Southington

Southington , similar to its next-door neighbor Berlin, is a suburban community in the southeast part of the region. Originally an agricultural community, Southington has also hosted industry and now boasts several designated historic districts and a revitalized downtown. Physically, it is among the largest towns in the region, at 36 square miles, and is home to a variety of landscapes.

With 39,728 residents in 2000, the town had a population density of 1104 people per square mile. Median age is 42, and 77% of all housing is single-family. According to the Department of Transportation, Southington is projected to see a 50% increase in its population aged 60 and over; this cohort is expected to comprise almost 1/3 of the town's population by 2030. Southington is one of the three towns in the region that are not served by public transportation.

Challenges

Flooding from the Quinnipiac River is the main challenge for Southington. The town is relatively flat throughout, which means that floodwaters tend to recede very slowly. The Plantsville area is particularly hard-hit by flooding. It has an undersized drainage system that needs to be upgraded, especially within the floodplain of the Quinnipiac. Upgrading the system would improve the situation during smaller flood events, although the area would still likely flood during larger events.

Woodruff Street is another area with recurrent flooding. Although the publicly-owned culvert was replaced 15 years ago and is in good condition, the channel that runs across private land is undersized and needs to be widened and deepened for a length of approximately 3,000 feet. As the flooding issue occurs on private land, it is beyond the town's ability to remedy. The town's floodplain ordinance mandates zero increase in storm water runoff in flood plain areas, and town staff places high priority on convincing property owners to provide adequate on-site floodwater storage.

The town faces the same challenges from winter storms as do the other towns in the region: cleanup and management of the storms can be expensive; residents can be isolated by snowy and icy roads; and downed trees can block roads and cause power outages, depriving residents of electricity, communications, and even heat. As in other towns, the vast majority of residents, accustomed to Connecticut's weather, choose to shelter in place, waiting out the storms from the comfort of their own homes.

Current Mitigation and Response Activities

- The town's Open Space and Land Acquisition Committee cites "water quality / resource protection" and "flood control" as two of its rationales for acquisitions and targets wetlands and other properties valuable for pursuing those ends
- The health department keeps lists of crucial facilities and vulnerable populations, and assists with evacuations during emergencies. The health director, Chuck Motes, is also the deputy emergency management director.
- The water department has a water conservation plan in place, to be used in the event of drought
- Town tests its emergency operations plan every 12 to 18 months; the last test was on July 15, 2009
- Flood plain regulations limit development that can occur in flood zones and flood ways
- The town participates in the National Flood Insurance Program
- Participates in DEMHS Region 3 planning activities

Goals, Objectives, and Strategies

Goal: reduce losses of life and property, and minimize economic consequences of natural hazards.

Objective 1: Increase capacity to shelter large numbers of people in the case of an emergency

	Strategy	Priority	Lead	Hazard
S1	Inventory town shelters	High	Emergency Management	Winter Storms
S2	Invest in supplies sufficient to stock at least one shelter in case of a major event	High	Emergency Management	Winter Storms
S3	Develop a comprehensive shelter plan	Medium	Emergency Management	Winter Storms

Objective 2: Improve town's capacity to deal with hazards by investing in necessary equipment and upgrading infrastructure

	Strategy	Priority	Lead	Hazard
S1	Invest in emergency generators in order to keep critical facilities online during emergencies	High	Public Works	Winter Storms, Wind Storms
S2	Invest in chainsaws and a wood chipper to expedite removal of downed trees	High	Public Works	Winter Storms, Wind Storms
S3	Invest in sump pumps to more quickly remove floodwaters	High	Public Works	Flooding
S4	Increase capacity of Plantsville drainage system	Medium	Public Works	Flooding

Objective 3: Improve citizen notification, awareness, and response time

	Strategy	Priority	Lead	Hazard
S1	Take advantage of the statewide Reverse-911 system offered through Everbridge	High	Administration, Emergency Management	All
S2	Develop & distribute household preparedness pamphlet	High	Emergency Management	All
S3	Encourage preparedness workshops in schools	High	Emergency Management	All
S4	Post preparedness pamphlet and town evacuation plans on town website	High	Emergency Management	All

Objective 4: Continue Participation in National Flood Insurance Program

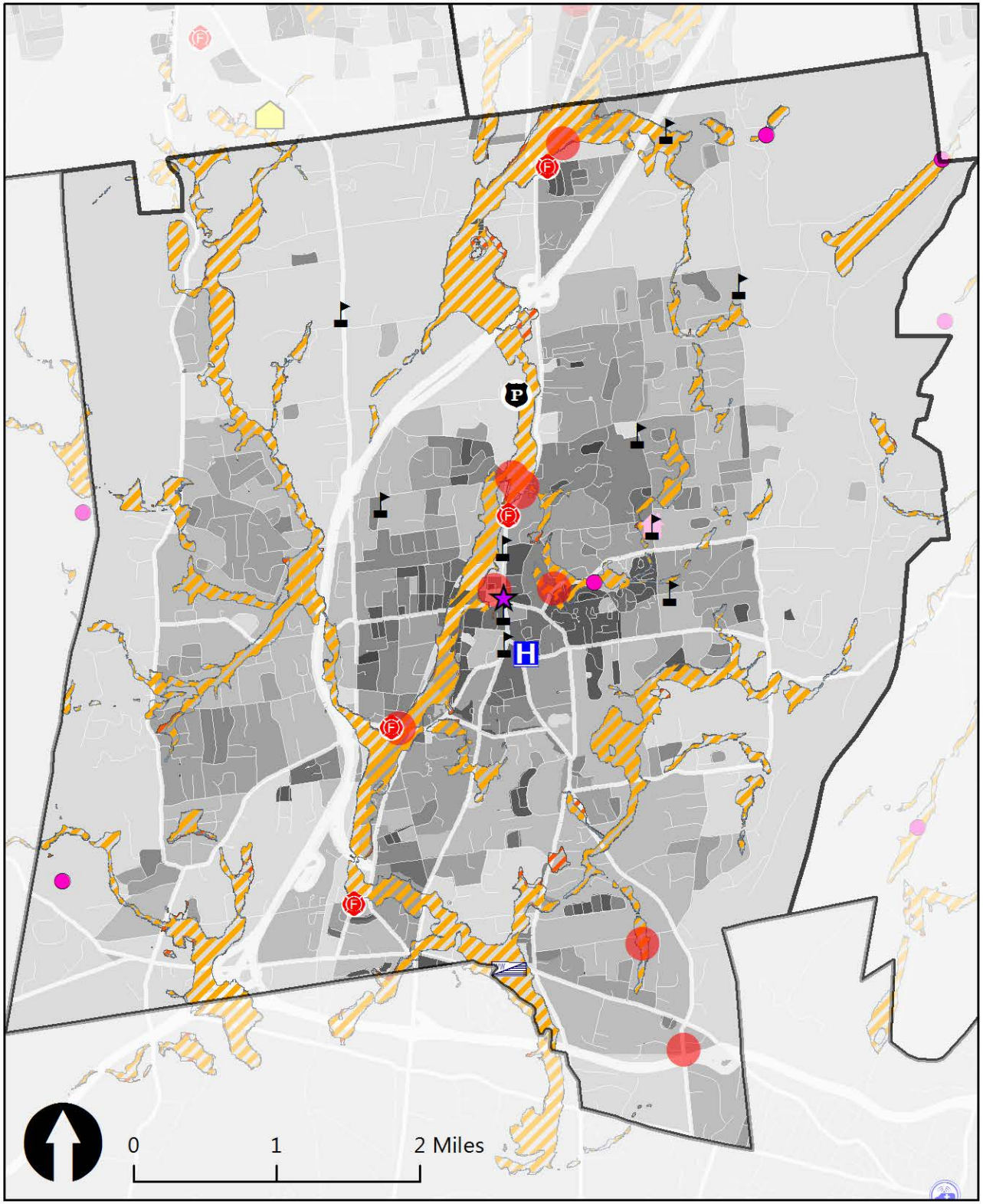
	Strategy	Priority	Lead	Hazard
S1	Continue enforcement of floodplain management ordinances by regulating all new and substantially improved construction in flood zones	High	Planning & Zoning	Flooding
S2	Work with FEMA to update FIRMs as necessary	High	Planning, Public Works	Flooding
S3	Continue to distribute information about the NFIP to homeowners	High	Planning	Flooding
S4	Continue to assist homeowners with amendments to NFIP maps as necessary	High	Planning	Flooding

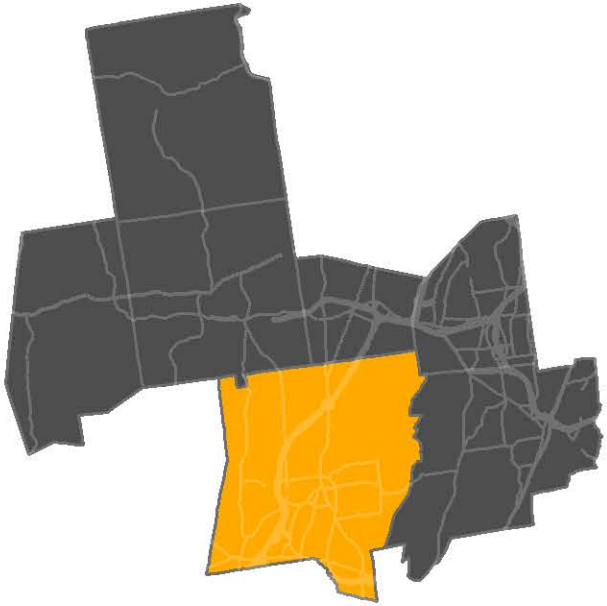
Contributors

Mark Sciota (Deputy Town Manager / Emergency Management Director), Tony Tranquillo (Director of Public Works), Jim Grappone (Assistant Town Engineer), Mary Savage-Dunham (Town Planner), Jim Butler (Assistant Building Inspector)

Flood Zones & Critical Facilities

Southington





Critical Facilites

- Power_Plant
- Hospitals
- Ambulance
- Fire
- Police
- Waste Water
- Schools
- Primary Shelters
- RLP Zone
- Class C Dams
- Town Halls

Flood Zones

- 100 Year Flood
- 500 Year Flood

Pop/square mile

- 0 - 1,000
- 1,000 - 2,000
- 2,000 - 3,000
- 3,000 - 4,000
- 4,000 - 5,000
- 5,000 - 10,000
- 10,000+

Hazus-MH: Flood Event Report

Region Name: Southington

Flood Scenario: Flood100

Print Date Wednesday, October 1, 2014

Disclaimer:

Totals only reflect data for those census tracts/blocks included in the user's study region.

The estimates of social and economic impacts contained in this report were produced using Hazus loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social

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General Description of the Region

Hazus is a regional multi-hazard loss estimation model that was developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences (NIBS). The primary purpose of Hazus is to provide a methodology and software application to develop multi -hazard losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from multi-hazards and to prepare for emergency response and recovery.

The flood loss estimates provided in this report were based on a region that included 1 county(ies) from the following state(s):

- Connecticut

Note:
Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is 37 square miles and contains 442 census blocks. The region contains over 15 thousand households and has a total population of 39,514 people (2000 Census Bureau data). The distribution of population by State and County for the study region is provided in Appendix B .

There are an estimated 15,079 buildings in the region with a total building replacement value (excluding contents) of 3,576 million dollars (2006 dollars). Approximately 91.86% of the buildings (and 74.09% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

Hazus estimates that there are 15,079 buildings in the region which have an aggregate total replacement value of 3,576 million (2006 dollars). Table 1 and Table 2 present the relative distribution of the value with respect to the general occupancies by Study Region and Scenario respectively. Appendix B provides a general distribution of the building value by State and County.

Table 1

Building Exposure by Occupancy Type for the Study Region

Occupancy	Exposure ($1000)	Percent of Total
Residential	2,649,906	74.1%
Commercial	612,355	17.1%
Industrial	220,387	6.2%
Agricultural	17,648	0.5%
Religion	39,862	1.1%
Government	9,289	0.3%
Education	26,918	0.8%
Total	**3,576,365**	**100.00%**

Table 2

Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure ($1000)	Percent of Total
Residential	1,653,627	72.8%
Commercial	366,646	16.1%
Industrial	191,076	8.4%
Agricultural	14,350	0.6%
Religion	30,077	1.3%
Government	3,938	0.2%
Education	11,924	0.5%
Total	2,271,638	**100.00%**

Essential Facility Inventory

For essential facilities, there are 1 hospitals in the region with a total bed capacity of 74 beds.
There are 14 schools, 1 fire stations, 1 police stations and 1 emergency operation centers.

Flood Scenario Parameters

Hazus used the following set of information to define the flood parameters for the flood loss estimate provided in this report.

Study Region Name:	CCRPA Disaster Resilience
Scenario Name:	Flood100
Return period Analyzed:	100
Analysis Option Analyzed:	No What-Ifs

General Building Stock Damage

Hazus estimates that about 173 buildings will be at least moderately damaged. This is over 22% of the total number of buildings in the scenario. There are an estimated 30 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 5.3 of the Hazus Flood Technical Manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 summarizes the expected damage by general building type.

Table 3: Expected Building Damage by Occupancy

	1-10		11-20		21-30		31-40		41-50		Substantially	
Occupancy	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**
Agricultural	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	0	0.00	3	100.0	0	0.00	0	0.00	0	0.00	0	0.00
Education	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Government	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Religion	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Residential	0	0.00	8	4.71	17	10.00	61	35.88	54	31.76	30	17.65
Total	**0**		**11**		**17**		**61**		**54**		**30**	

Table 4: Expected Building Damage by Building Type

Building	1-10		11-20		21-30		31-40		41-50		Substantially	
Type	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**
Concrete	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
ManufHousing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	3	100.00
Masonry	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00
Steel	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Wood	0	0.00	8	4.82	17	10.24	61	36.75	54	32.53	26	15.66

Essential Facility Damage

Before the flood analyzed in this scenario, the region had 74 hospital beds available for use. On the day of the scenario flood event, the model estimates that 74 hospital beds are available in the region.

Table 5: Expected Building Damage by Occupancy

		# Facilities		
Classification	Total	At Least Moderate	At Least Substantial	Loss of Use
Fire Stations	1	0	0	0
Hospitals	1	0	0	0
Police Stations	1	0	0	0
Schools	14	0	0	0

If this report displays all zeros or is blank, two possibilities can explain this.

(1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.

(2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Induced Flood Damage

Debris Generation

Hazus estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories: 1) Finishes (dry wall, insulation, etc.), 2) Structural (wood, brick, etc.) and 3) Foundations (concrete slab, concrete block, rebar, etc.). This distinction is made because of the different types of material handling equipment required to handle the debris.

The model estimates that a total of 4,343 tons of debris will be generated. Of the total amount, Finishes comprises 83% of the total, Structure comprises 9% of the total. If the debris tonnage is converted into an estimated number of truckloads, it will require 169 truckloads (@25 tons/truck) to remove the debris generated by the flood.

Social Impact

Shelter Requirements

Hazus estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. Hazus also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 1,152 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 2,574 people (out of a total population of 39,514) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the flood is 165.58 million dollars, which represents 7.29 % of the total replacement value of the scenario buildings

Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the flood. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the flood.

The total building-related losses were 164.68 million dollars. 1% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 27.51% of the total loss. Table 6 below provides a summary of the losses associated with the building damage.

Table 6: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building Loss						
	Building	28.42	19.78	8.13	1.34	57.68
	Content	17.06	59.66	18.68	5.98	101.39
	Inventory	0.00	2.01	3.21	0.39	5.61
	Subtotal	**45.49**	**81.46**	**30.03**	**7.71**	**164.68**
Business Interruption						
	Income	0.04	0.09	0.00	0.00	0.13
	Relocation	0.01	0.25	0.00	0.01	0.27
	Rental Income	0.01	0.05	0.00	0.00	0.06
	Wage	0.01	0.29	0.00	0.15	0.45
	Subtotal	**0.06**	**0.67**	**0.01**	**0.16**	**0.90**
ALL	**Total**	**45.55**	**82.13**	**30.03**	**7.87**	**165.58**

Appendix A: County Listing for the Region

Connecticut

- Hartford

Appendix B: Regional Population and Building Value Data

		Building Value (thousand of dollars)		
	Population	Residential	Non-Residential	Total
Connecticut				
Hartford	39,514	2,649,906	926,459	3,576,365
Total	39,514	2,649,906	926,459	3,576,365
Total Study Region	39,514	2,649,906	926,459	3,576,365