

Reconstruction of the Ames, Iowa August 2010 Storm on the Papillion Creek Watershed



“I-35 reopens as water recedes in Ames; huge clean up to come”

“Hilton Coliseum (Iowa State University) Basketball Court in 8 feet of water”

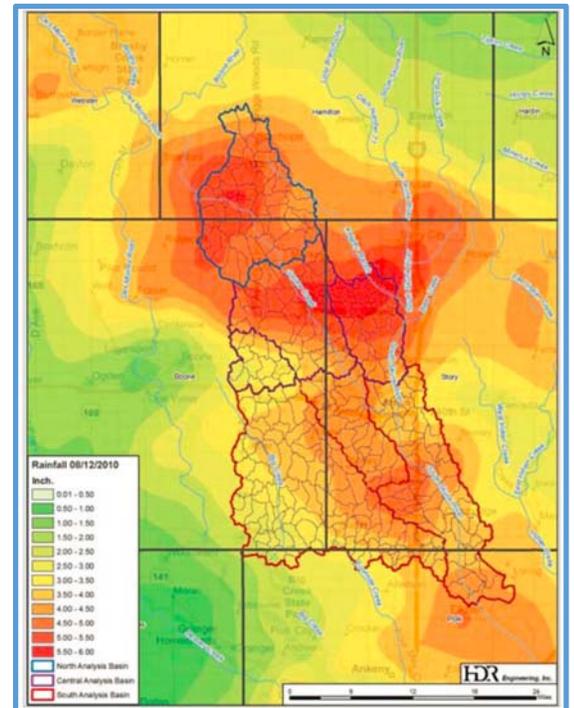
These were the headlines in Ames, Iowa in August 2010. Could that storm have hit the Omaha Metro? How would the Papillion Creek Watershed, which includes Omaha and surrounding communities, respond

to a similar rainfall? August 8-10, 2010, three days of rainfall totaling 8 to 9 ½ inches fell in Ames resulting in 1 death, a community of 56,000 without drinking water and approximately \$40 million in damages to Iowa State University.

What would the Ames storm look like in the Omaha Metro area?

Meteorologists used rain gage and radar data from the National Weather Service to reconstruct the Ames, Iowa August 2010 storm over the Papillion Creek Watershed. The Papillion Creek Watershed (outlined in the figure on the right) was transposed over the storm event in such a way as to adhere to meteorological principles specific to storms that impact our area.

The graphic to the right shows the most intense rainfall over the three day period, on August 11, 2010, rainfall totals that day were 5-6 inches just upstream of Ames. The rainfall distribution was analyzed and reconstructed for the Papillion Creek Watershed. The rainfall data was then used to estimate peak flows and modeled using the Papillion Creek topography and geometry to estimate the effect that the Ames storm would have here. Areas predicted to be flooded were mapped and estimates of damages analyzed.



AP Photo/Des Moines Register

Summary of Results

- 3,365 Acres of Commercial/Industrial land inundated
- 765 Acres of Residential land inundated
- 4,460 Acres of Agricultural land inundated
- 2,345 Acres of Civic land inundated
- 2,305 Acres of Railroad, Roads, and other unclassified land inundated

Total of 13,240 acres of land inundated with flood water.



AP Photo/Des Moines Register

Customers and staff from Ames Wal Mart being evacuated.

Estimate of Damages

Damage estimates were calculated the Federal Emergency Management Agency’s HAZUS-MH v3.0 software in conjunction with reported 2010 census data.

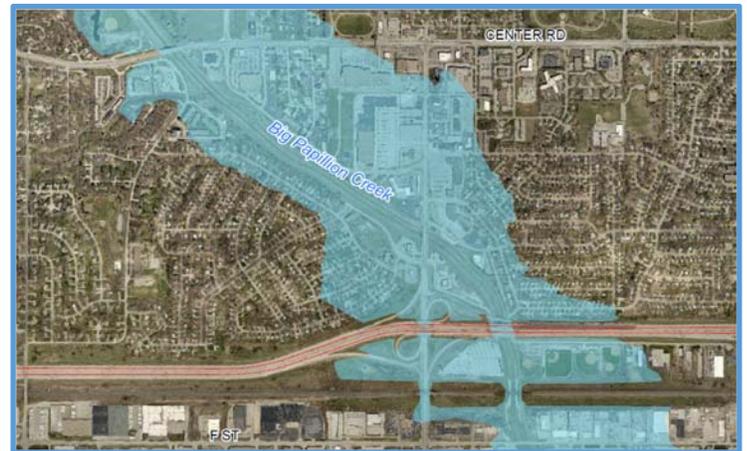
- 13,154 Displaced people
- Building Losses \$1,504,000,000 (includes damage, contents and inventory)
- Public Infrastructure damage \$601,600,000
- Income Losses \$8,300,000
- Agricultural Losses \$4,295,000

Total Estimate of Damages \$2.1 Billion

Areas of Flood Inundation



Inundation areas on West Papillion Creek near 144th & F Sts



Inundation areas on Big Papillion Creek near 84th & I-80