HAZUS & NIST Community Resilience Planning Guide

Nashua Office of Emergency Management

Community Stakeholders

- Formed a diverse Collaborative Planning Team
- Interested citizens to the City Engineer
- Soup Kitchen to the Country Club
- Used NIST Process to determine what social functions were important

What's Critical & Essential to Nashua?

- Collaborative Planning Team connects social functions to facilities and infrastructure
- Detailed collection of "best available data"
  - Assessing Data
  - Street View
  - Pictometry
  - SME Interviews
- Nearly 500 facilities/structures
- Co-benefits to data collection
- Couldn't have done this without Ed and NESEC

Determining Scenarios

- Started with NIST Guide Table 4-4 (ASCE 7-10 Design Loads)
- Existing NH building code IBC 2009/ASCE 7-05 vs best available IBC 2018/ASCE 7-16?
- Extreme Scenarios?
  - 1638 Earthquake
  - 1936 Flood
  - 1938 Hurricane
- Being realistic in NH (Live Free or Die)

Hazard	Routine	Design	Extreme
Ground Snow	50 year MRI or 64% in 50 years	300 to 500 year MRI[1] or 15 to 10% in 50 years	TBD[4]
Rain	Locally determined[2]	Locally determined[2]	Locally determined[2]
Wind – Non-Hurricane	50 year MRI or 64% in 50 years	700 year MRI or 7% in 50 year	1,700 year MRI[3] or 3% in 50 years
Wind – Hurricane	50 to 100 year MRI or 64 to 39% in 50 years	700 year MRI or 7% in 50 years	1,700 year MRI[3] or 3% in 50 years
Wind – Tornado	Locally determined[3]	Locally determined[3]	Locally determined[3]
Earthquake[4]	50 year MRI or 64% in 50 years	500 year MRI or 10% in 50 years	2,500 year MRI or 2% in 50 years
Tsunami	Locally determined[3]	Locally determined[3]	Locally determined[3]
Flood	Locally determined	100 to 500 year MRI or 39 to 10% in 50 years	Locally determined
Fire – Wildfire	Locally determined[4]	Locally determined[4]	Locally determined[4]
Fire –Urban/Manmade	Locally determined[4]	Locally determined[4]	Locally determined[4]
Blast / Terrorism	Locally determined[5]	Locally determined[5]	Locally determined[5]

How Much Risk?

- What do 50 yr, 500 yr, and 2500 yr MRI Earthquakes look like?
- Risk is not an easy topic for the general public to understand
- What contingency plans, training, & exercises to promote resilience...can't expect all structures to get to 90% post-impact
- Decision goes back to community stakeholders

EF Rating	Wind Speeds	Expected Damage	
EF-0	65-85 mph	'Minor' damage: shingles blown off or parts of a roof peeled off, damage to gutters/siding, branches broken off trees, shallow rooted trees toppled.	 
EF-1	86-110 mph	'Moderate' damage: more significant roof damage, windows broken, exterior doors damaged or lost, mobile homes overturned or badly damaged.	 
EF-2	111-135 mph	'Considerable' damage: roofs torn off well constructed homes, homes shifted off their foundation, mobile homes completely destroyed, large trees snapped or uprooted, cars can be tossed.	 
EF-3	136-165 mph	'Severe' damage: entire stories of well constructed homes destroyed, significant damage done to large buildings, homes with weak foundations can be blown away, trees begin to lose their bark.	 
EF-4	166-200 mph	'Extreme' damage: Well constructed homes are leveled, cars are thrown significant distances, top story exterior walls of masonry buildings would likely collapse.	 
EF-5	> 200 mph	'Massive/incredible' damage: Well constructed homes are swept away, steel-reinforced concrete structures are critically damaged, high-rise buildings sustain severe structural damage, trees are usually completely debarked, stripped of branches and snapped.	 

Questions?

Justin Kates

Director of Emergency Management

City of Nashua, NH

katesj@nashuanh.gov

603-722-0288

OFFICE OF EMERGENCY MANAGEMENT