

Prepared in cooperation with the

Village of Delhi, NY  
Delaware County Planning Department  
Delaware County Soil and Water Conservation District

## Flood-Inundation Maps for the West Branch Delaware River, Delhi, New York

By referring to the appropriate map, emergency responders can discern the severity of flooding (depth of water and aerial extent), identify roads that are or will soon be flooded, and make plans for notification or evacuation of residents in harm's way based on current and near-future flood levels.

Delhi has experienced severe flooding along the West Branch Delaware River (fig. 1); most notably during January, 1996, June, 2006, and October, 2010, and August, 2011. Emergency responders would benefit from a library of flood-inundation maps

that are referenced to the stages recorded at the USGS streamgage upstream from Delhi. By referring to the appropriate map, emergency responders could discern the severity of flooding (depth of water and aerial extent), identify roads that are or will soon be flooded, and make plans for

notification or evacuation of residents in harm's way based on current and near-future flood levels.

Digital flood-inundation maps for a 5 mile reach of the West Branch Delaware River through the Village and part of the Town of Delhi, New York,

### Flooding along the West Branch Delaware River in Delhi, NY



Photograph by Graydon Dutcher, Delaware County Soil and Water Conservation District

were created by the [U.S. Geological Survey \(USGS\)](#) in cooperation with the [Village of Delhi](#), the [Delaware County Soil and Water Conservation District](#), and the [Delaware County Planning Department](#). Flood profiles were computed for the stream reach by means of a one-dimensional step-backwater model that had been used to produce the flood insurance rate maps for the most recent flood insurance study for the Town and

Village of Delhi. This hydraulic model was used to compute 10 water-surface profiles for flood stages at 1-foot intervals referenced to the USGS streamgage at West Branch Delaware River upstream from Delhi, N.Y. (station number 01421900). The flood stages ranged from 7 feet or near bankfull to 16 feet, which exceeds the stages that correspond to both the estimated 0.2-percent annual-exceedance-probability flood (500-year recurrence interval flood) and

the maximum recorded peak flow. The simulated water-surface profiles were then combined with a geographic information system (GIS) digital elevation model, which was derived from Light Detection and Ranging (LiDAR) data to delineate the area flooded at each water level. A map that was produced using this method to delineate the inundated area for the flood that occurred on August 28, 2011, agreed well with high water marks that had been located in the field using a global positioning system. The flood maps were overlaid on high-resolution, georeferenced, aerial imagery of the study area (fig. 2, for example) and, along with gridded versions of the flood maps from which the depth of water can be obtained, are displayed on the USGS Flood Inundation Mapper website (<http://wim.usgs.gov/FIMI/FloodInundationMapper.html>).

## Related Publications

Coon, W.F., and Breaker, B.K., 2012, Flood-inundation maps for the West Branch Delaware River, Delhi, New York, 2012: U.S. Geological Survey Scientific Investigations Map 3216, 9 p. pamphlet, 10 sheets, scale 1:20,000. Available online at <http://pubs.usgs.gov/sim/3216>

## Primary Researchers

William Coon  
U.S. Geological Survey  
30 Brown Road, Ithaca, NY 14850  
(607) 266-0217 ext. 3019  
[wcoon@usgs.gov](mailto:wcoon@usgs.gov)

## For Additional Information

Visit the New York Water Science Center Web site at: <http://ny.water.usgs.gov>  
Or contact Ward O. Freeman, Director  
(518) 285-5665 [dc\\_ny@usgs.gov](mailto:dc_ny@usgs.gov)

