On the Front Line:
Using GIS, LIDAR, and Real Time Data for Emergency Response and Planning at the Local Level

Presented by:
Denise Savageau
Conservation Director
Town of Greenwich
New tools are available to help local governments do a better job of planning, monitoring real time weather events, and educating the public.
Town of Greenwich is working on several different initiatives all aimed at making the Town more resilient. Many of the tools are being use both for emergency response AND planning purposes.

- Creation of database of certificate of elevation for homes in flood prone areas.
- Creating elevation layers on GIS at 1 ft intervals for better planning and use during flood events.
- Using catch basin rim elevations to further refine flooding predictions.
- Using the GIS with local data for education on sea level rise and severe weather events.
- Installation of stream gage on Byram River for flood and drought monitoring.
- Use of real time gages (USGS, NOAA, etc.) in the Emergency Operation Center.
- Adoption of new FIRM maps at Base Flood Elevation plus 1’
- Climate Change Adaptation in the Plan of Conservation and Development
- Beginning of inventory of vital infrastructure in our community
Understanding Storm Surge

• The storm surge is the difference between the actual recorded water elevation and the predicted water elevation (predicted tide).

• Surge heights are measured at still water and do not take wave action (surf) into account.

• A storm surge is NOT a big wave or tsunami-type event.

• During a storm event, the highest water elevation recorded does not necessarily occur when the surge is the highest. It depends on the timing of the surge in relationship to the tidal cycle.
GIS and tidal gages used to direct fire crews during Sandy.

Same GIS layers were used to provide building department officials with water elevations to conduct post-storm audit of properties.

Same GIS used for planning purposes, infrastructure assessment, and to better understand FIRM maps and prepare evacuations maps for future events.
Using the New LIDAR

- Free download from: **NOAA Digital Coast website**.
- Covers the entire CT coastline.
- Surveys were taken following Sandy from Nov to Dec 2012
- Data in tiles due to large file sizes
- Combine tiles into single coverage: **Mosaic tool**

[Map Image: Greenwich Connecticut 2012 LIDAR Tiles]
- High resolution: 2ft cell size
- TOG’s current DEM: 25ft cell size
- Buildings are omitted: Shown as No Data
- Allows better visualization of coastal flooding
- Elevation data reflects infrastructure and buildings
- Generate 1 ft contour lines

- Refine visualization of flooding impacts:
  - Visualize impacts based on real time gauge data
  - Aids in Emergency Planning/Response

- Estimate elevation of infrastructure based on GPS coordinates:
  - Extract value by points tool
  - Catch basins
  - Buildings
  - Roads
Note drainage ditches in wetlands in 1934 aerial. 2008 photo indicates area is now developed.
Contact info:

Denise Savageau, Conservation Director
Town of Greenwich 203-622-6461
denise.savageau@greenwichct.org

Joseph Cassone, Conservation Assistant
Town of Greenwich 203-622-6461
joseph.cassone@greenwichct.org