

Base imagery from USDA Farm Service Agency 2012 National Agriculture Imagery Program (NAIP) Natural Color Imagery for Illinois, accessed September 2012 at <http://gis.apfo.usda.gov/arcgis/services>

#### UNCERTAINTIES AND LIMITATIONS FOR USE OF FLOOD-INUNDATION MAPS

Although the flood-inundation maps represent the boundaries of inundated areas with a distinct line, some uncertainty is associated with these maps. The flood boundaries shown were estimated based on gage heights (water-surface elevations) and streamflows at a selected USGS streamgage. Water-surface elevations along the stream reach were estimated by steady-state hydraulic modeling, assuming unobstructed flow, and using gage height and hydrologic conditions anticipated at the USGS streamgage. Unique meteorological factors (timing and distribution of precipitation) may cause actual streamflows along the modeled reach to vary from those assumed during a flood, which may lead to deviations in the water-surface elevations and inundation boundaries shown. Additional areas may be flooded due to unanticipated conditions such as: changes in the streambed elevation or roughness, backwater into major tributaries along a main stem river, or backwater from localized debris or ice jams. The hydraulic model reflects the land-cover characteristics and any bridge, dam, levee, or other hydraulic structures existing in 2010. The accuracy of the floodwater extent portrayed on these maps will vary with the accuracy of the digital elevation model used to simulate the land surface. Additional uncertainties and limitations pertinent to this study are described in the document accompanying this set of flood-inundation map sheets.

If this series of flood-inundation maps will be used in conjunction with National Weather Service (NWS) river forecasts, the user should be aware of additional uncertainties that may be inherent or factored into NWS forecast procedures. The NWS uses forecast models to estimate the quantity and timing of water flowing through selected stream reaches in the United States. These forecast models (1) estimate the amount of runoff generated by precipitation and snowmelt, (2) simulate the movement of floodwater as it proceeds downstream, and (3) predict the flow and stage (water-surface elevation) for the stream at a given location (AHPS forecast point) throughout the forecast period (every 6 hours and 3 to 5 days out in many locations). For more information on AHPS forecasts, please see: [http://water.weather.gov/ahps/pcpn\\_and\\_river\\_forecasting.pdf](http://water.weather.gov/ahps/pcpn_and_river_forecasting.pdf).

**Sheet 2.** Flood-inundation map for a 9-mile reach of the Des Plaines River, Illinois, corresponding to a gage height (elevation) of 14.0 feet (644.0 feet) at USGS streamgage number 05528100, Des Plaines River at Lincolnshire, Illinois.

## U.S. DEPARTMENT OF THE INTERIOR U.S. GEOLOGICAL SURVEY

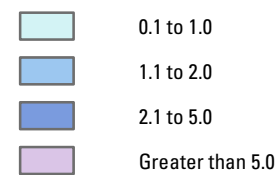
### Scientific Investigations Report 2012–5227

Murphy, E.A., Soong, D.T., Sharpe, J.B., 2012



#### EXPLANATION

##### Flood-inundation depth, in feet



##### Limits of the study area

05528100

##### USGS streamgage and number

13

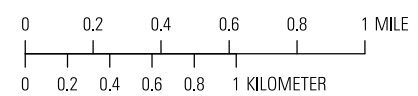
##### Illinois State route marker

45

##### U.S. route marker

94

##### Interstate marker



#### DISCLAIMER

Inundated areas shown should not be used for navigation, regulatory, permitting, or other legal purposes. The USGS provides these maps "as-is" for a quick reference, emergency planning tool but assumes no legal liability or responsibility resulting from the use of this information.

#### Suggested citation:

Murphy, E.A., Soong, D.T., and Sharpe, J.B., 2012, Flood-inundation maps for a nine-mile reach of the Des Plaines River from Riverwoods to Mettawa, Illinois: U.S. Geological Survey Scientific Investigations Report 2012–5227, 17 p.