Recent Floods
Impacts and Flood Control Options

Broome County Soil & Water Conservation District

Charles McElwee, Executive Director Broome SWCD
Chenango River, Binghamton Thursday September 7th 2011
Local Floods of Record

- July 1935  Chenango Basin, summer thunderstorms
- March 1936  Susquehanna Basin, rain/snowmelt
- June 1972  T.S. Agnes, primarily west of area
- September 1975  T.S. Eloise, firemen drown in Binghamton
- January 1996  Susquehanna Basin, rain/snow melt
- September 2004  T.S. Ivan Susquehanna
- April 2005  Chenango, rain snowmelt
- June 2006  Susquehanna + Chenango
- September 2011  Susquehanna + Chenango
WHAT ARE THE REASONS FOR THE SEVERITY OF RECENT FLOODS?
WHAT DO YOU THINK?

- The lack of flood control
- Land use changes (development)
- The lack of land use controls
- Encroachment on the flood plain
- Amount and intensity of rainfall
- Climate Change
- The nature of our watersheds
- All of the above?
FLOOD METEOROLOGY

Rainfall Amounts 8 AM June 25 to 8 AM June 28
Cooperative Observer and Rainfall Spotter Network.

Rainfall (inches)
- 0.0 - 2.0
- 2.01 - 4.0
- 4.01 - 6.0
- 6.01 - 8.0
- 8.01 - 10.0
- 10.01 - 12.0
- 12.01 - 14.0
- 14.01 - 16.0
Multi-sensor Precipitation Est. (preliminary)
24 Hour Accumulation from 8 AM EDT June 27, 2006 to 8 AM EDT June 28, 2006
Muti-sensor Precipitation Est. (preliminary)
48 Hour Accumulation from 8 AM EDT September 06, 2011 to 8 AM EDT September 08, 2011
WITH RAINFALL OF THAT INTENSITY ROAD DITCHES BECOME STREAMS.
SMALL STREAMS CAN BECOME RAGING TORRENTS
AND LARGE STREAMS CAN CREATE SIGNIFICANT DAMAGE
FLOOD HYDROLOGY
100 YEAR STORM, 250 YEAR STORM, 500 YEAR STORM?
THE HYDROLOGY OF THE EVENT CAN BE GREATER THAN THE DESIGN OF MEASURES TO PREVENT FLOODING
CONFLUENCE PARK, BINGHAMTON (3PM JUNE 28TH 2006)
VESTAL NY HYDROGRAPH READING FROM JUNE 2006 FLOOD

Estimated high water level 33.66’

Historical Crests
(1) 30.50 ft on 1936/03/18
(2) 28.87 ft on 2005/04/3
(3) 27.86 ft on 1996/01/20
(4) 27.73 ft on 1948/03/22
(5) 27.41 ft on 1942/12/31
VESTAL NY HYDROGRAPHT READING FROM SEPT. 2011 FLOOD

Measured high water level 35.26'
FLOODS CAN THEY BE PREVENTED?
VIEW OF THE SUSQUEHANNA AT THE SOUTH WASHINGTON ST BRIDGE 2006
Possible Options

- Flood walls/levees
- Flood control dams
- Property buy-outs/floodplain management
- Urban Storm Water control
- Land use controls
- Stream channel restructuring
- Reconnecting the floodplain
- Wetland creation
- Education and flood proofing
- Others
Lourdes Hospital - September 2011
LEAKS IN THE FLOOD WALL AT THE SOUTH WASHINGTON STREET BRIDGE 2006
WATER OVER FLOODS WALLS AT THE SAME LOCATION SEPT. 8 2011
Urban Stormwater Flooding
STRAIGHTING STREAM CHANNEL BELDON BROOK HARPURSVILLE
Natural Stream Design

Instream Structures
Flood Plain Modifications
CONSTRUCTED WETLAND IN CASTLE CREEK PROVIDING MULTIPLE BENEFITS
Stream Processes
A Guide to Living In Harmony with Streams
STREAM FLOODING AND DAMAGE
(OSBORNE CREEK, PORT CRANE)