory. There were two (2) separate Meteorological Events consisting of numerous severe thunderstorm events throughout ComEd’s service territory over the period July 27 through July 29, 2011. The First Meteorological Event began at approximately 1930 hours on July 28, 2011 when a line of severe thunderstorms entered the far west end of ComEd’s service territory in Jo Daviess County, and ended at approximately 1300 hours on July 28th. This First event was highlighted by two primary lines of severe thunderstorms. The second Meteorological Event began at approximately 2200 hours on July 28, 2011 and ended at approximately 0300 hours on July 29, 2011 when the severe thunderstorms exited Will and Southern Cook Counties. My report focuses on the First Meteorological Event that began at approximately 1930 hours on July 27th and ended around 0300 hours on July 28th.

The timelines presented on the images are based on a detailed analysis of reported maximum wind speed measurement times, severe weather and damage report times and radar image times. The presented times on the images and in the tables can be expected to be accurate within plus or minus 5 minutes.

All times are Central Daylight Time (“CDT”) unless otherwise noted. (Note: that all times indicated in the legend on NWS NEXRAD Doppler Radar images are in Greenwich Mean Time (“GMT”) which is CDT plus five [5] hours.)

Methodology:

Using the Meteorological Airdrome Reports (“METARS”), the National Weather Service (“NWS”) Storm Prediction Center’s (“SPC”) measured wind speed reports, the estimated wind speeds based on SPC’s damage reports, and KLOT’s Next Generation Radar (“NEXRAD”) Doppler Radar Level II base reflectivity and velocity products, a contoured graphic analysis of the maximum wind gusts that occurred across the ComEd service territory during this storm event was created using ERSI’s BusinessMap application software. In addition, timelines of when the maximum gusts occurred were plotted to show the progression of the storms.

After the above graphic analysis was completed the outages for the entire event window, as supplied by ComEd, were sorted by “Interruption Description”. The outages extracted from this file and used in the images and tables in this testimony had the following interruption descriptions:

1. Tree related
2. Tree contact primary

3. Tree contact service drop
4. Limb broken primary
5. Limb broken service drop
6. Wind/Tornado

A file was created with the above Interruption Descriptions (Outages due to uprooted trees were not included). The Tree and Wind related file was then imported as a database layer into the BusinessMap application software used to create the maximum wind speed analysis described above.

Using the BusinessMap application software various images were created at different zoom levels that displayed the wind speed analysis and the outage layers. In addition, using a BusinessMap database tool allowed the extraction of all outages that were potted within the different wind speed polygon areas. This tool was used to create the tables of outages with the associated maximum gust wind speeds.

Analysis:

Between 1800 and 1900 hours on July 27th, thunderstorms developed over extreme Northeast Iowa and Jo Daviess County and by 2000 hours they intensified into severe storms with torrential rain. These storms continued to develop eastward into Southern Wisconsin and along the frontal boundary that was stationary across ComEd's service territory. Two separate, short intense lines of severe storms evolved and moved east southeastward across Northern Illinois. The first line starting around 2030 hours moved from Jo Daviess County through Stephenson County then into Winnebago and Boone Counties following I-90 to Central Cook County and reached the Lake Michigan Shoreline by 0030 hours on July 28th. Two twisters were sighted in Jo Daviess County near the towns of Galena and Stockton and one in Stephenson County near Lena. Several reports of 70 to 80 mph winds were reported in Stephenson and Winnebago Counties. The second line of storms moved from Jo Daviess County around 2300 hours through Ogle County then Central Dekalb and Southern Kane following I-88 into Central and Southern Cook and exited the area around 0130 hours July 28th. A few reports of damaging winds with 60+ mph occurred in Dupage County with reports of numerous large trees snapped or uprooted.

1. Cloud to Ground Lightning Strokes...over 44,000 compared to the average 21,000 strokes for major storm events in ComEd's territory
2. Tornadoes...2 unconfirmed near Galena, Illinois
3. Wind Reports...60 to 80 mph in Winnebago County and 60 to 70 mph in Dupage County
4. Heavy rain...3 to nearly 10 inches/Flash Flood Warning were issued by the National Weather Service for all or parts of; Jo Daviess, Stephenson and Winnebago Counties

The most severe weather of this event affected the Freeport, Northern Dixon and Rockford regions east-southeastward across the I-90 and I-88 corridors all the way to the Lake Michigan Shoreline and Indiana state line.

Thunderstorms redeveloped across Northern Illinois late on July 28th and continued into the early morning of July 29th. These thunderstorms briefly intensified into severe storms as they moved into Central Dupage and Cook Counties between 2300 hours on July 28th and 0300 hours on July 29th.

Note: Because there were two (2) separate meteorological events of severe storms that moved across the Com Ed service territory, the first overnight on July 27th, and the second overnight on July 28th, it was not possible to establish the maximum wind speed gust and its time of occurrence for all the interruptions listed with a start time after 2200 hours on July 28, 2011. These interruptions are listed in Table 6, Attachment F, and will have “unknown” listed in the table under the gust and time columns.

The following Image 1 shows the maximum wind speed gust contours and associated timelines across ComEd’s service territory during the thunderstorm events that occurred from 1930 hours on July 27th through 0100 hours on July 28th.

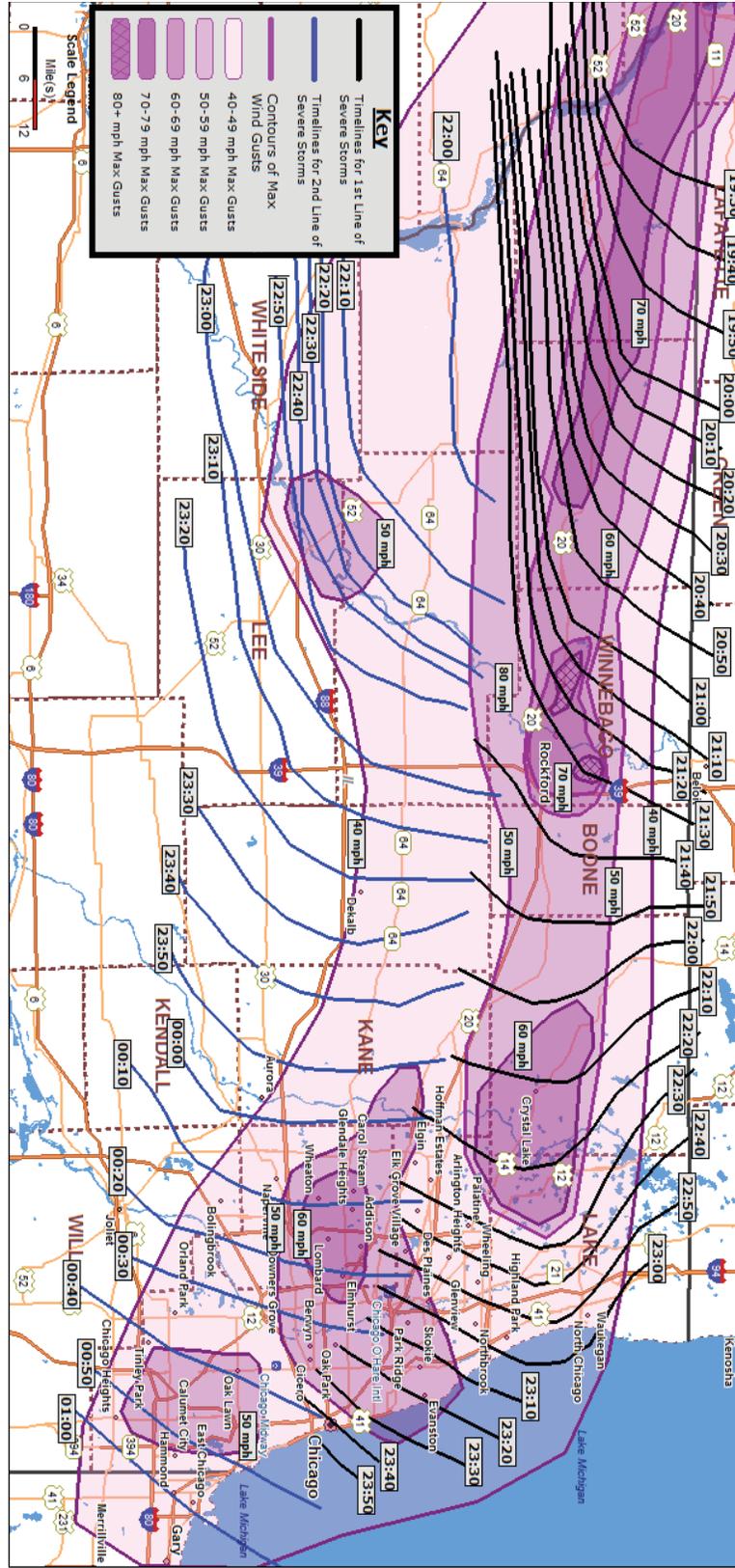


Image 1 Maximum Wind Gusts with timelines from 1930 July 27th to 0100 hours on July 28, 2011

The following images, images 2 through 17, are zoomed-in images of Image 1 with the ComEd interruptions plotted on them. They are sequenced in the order that the severe weather affected the service territory.

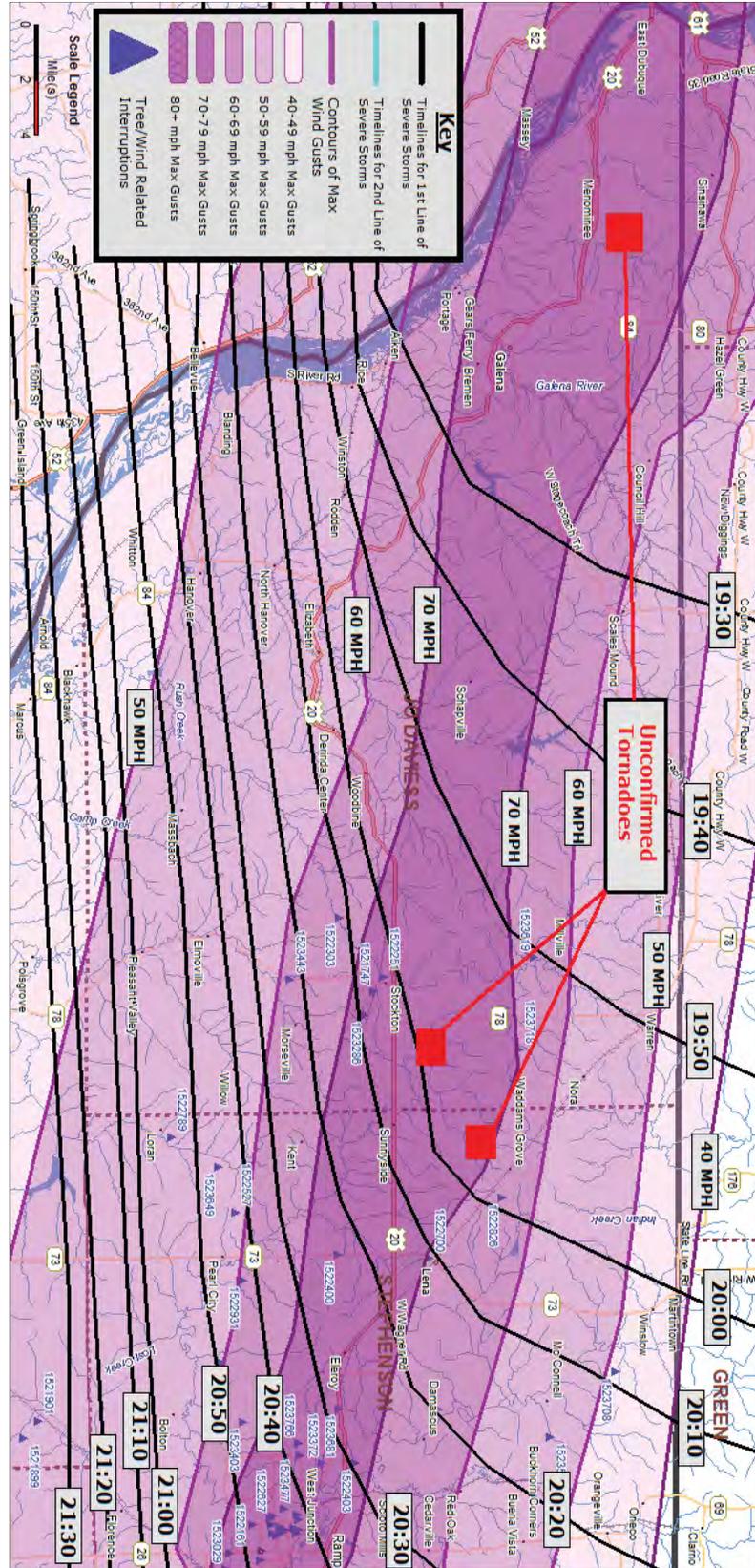


Image 2 Maximum Wind Gusts from 19:30 to 21:30 hours on July 27, 2011 and Wind related Outages Jo Daviess County

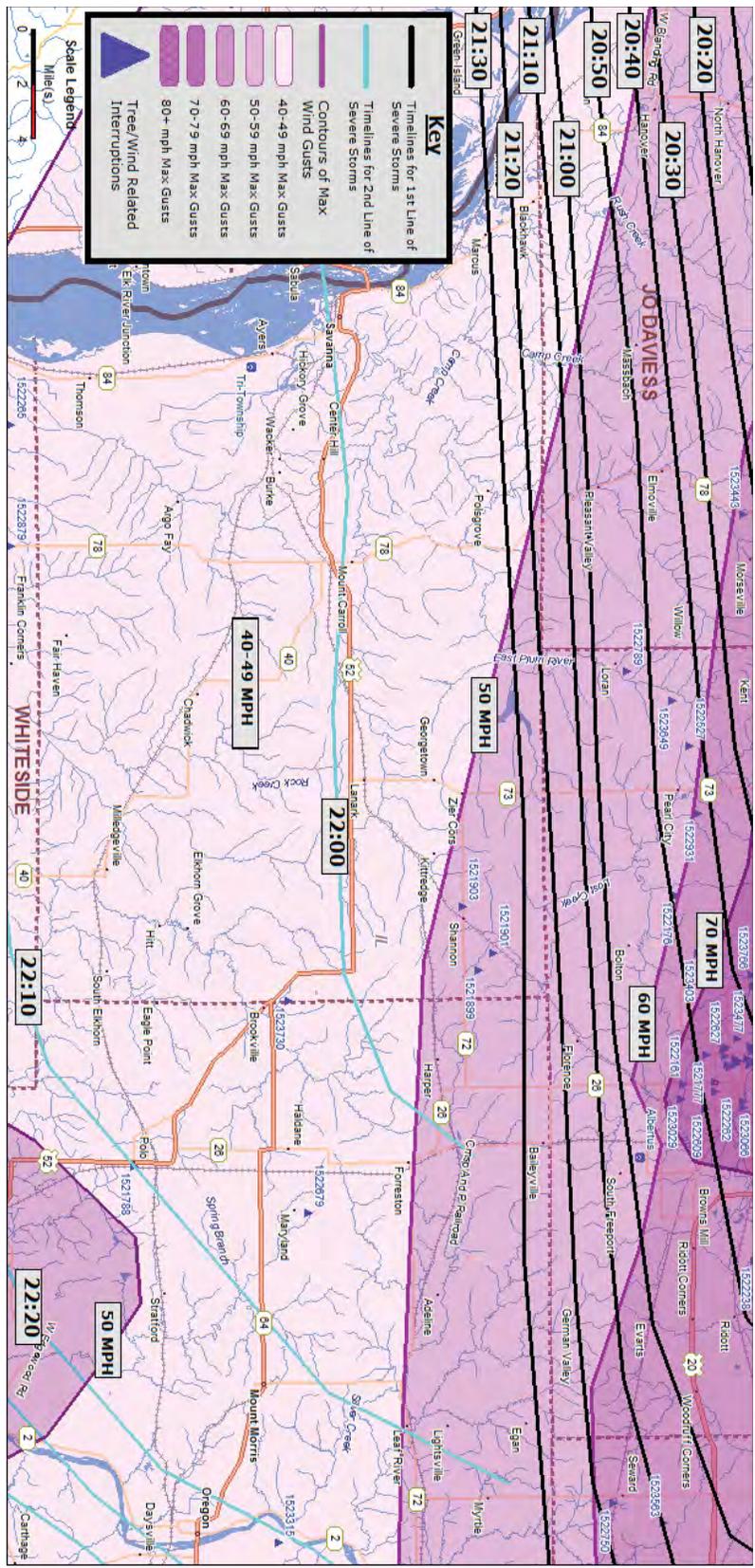


Image 4 Maximum Wind Gusts from 2020 to 0220 hours on July 27, 2011 and Wind related Outages Carroll County

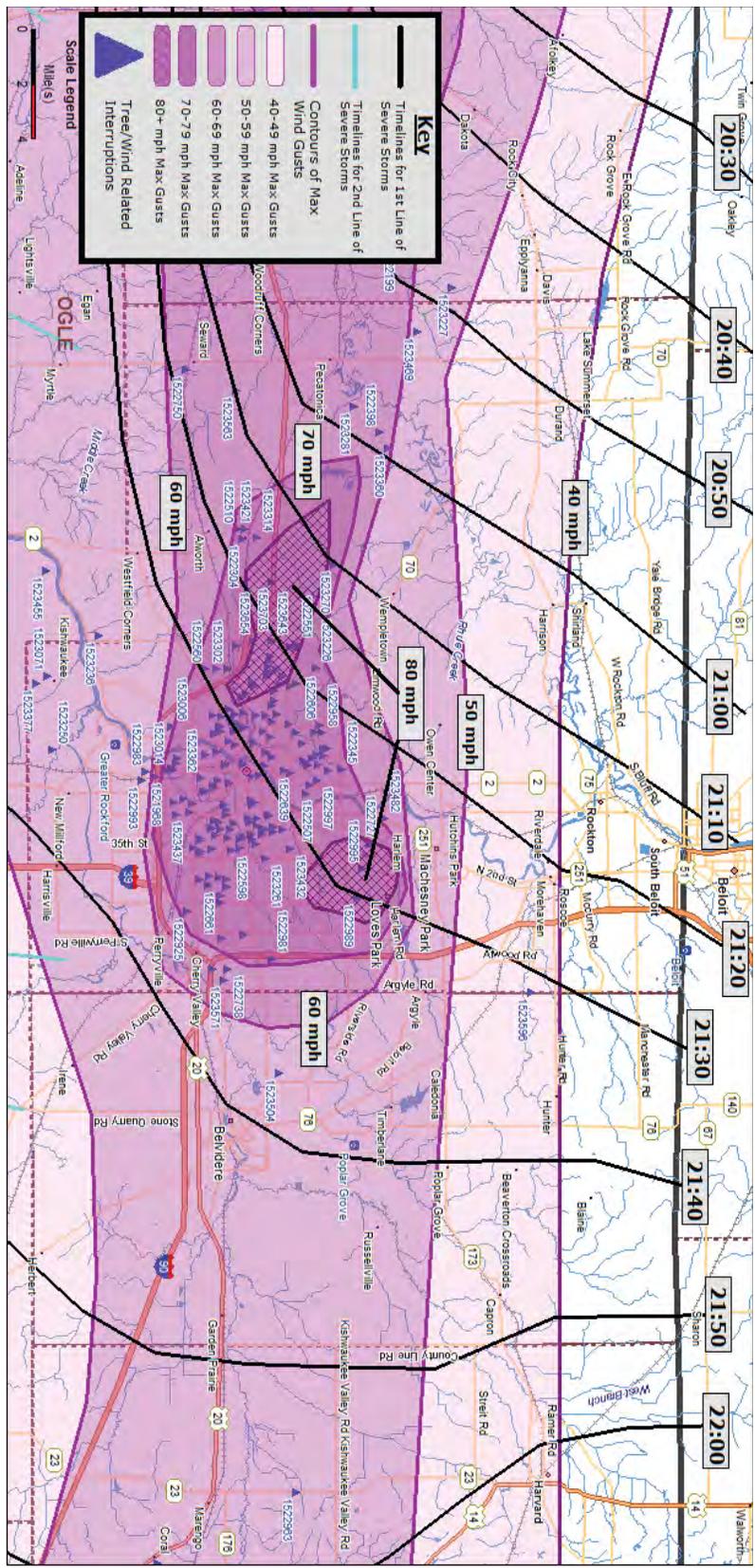


Image 5 Maximum Wind Gusts from 2030 to 2200 hours on July 27, 2011 and Wind related Outages Winnebago County

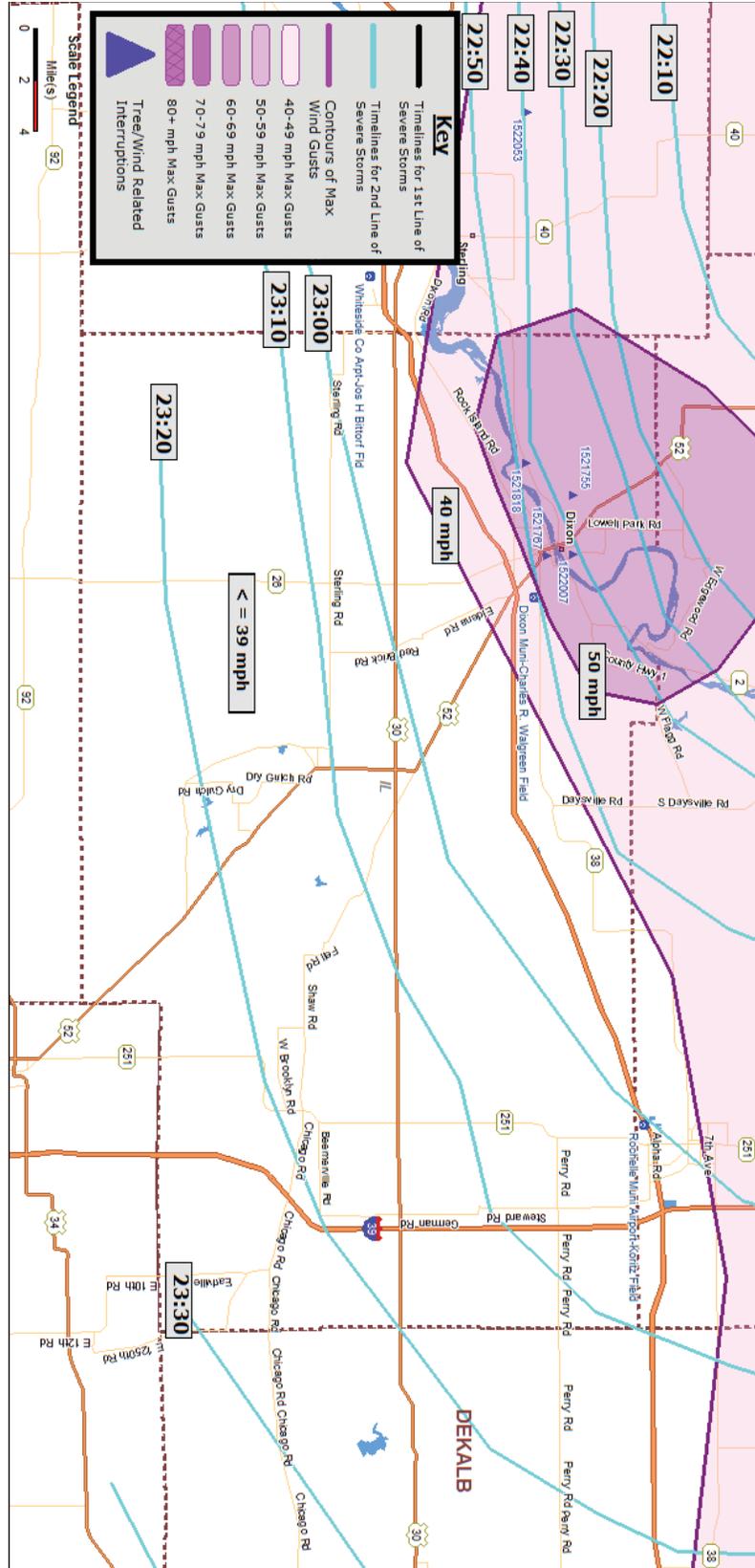


Image 7 Maximum Wind Gusts from 2210 to 2330 hours on July 27, 2011 and Wind related Outages Lee County

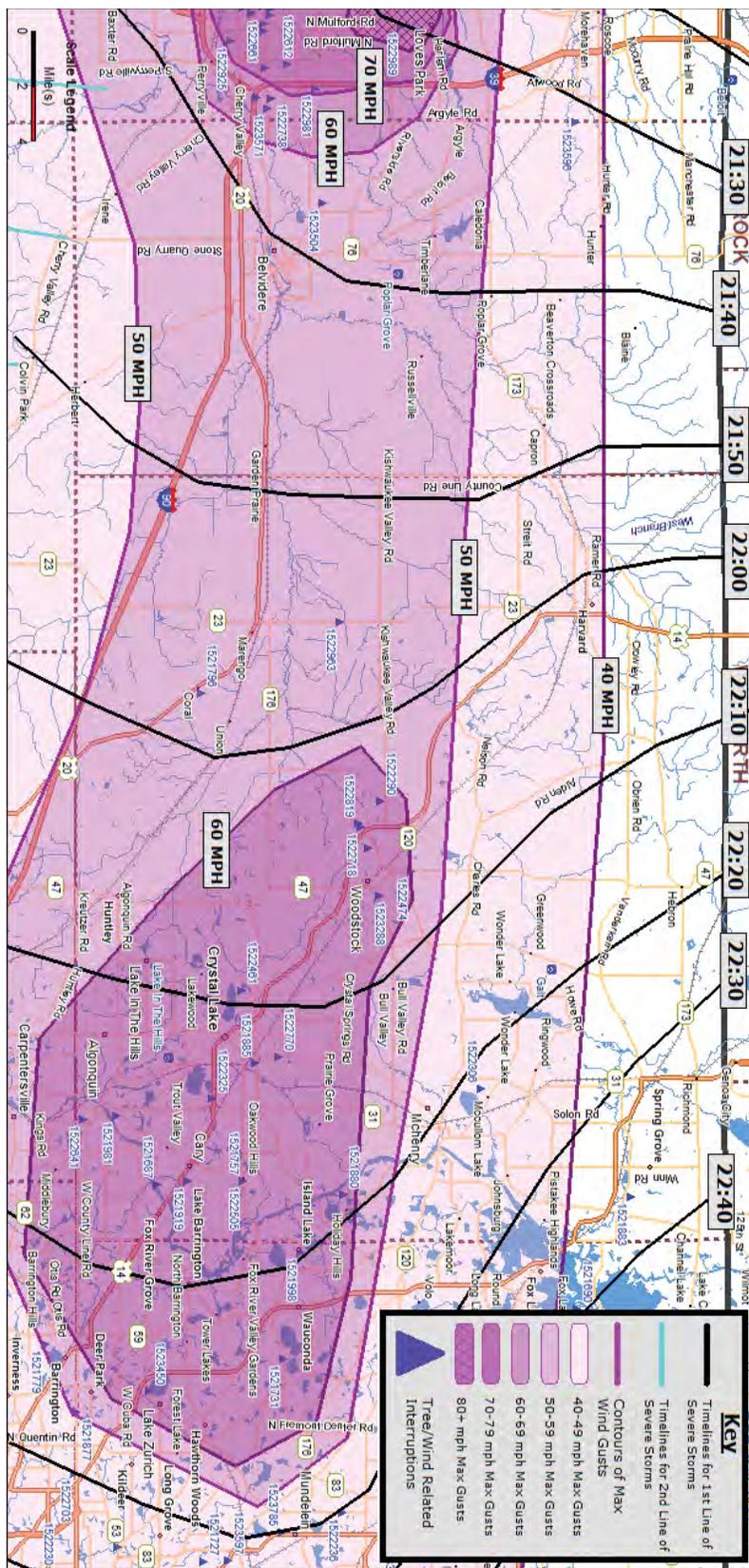


Image 8 Maximum Wind Gusts from 2130 to 2240 hours on July 27, 2011 and Wind related Outages Boone and McHenry Counties