Plainville

As its name suggests, the primarily suburban community of Plainville is situated almost entirely in a flat plain. Despite encompassing only 9.6 miles of land, the town boasts urban, suburban, and rural areas and hosts sections of Interstate 84 and State Route 72, both limited-access highways pivotal to the region's transportation system. With 17,328 residents in the year 2000, Plainville had a population density of 1,768 persons per square mile, nearly triple the density of the entire state.

Plainville is largely built out, with only 940 net developable acres (14% of the town's total acreage) left as of 2007. The town's 2009 Plan of Conservation and Development, in recognition of this fact, stresses the importance of comprehensive open space planning, natural resource protection, and limitation of impervious surface cover.

Challenges

Flooding is the primary challenge in Plainville. The Pequabuck and Quinnipiac Rivers both pass through the town; of the two, the Pequabuck poses the greater flooding risk. At one time flooding from the Pequabuck would divide the town, flooding a bridge on Washington Street and thus rendering the northwest section of town inaccessible. Now, access to the northwest is secured via Northwest Drive, which provides a connection between Rtes 10 and 177. The river still floods several other areas, including a strip of homes on Robert Street Extension. Although the area floods regularly, and informal plans are known, there is no written evacuation plan for the street.

The town's wastewater treatment plant is also subject to flooding, although on a less regular basis. Although according to a 1980 FEMA flood study the plant is constructed above the 100 year flood elevation, the plant still floods during extreme conditions. The gravity-operated plant was built in the 1940s, and its location is non-negotiable.

Even slight flooding can cause backups in Plainville's sewer and storm water systems. This has been the case for some time, and was the subject of a Comprehensive Drainage Study completed in May of 1975. While the report's findings are still valid, the solutions proposed for alleviating the situation have always been prohibitively expensive, and have not been implemented.

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. In the event that shelters are required for winter storms or other events, the town has two Red Cross approved shelters.

Current Mitigation and Response Activities

- Plainville has the toughest floodplain regulations of any town in the region. The regs specifically disallow "any use requiring substantial investment in a structure and permanent equipment that could be damaged by flooding," including residential and commercial uses.
- The town is actively pursuing new methods of storm water management to minimize system back-ups associated with flooding. In November 2009 they hired a consultant to review their Land Use Regulations and Ordinances with an eye toward reorganizing them, removing "impediments and barriers to appropriate site development design relating to the management of storm water, including storm water quality," and creating incentives and/or requirements for LID techniques.
- The town participates in DEMHS Region 3 and follows its Regional Emergency Support Plan.
- The town's evacuation plan, last updated in August 2009 and scheduled for future updates at regular intervals as required by DEMHS, is included in the Emergency Operations Plan.
- The town participates in the State's Reverse-911 system, implemented in November 2009.

- Police notify residents of flood-prone areas (such as Robert Street Extension) of possible flooding to give them time to evacuate. (As of November, 2009, the town is using the statewide reverse-911 system for this process.)
- The town participates in the National Flood Insurance Program, and one of its Repetitive Loss Properties has been mitigated: the former Sullivan Foundry at 28 N Washington St. has been demolished and removed.
- The two Red Cross approved shelters in town are located at the Linden Street and Middle Schools.

Goals, Objectives, and Strategies

Objective 1: Update and formalize existing plans

	Strategy	Priority	Lead	Hazard
S1	Develop a formal evacuation plan for the Robert Street Extension area, and include it in the EOP	High	Emergency Management	Flooding
S2	Update the 1975 Comprehensive Drainage Study with cost/benefit analyses and an eye toward implmentation	High	Technical Services	Flooding
S3	Revise the subdivision plan/zoning code to include requirements and incentives for low-impact development	High	Planning	Flooding

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

Objective 2: Increase town capacity to plan for and simulate hazard impacts

	Strategy	Priority	Lead	Hazard
S1	Develop GIS capacity to assist in emergency planning and response	Medium	Planning	All

Objective 3: Improve critical infrastructure and ensure access to critical facilities

	Strategy	Priority	Lead	Hazard
S1	Improve bridges identified as needing repair through the bridge and dam inspection program.	High	Public Works	Flooding

Objective 4: Enable residents to better help themselves through preparedness education

	Strategy	Priority	Lead	Hazard
S1	Develop & distribute a pamphlet about household preparedness for natural hazards	High	Emergency Management	All
S2	Post pamphlet and evacuation plan on town website	High	Emergency Management, Staff	All
S3	Encourage preparedness workshops in schools	High	Emergency Management, Schools	All

Objective 5: 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	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	Technical Services	Flooding
S4	Continue to assist homeowners with amendments to NFIP maps as necessary	High	Technical Services	Flooding

Contributors

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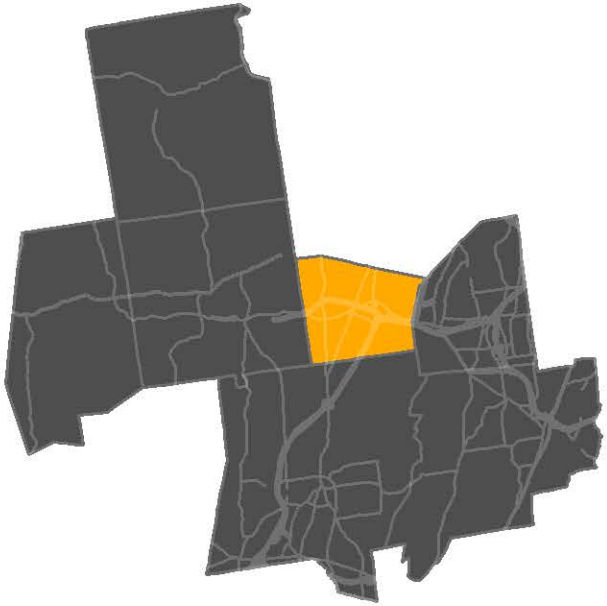
Flood Zones & Critical Facilities

Plainville



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: Plainville

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 10 square miles and contains 263 census blocks. The region contains over 6 thousand households and has a total population of 16,135 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 6,520 buildings in the region with a total building replacement value (excluding contents) of 1,606 million dollars (2006 dollars). Approximately 89.46% of the buildings (and 67.50% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

Hazus estimates that there are 6,520 buildings in the region which have an aggregate total replacement value of 1,606 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	1,084,179	67.5%
Commercial	313,181	19.5%
Industrial	162,583	10.1%
Agricultural	2,541	0.2%
Religion	24,464	1.5%
Government	3,548	0.2%
Education	15,739	1.0%
Total	**1,606,235**	**100.00%**

Table 2

Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure ($1000)	Percent of Total
Residential	550,911	63.1%
Commercial	191,093	21.9%
Industrial	106,949	12.3%
Agricultural	1,070	0.1%
Religion	12,199	1.4%
Government	2,160	0.2%
Education	8,222	0.9%
Total	**872,604**	**100.00%**

Essential Facility Inventory

For essential facilities, there are no hospitals in the region with a total bed capacity of no beds.
There are 9 schools, 1 fire stations, 1 police stations and no 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 138 buildings will be at least moderately damaged. This is over 29% of the total number of buildings in the scenario. There are an estimated 48 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	0	0.00	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	6	4.35	9	6.52	33	23.91	42	30.43	48	34.78
Total	**0**		**6**		**9**		**33**		**42**		**48**	

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	0	0.00
Masonry	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Steel	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Wood	0	0.00	6	4.35	9	6.52	33	23.91	42	30.43	48	34.78

Essential Facility Damage

Before the flood analyzed in this scenario, the region had 0 hospital beds available for use. On the day of the scenario flood event, the model estimates that 0 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	1	0	0
Hospitals	0	0	0	0
Police Stations	1	1	0	1
Schools	9	1	0	1

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 5,000 tons of debris will be generated. Of the total amount, Finishes comprises 53% of the total, Structure comprises 27% of the total. If the debris tonnage is converted into an estimated number of truckloads, it will require 200 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 638 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 1,621 people (out of a total population of 16,135) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the flood is 94.64 million dollars, which represents 10.85 % 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 94.16 million dollars. 1% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 36.29% 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	20.78	7.78	7.42	0.87	36.84
	Content	13.51	18.66	16.84	4.67	53.68
	Inventory	0.00	0.25	3.38	0.01	3.64
	Subtotal	**34.29**	**26.68**	**27.64**	**5.55**	**94.16**
Business Interruption						
	Income	0.03	0.02	0.00	0.00	0.05
	Relocation	0.01	0.13	0.00	0.01	0.14
	Rental Income	0.01	0.01	0.00	0.00	0.02
	Wage	0.01	0.09	0.00	0.17	0.27
	Subtotal	**0.06**	**0.25**	**0.00**	**0.18**	**0.48**
ALL	**Total**	**34.35**	**26.93**	**27.64**	**5.73**	**94.64**

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	16,135	1,084,179	522,056	1,606,235
Total	16,135	1,084,179	522,056	1,606,235
Total Study Region	16,135	1,084,179	522,056	1,606,235