Experimental Severe Weather Impact Graphics

Product Description Document (PDD)

June 11, 2014

Part I - Mission Connection

a. Product Description – This product is a graphical depiction of each short-fuse warning product issued by NWS Weather Forecast Offices (CONUS only), with inclusion of impact information to supplement the graphics. “Short-fuse warnings” include Tornado, Severe Thunderstorm, Flash Flood, and Extreme Wind Warnings.

b. Purpose – The purpose of providing NWS short-fuse warnings in graphical format is to increase accessibility to these life-saving products via interfaces that are not conducive to long term product display. This is to encourage greater availability and more sharing of the warning message to platforms such as mobile devices and social media sites.

c. Audience – The graphical product is intended for general use by the public and NWS Core Partners in the broadcast/electronic media, emergency management, and other government agencies.

d. Presentation Format – The experimental short-fuse warning graphic is available via a web-based “landing page” at http://www.crh.noaa.gov/crh/?n=impact. The landing page consists of a table of active short-fuse warnings delineated by issuing NWS office, warning type, cities affected, issuance time and date, expiration time and date, and total population affected. Users can sort the warning table by any of these columns to more quickly find warning(s) of interest.

Upon clicking a row in the table, the associated warning graphic “pops up” on the user’s screen. In addition to the graphic, buttons appear allowing the user to optionally “share” the warning via the user’s Twitter and Facebook accounts. This design is intended to encourage users to spread the word to their social media connections, increasing the “reach” of the critical warning message.

e. Feedback Method – Web-based feedback will be solicited via an NWS Customer Survey link on the landing page, from June 11, 2014 through December 11, 2014. Comments during this period will also be accepted via email to nws.ipwg@noaa.gov.

Comments may also be provided to:

Brian Walawender
Chief, Information Technology Branch
NWS Central Region Headquarters
7220 NW 101st Terrace
Kansas City, MO 64153-2371

Part II – Technical Description

a. Format and Science Basis – The experimental graphical product is provided in Portable Network Graphic (PNG) format and consists of two panels highlighting:

1) The warning area and storm motion vector (for Severe Thunderstorm and Tornado Warnings) with the radar image at warning issuance time in the background (left side).
2) The warning area with geographic information including population density graphic, airports, interstates, national parks, and railroads (right side).

During the experimental period, the graphical products will only be produced for warnings issued within the conterminous U.S. (CONUS). Upon analysis of comments during this experimental period, the programmatic addition of short-fuse warnings issued by non-CONUS NWS Weather Forecast Offices will be considered.

Example products are included at the end of this document.

The graphics include the most recent radar image at the time of product generation, and for Tornado and Severe Thunderstorm Warnings, also include a storm motion vector. This vector uses the motion vector in the TIME…MOT…LOC section at the bottom of the associated text warning product. The length of the vector corresponds to a 20 minute period.

The graphics also include printed information about the warning. This information includes the type of warning, the expiration time, the creation time of the graphic, and the Twitter handle for the issuing NWS Weather Forecast Office.

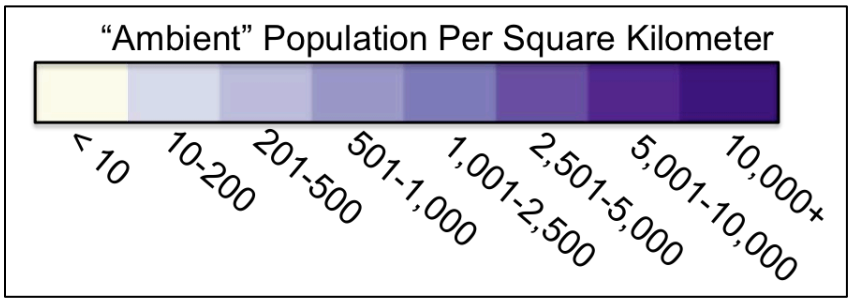
Impact statistics are also displayed on the warning graphic. This information includes an approximate population count in the warning area, the area of the warning in square miles, the approximate total miles of interstate and railroad within the warning area, and approximate counts of public schools, hospitals, airports, and national parks within the warning area.

Finally, storm information is displayed for Severe Thunderstorm Warnings and Tornado Warnings. At a minimum, the movement of the thunderstorm/tornado is included (e.g., “Northeast at 25 mph”). Maximum forecast hail size, maximum expected wind gusts, and the basis for the Tornado Warning (i.e., radar indicated vs. observed), are included when this information is also available in the text version of the warning.

“Ambient” population density data are provided on a grid of approximately one square kilometer resolution derived from the Landscan Ambient Population Dataset 2010 Edition[1]. Ambient population refers to the population expected to be present in a grid box at any given time, regardless of residency. Therefore, the ambient population is not necessarily equal to the census population. Scientific discussion of the Landscan data set is available from:

Bhaduri, B., Bright, E., Coleman, P., Urban, M. "LandScan USA: A High Resolution Geospatial and Temporal Modeling Approach for Population Distribution and Dynamics" *GeoJournal*. 2007. 69: 103-117.

The key for the ambient population density graphic is as follows:



Interstate and railroad information are derived from the National Transportation Atlas 2012 Edition. The counts of public schools and hospitals in the warning area are derived from the Homeland Security Information Network Gold data set, 2011 Edition. The actual locations and names of schools and hospitals will not be included in the graphic.

b. Availability – The experimental graphic will be generated upon first issuance of the warning and updated upon issuances of follow-up Severe Weather Statements (or Flash Flood Statements). The graphics will generally be available on the landing page within about a minute after the text product issuance.

During the experimental period the landing page and associated graphics will not be supported during non-business hours, and may become unavailable in the event of software or hardware failure or during periods of Federal Government furlough/closure.

[1] Notice: The Landscan High Resolution Global Population Data Set is copyrighted by UT-Batelle, LLC, operator of Oak Ridge National Laboratory under Contract No. DE-AC05-00OR2275 with the United States Department of Energy. The United States Government has certain rights in this Data Set. NEITHER UT-BATTELLE, LLC NOR THE UNITED STATES DEPARTMENT OF ENERGY, NOR ANY OF THEIR EMPLOYEES, MAKES ANY WARRANTY, EXPRESS OR IMPLIED, OR ASSUMES ANY LEGAL LIABILITY FOR THE ACCURACY, COMPLETENESS, OR USEFULNESS OF THIS DATA SET.

EXAMPLES

Example Warning Table on web “landing page”:

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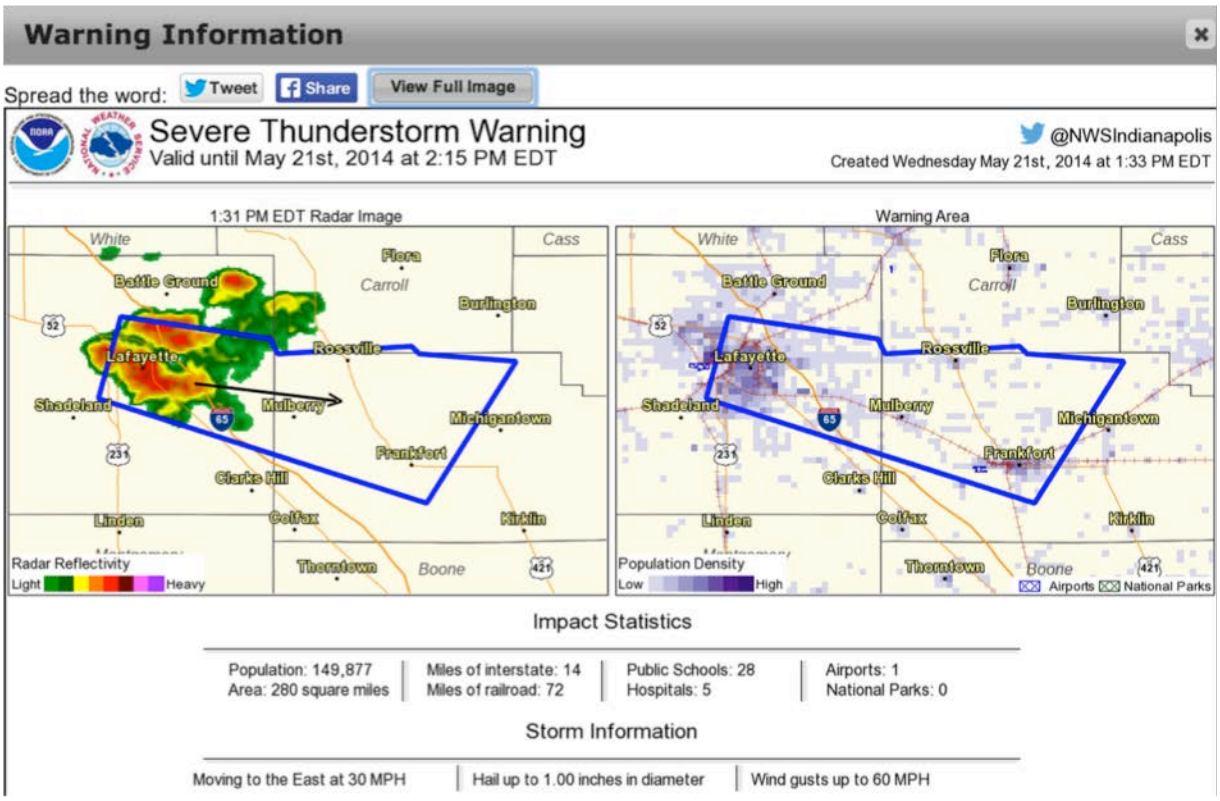
Click on a Warning to display the Warning Graphic

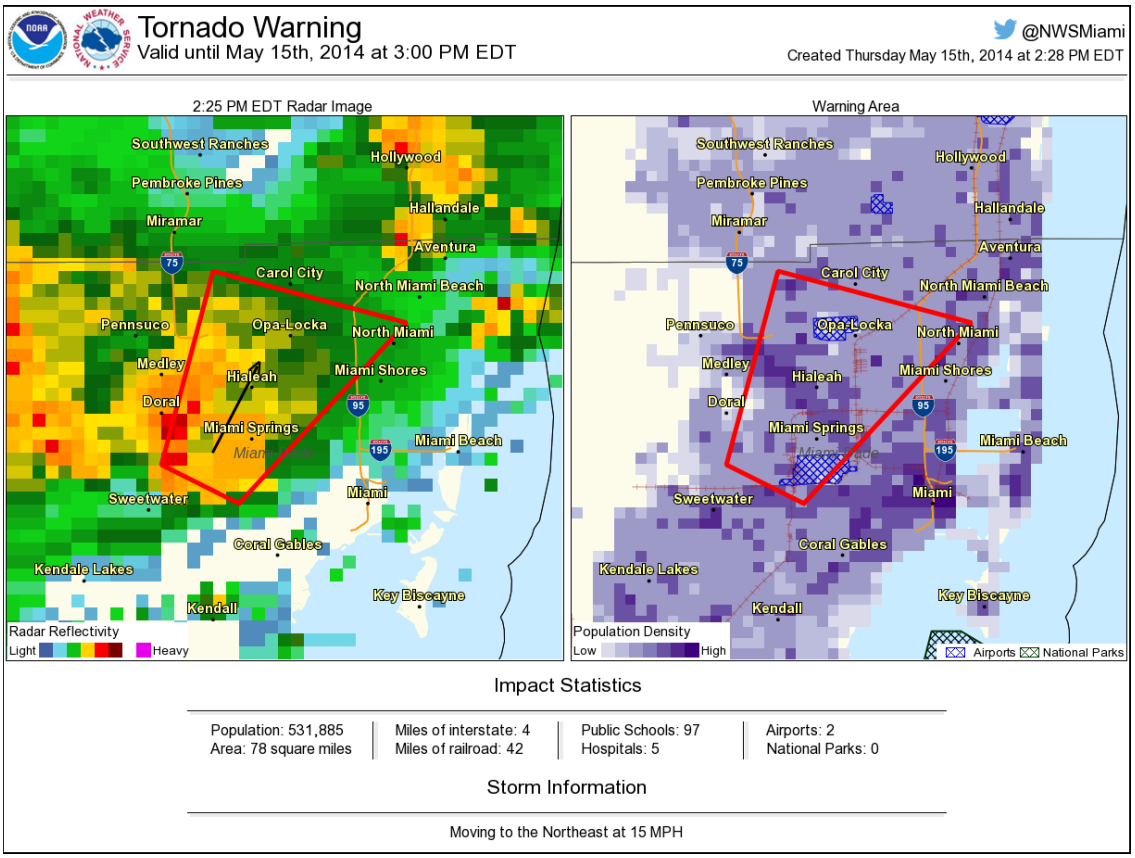
Search:

Office	Warning Type	Cities	Issuance	Expiration	Population
Albany NY	Flash Flood	Amsterdam...Broadalbin...Hagaman	3:59 pm EDT on June 3rd	9:00 pm EDT on June 3rd	64,721
Albany NY	Flash Flood	Albany...Schenectady...Saratoga Springs	3:56 pm EDT on June 3rd	10:00 pm EDT on June 3rd	620,877
Great Falls MT	Severe Thunderstorm	Hobson...Moore	3:58 pm EDT on June 3rd	4:15 pm EDT on June 3rd	449
North Platte NE	Severe Thunderstorm	Spencer...Lynch...Bristow	4:04 pm EDT on June 3rd	4:30 pm EDT on June 3rd	1,242
Omaha/Valley	Severe		4:04 pm EDT on	4:30 pm EDT on	

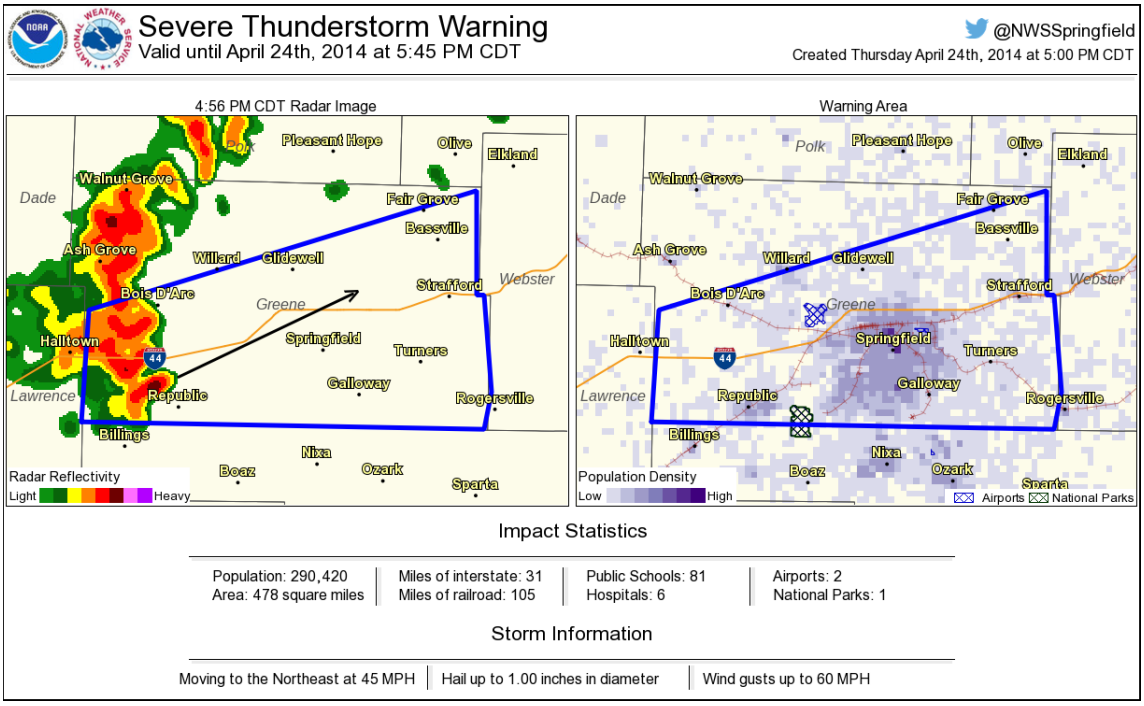
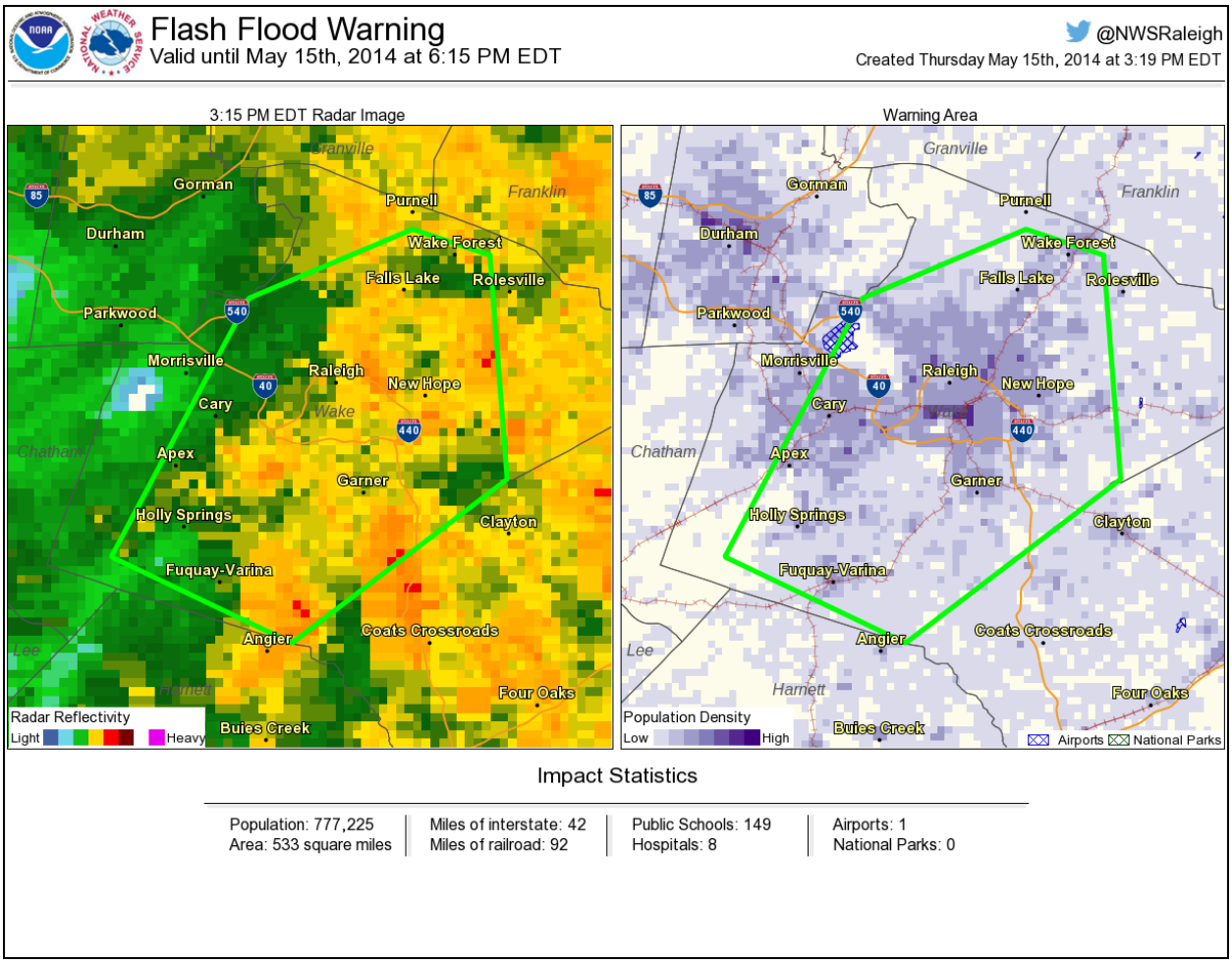
Example Severe Thunderstorm Warning “Popup” with social media “share” buttons:



Example Tornado Warning graphic:



Example Severe Thunderstorm Warning graphic:



Example Flash Flood Warning graphic: