

Appendix A

Plan Adoption, Planning Process & Public Participation

Appendix A-0

Plan Adoption



TOWN OF GREENWICH

Office of First Selectman (203) 622-7710 Fax (203) 622-3793
Town Hall • 101 Field Point Road • Greenwich, CT 06830
E-Mail: ptesei@greenwichct.org

Peter J. Tesei
First Selectman

The Town of Greenwich Resolution Adopting 2016-2021 South Western Region Natural Hazard Mitigation Plan Update

WHEREAS, the Town of Greenwich Board of Selectman recognizes the threats that natural hazards pose to people and property within the Town of Greenwich; and

WHEREAS, the Town of Greenwich, in collaboration with the Western Connecticut Council of Governments (WESTCOG), has prepared a multi-hazard mitigation plan, hereby known as the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update has identified mitigation goals and actions to reduce or eliminate long-term risk to people and property from the impacts of future hazards and disasters that affect the Town of Greenwich and the region; and

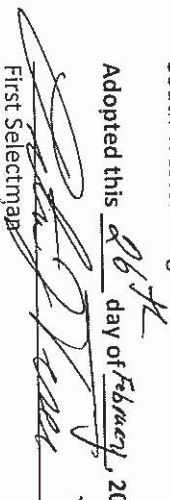
WHEREAS, public and committee meetings were held between August 14, 2013 and October 8, 2015 regarding development and review of the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update; and

WHEREAS, the Federal Emergency Management Agency/Department Homeland Security has approved the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update, on condition of local adoption, enabling the Town of Greenwich to apply for Hazard Mitigation Grant funding; and

WHEREAS, adoption by the Town of Greenwich Board of Selectmen demonstrates their commitment to hazard mitigation and achieving the goals outlined in the Town of Greenwich's section of the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update.

NOW THEREFORE, BE IT RESOLVED, that the Town of Greenwich Board of Selectmen hereby adopts the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update.

Adopted this 26th day of February, 2016 by the Board of Selectman of Greenwich, Connecticut


First Selectman

IN WITNESS WHEREOF, the undersigned has affixed his/her signature and the corporate seal of the Town of Greenwich this 26th day of February, 2016.


Town Clerk

Name of Chief Elected Official: Peter J. Tesei, First Selectman

TOWN OF NEW CANAAN

TOWN HALL, 77 MAIN STREET
NEW CANAAN, CT 06840

ROBERT E. MALLOZZI III
FIRST SELECTMAN

TEL: (203) 594-3000
FAX: (203) 594-3123

The Town of New Canaan Resolution Adopting 2016-2021 South Western Region Natural Hazard Mitigation Plan Update

WHEREAS, the Town of New Canaan Board of Selectman recognizes the threats that natural hazards pose to people and property within the Town of New Canaan; and

WHEREAS, the Town of New Canaan, in collaboration with the Western Connecticut Council of Governments (WESTCOG), has prepared a multi-hazard mitigation plan, hereby known as the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update has identified mitigation goals and actions to reduce or eliminate long-term risk to people and property from the impacts of future hazards and disasters that affect the Town of New Canaan and the region; and

WHEREAS, public and committee meetings were held between August 14, 2013 and October 8, 2015 regarding development and review of the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update; and

WHEREAS, the Federal Emergency Management Agency/Department Homeland Security has approved the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update, on condition of local adoption, enabling the Town of New Canaan to apply for Hazard Mitigation Grant funding; and

WHEREAS, adoption by the Town of New Canaan Board of Selectmen demonstrates their commitment to hazard mitigation and achieving the goals outlined in the Town of New Canaan's section of the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update.

NOW THEREFORE, BE IT RESOLVED, that the Town of New Canaan Board of Selectmen hereby adopts the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update.

Adopted this 9th day of February, 2016 by the Board of Selectman of New Canaan, Connecticut


Robert E. Mallozzi III, First Selectman

IN WITNESS WHEREOF, the undersigned has affixed his/her signature and the corporate seal of the Town of New Canaan this 22nd day of Feb., 2016.


Town Clerk



29TH BOARD OF REPRESENTATIVES CITY OF STAMFORD

President
RANDALL M. SKIGEN
Clerk of the Board
ANNIE M. SUMMERVILLE

Majority Leader
ELAINE MITCHELL
Minority Leader
MARY L. FEDELI

RESOLUTION NO. 3781 ADOPTING THE 2016-2021 SOUTH WESTERN REGION NATURAL HAZARD MITIGATION PLAN UPDATE

WHEREAS, the City of Stamford Board of Representatives recognizes the threats that natural hazards pose to people and property within the City of Stamford; and

WHEREAS, the City of Stamford, in collaboration with the Western Connecticut Council of Governments (WESTCOG), has prepared a multi-hazard mitigation plan, hereby known as the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update has identified mitigation goals and actions to reduce or eliminate long-term risk to people and property from the impacts of future hazards and disasters that affect the City of Stamford and the region; and

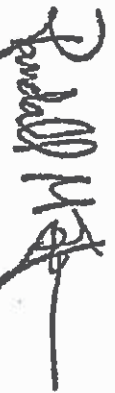
WHEREAS, public and committee meetings were held between August 14, 2013 and October 8, 2015 regarding development and review of the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update; and

WHEREAS, the Federal Emergency Management Agency/Department Homeland Security has approved the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update, on condition of local adoption, enabling the City of Stamford to apply for Hazard Mitigation Grant funding; and

WHEREAS, adoption by the City of Stamford Board of Representatives demonstrates their commitment to hazard mitigation and achieving the goals outlined in the City of Stamford's section of the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update.

NOW THEREFORE, BE IT RESOLVED, that the City of Stamford Board of Representatives hereby adopts the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update.

This resolution was approved on the Consent Agenda at the regular monthly meeting of the 29th Board of Representatives held on Monday, March 7, 2016.



Randall M. Skigen, President
29th Board of Representatives



Annie M. Summerville, Clerk
29th Board of Representatives

cc:

Mayor David Martin

Michael Handler, Director of Administration

Ernie Orgera, Director of Operations

Thomas Madden, Director of Economic Development

Ted Jankowski, Director of Public Safety

Kathryn Emmett, Esq., Director of Legal Affairs

Donna Loglisci, Town and City Clerk

Jay Fountain, Director of OPM

✓ Karen Cammarota, Grants Administration



WESTPORT CONNECTICUT
PATRICIA H. STRAUSS
TOWN CLERK

CERTIFIED RESOLUTION

I, RUTH M. CAVAYERO, the duly qualified and acting Deputy Town Clerk of the Town of Westport, Connecticut, appointed and qualified according to law and having custody of the seal of the Town of Westport, **HEREBY CERTIFY** that the following is a true and correct copy of a resolution duly adopted at a regular meeting of the Board of Selectmen, held on Wednesday, February 24, 2016, and that said resolution has not been amended, rescinded or revoked and remains in full force and effect.

WHEREAS, the Town of Westport Board of Selectmen recognizes the threats that natural hazards pose to people and property within the Town of Westport; and

WHEREAS, the Town of Westport, in collaboration with the Western Connecticut Council of Governments (WESTCOG), has prepared a multi-hazard mitigation plan, hereby known as the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update has identified mitigation goals and actions to reduce or eliminate long-term risk to people and property from the impacts of future hazards and disasters that affect the Town of Westport and the region; and

WHEREAS, public and committee meetings were held between August 14, 2013 and October 8, 2015 regarding development and review of the 2016-2021 South Western Region Natural Hazard Mitigation; and

WHEREAS, the Federal Emergency Management Agency/Department Homeland Security has approved the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update, on condition of local adoption, enabling the Town of Westport to apply for Hazard Mitigation Grant funding; and

WHEREAS, adoption by the Town of Westport Board of Selectmen demonstrates their commitment to hazard mitigation and achieving the goals outlined in the Town of Westport's section of the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update.

NOW, THEREFORE, BE IT RESOLVED that the Town of Westport Board of Selectmen hereby adopts the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update.

Adopted this 24th day of February, 2016 by the Board of Selectmen of Westport, Connecticut



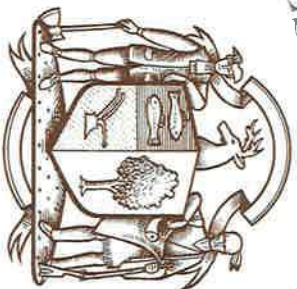
James S. Marpe
First Selectman

IN WITNESS WHEREOF, the undersigned has affixed her signature and the municipal seal of the Town of Westport this 25th day of February, 2016.



Ruth M. Cavayero,
Deputy Town Clerk

Seal



TOWN of WESTON, CONNECTICUT

Incorporated 1787

Office of the First Selectman

The Town of Weston Resolution Adopting 2016-2021 South Western Region Natural Hazard Mitigation Plan Update

WHEREAS, the Town of Weston Board of Selectman recognizes the threats that natural hazards pose to people and property within the Town of Weston; and

WHEREAS, the Town of Weston, in collaboration with the Western Connecticut Council of Governments (WESTCOG), has prepared a multi-hazard mitigation plan, hereby known as the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update has identified mitigation goals and actions to reduce or eliminate long-term risk to people and property from the impacts of future hazards and disasters that affect the Town of Weston and the region; and

WHEREAS, public and committee meetings were held between August 14, 2013 and October 8, 2015 regarding development and review of the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update; and

WHEREAS, the Federal Emergency Management Agency/Department Homeland Security has approved the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update, on condition of local adoption, enabling the Town of Weston to apply for Hazard Mitigation Grant funding; and

WHEREAS, adoption by the Town of Weston Board of Selectmen demonstrates their commitment to hazard mitigation and achieving the goals outlined in the Town of Weston's section of the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update.

NOW THEREFORE, BE IT RESOLVED, that the Town of Weston Board of Selectmen hereby adopts the 2016-2021 South Western Region Natural Hazard Mitigation Plan Update.

Adopted this 25TH day of Feb., 2016 by the Board of Selectman of Weston, Connecticut

Nina Daniel
First Selectman

IN WITNESS WHEREOF, the undersigned has affixed his/her signature and the corporate seal of the Town of Weston this 4th day of March 2016.

Aida Jones, Asst.
Town Clerk

Name of Chief Elected Official: Nina Daniel, First Selectman



Appendix A-1

MEMORANDUMS OF AGREEMENT (MOA)

MEMORANDUM OF AGREEMENT FOR A MULTI-JURISDICTIONAL PLANNING TEAM REGARDING THE EXECUTION OF THE 2016 PRE-DISASTER MITIGATION PLAN UPDATE

I. PURPOSE

A Memorandum of Agreement (MOA) is hereby executed between the Participating Jurisdictions in the 2016 Pre-disaster Mitigation Plan Update, hereafter referred to as "2016 PDM Update". The parties to and "Participating Jurisdictions" in this MOA are as follows:

- South Western Regional Planning Agency (SWRPA)
- Town of Darien
- Town of Greenwich
- Town of New Canaan
- City of Norwalk
- City of Stamford
- Town of Weston
- Town of Westport
- Town of Wilton

The purpose of this MOA is to establish commitment from and a cooperative working relationship between all Participating Jurisdictions in the development and implementation of the 2016 PDM Update. In addition, the intent of this MOA is to ensure that the multi-jurisdictional hazard mitigation plan is developed in accordance with Title 44 of the Federal Code of Regulations (CFR) Part 201.6; that the planning process is conducted in an open manner involving community stakeholders; that it is consistent with each participating jurisdiction's policies, programs and authorities; and it is an accurate reflection of the community's values.

This MOA sets out the responsibilities of all parties. The MOA identifies the work to be performed by each Participating Jurisdiction. Planning tasks, schedules, and finished products are identified in the Work Program and Schedule. The plan created as a result of this MOA will be presented to the legislative body (City Council and/or Board of Selectmen) of each participating jurisdiction for adoption.

II. BACKGROUND

Mitigation plans form the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage. The Participating Jurisdictions in a mitigation planning process would benefit by:

- Identifying cost effective actions for risk reduction;
- Directing resources on the greatest risks and vulnerabilities;
- Building partnerships by involving people, organizations, and businesses;
- Increasing education and awareness of hazards and risk;

- Aligning risk reduction with other community objectives; and
- Providing eligibility to receive federal hazard mitigation grant funding.

SWRPA has received a grant from the Federal Emergency Management Agency (FEMA) to prepare a multi-jurisdictional hazard mitigation plan in accordance with FEMA requirements at 44 C.F.R. § 201.6.

III. PLANNING TEAM RESPONSIBILITIES

SWRPA will act as the Lead Agency, and will assign a Project Lead to the Planning Team for the 2016 PDM Update. The Participating Jurisdictions authorize the Lead Agency to manage and facilitate the planning process in accordance with the Work Program and Schedule. The Participating Jurisdictions understand that representatives must engage in the following planning process, as more fully described in the *Local Mitigation Planning Handbook* (FEMA, 2013), including, but not limited to:

- Develop the Work Program and Schedule with the Planning Team ;
- Organize and attend regular meetings of the Planning Team;
- Assist the Planning Team with developing and conducting an outreach strategy to involve other planning team members, stakeholders, and the public, as appropriate to represent their Jurisdiction;
- Identify community resources available to support the planning effort, including meeting spaces, facilitators, and media outlets;
- Provide data and feedback to develop the risk assessment and mitigation strategy, including a specific mitigation action plan for their Jurisdiction;
- Submit the draft plan to their Jurisdiction for review;
- Work with the Planning Team to incorporate all their Jurisdiction's comments into the draft plan;
- Submit the draft plan to their respective governing body for consideration and adoption; and
- After adoption, coordinate a process to monitor, evaluate, and work toward plan implementation.

IV. PLANNING TEAM

The following points of contact are authorized on behalf of the governing bodies to participate as members of the Planning Team for the 2016 PDM Update:

Lead Party:

SWRPA

Mr. Robert Sachnin, AICP
Regional Planner
203-316-5190

Sachnin@swrpa.org

Participating Jurisdictions:

Town of Darien

Mr. Marc McEwan

Emergency Management Director/Deputy Fire Marshal
203-656-7345

mmcewan@darienct.gov

Add:

*Mr. Jeremy Gansberg
Director of Planning & Zoning
203-656-7354
jgansberg@darienct.gov*

Town of Greenwich

Mr. Dan Warzoha

Emergency Management Director
203-622-2222

emoc@greenwichct.org

Ms. Katie Deluca

Deputy Director of Planning and Zoning
203-622-7894

Katie.Deluca@greenwichct.org

Town of New Canaan

Mr. Steve Bury

Engineer
203-594-3057

Steve.bury@newcanaanct.gov

Mr. Tiger Mann

Senior Engineer
203-594-3056

Tiger.Mann@newcanaanct.gov

City of Norwalk

Chief Denis McCarthy

Fire Chief/Emergency Management Director
203-854-0230

dmccarthy@Norwalkct.org

Ms. Michele Deluca

Deputy Emergency Management Director
203-854-0238

MDeLuca@norwalkct.org

City of Stamford

Captain Thomas Lombardo

Police Captain/Emergency Management Director
203-977-5900

tlombardo@ci.stamford.ct.us

Ms. Erin McKenna

Senior Planner
203-977-4715

EMcKenna@ci.stamford.ct.us

Town of Weston

Sergeant Mike Ferullo

Police Sergeant/Emergency Management Director
203-222-2600

mferullo@westonpolice.com

Town of Westport

Chief Andrew Kingsbury

Fire Chief/
Emergency Management Director
203-341-5001

akingsbury@westportct.gov

Ms. Michele Perillie

Planner
203-341-1076

mperillie@westportct.gov

Ms. Alicia Mozian

Conservation Director
203-341-1170

amozian@westportct.gov

Town of Wilton

Deputy Chief Mark Amatrudo

Deputy Fire Chief/Emergency Management Director
203-834-6246

mark.amatrudo@wiltonct.org

V. MOA IMPLEMENTATION

This MOA will be in effect from the date of signature by all parties, will remain in effect through the duration of the planning process, and will terminate after adoption of the final FEMA-approved mitigation plan by all Participating Jurisdictions, or five years after FEMA approval, whichever is earlier. It may be terminated prior to that time for any Participating Jurisdiction by giving sixty days written notice. This MOA is to be implemented through the attached Work Program and Schedule, and any addendums that describe specific activities, programs, and projects, and if necessary, funding by separate instrument.

SWRPA:

Signature: _____

Date: 5/28/14

Name: _____

Floyd Lipp

Title: _____

Executive Director

Town of Darien:

Signature: _____

Date: 7/20/14

Name: _____

Jayne Stevenson

Title: _____

First Selectman

IV. ATTACHMENTS

1. Draft Work Program; May, 2014
2. Project Schedule

V. MOA IMPLEMENTATION

This MOA will be in effect from the date of signature by all parties, will remain in effect through the duration of the planning process, and will terminate after adoption of the final FEMA-approved mitigation plan by all Participating Jurisdictions, or five years after FEMA approval, whichever is earlier. It may be terminated prior to that time for any Participating Jurisdiction by giving sixty days written notice. This MOA is to be implemented through the attached Work Program and Schedule, and any addendums that describe specific activities, programs, and projects, and if necessary, funding by separate instrument.

SWRPA:

Signature: _____

Date: 6-30-2014

Name: _____

Title: _____

Town of Greenwich:

Signature: _____

Date: 06/30/2014

Name: _____

Title: _____

IV. ATTACHMENTS

1. Draft Work Program; May, 2014
2. Project Schedule

V. MOA IMPLEMENTATION

This MOA will be in effect from the date of signature by all parties, will remain in effect through the duration of the planning process, and will terminate after adoption of the final FEMA-approved mitigation plan by all Participating Jurisdictions, or five years after FEMA approval, whichever is earlier. It may be terminated prior to that time for any Participating Jurisdiction by giving sixty days written notice. This MOA is to be implemented through the attached Work Program and Schedule, and any addendums that describe specific activities, programs, and projects, and if necessary, funding by separate instrument.

SWRPA:

Signature: 

Date: 5/28/14

Name: _____

Floyd Lyle

Title: _____

Executive Director

Town of New Canaan:

Signature: 

Date: 6/3/14

Name: _____

Alex S. Mellich

Title: _____

First Selectman

IV. ATTACHMENTS

1. Draft Work Program; May, 2014
2. Project Schedule

V. MOA IMPLEMENTATION

This MOA will be in effect from the date of signature by all parties, will remain in effect through the duration of the planning process, and will terminate after adoption of the final FEMA-approved mitigation plan by all Participating Jurisdictions, or five years after FEMA approval, whichever is earlier. It may be terminated prior to that time for any Participating Jurisdiction by giving sixty days written notice. This MOA is to be implemented through the attached Work Program and Schedule, and any addendums that describe specific activities, programs, and projects, and if necessary, funding by separate instrument.

SWRPA:

Signature: 

Date: 5/28/14

Name: _____

Floyd Lupp

Title: _____

Executive Director

City of Norwalk:

Signature: 

Date: 6/3/14

Name: _____

Harry W. Pilling

Title: _____

Mayor

IV. ATTACHMENTS

1. Draft Work Program; May, 2014
2. Project Schedule

V. MOA IMPLEMENTATION

This MOA will be in effect from the date of signature by all parties, will remain in effect through the duration of the planning process, and will terminate after adoption of the final FEMA-approved mitigation plan by all Participating Jurisdictions, or five years after FEMA approval, whichever is earlier. It may be terminated prior to that time for any Participating Jurisdiction by giving sixty days written notice. This MOA is to be implemented through the attached Work Program and Schedule, and any addendums that describe specific activities, programs, and projects, and if necessary, funding by separate instrument.

SWRPA:

Signature: _____

Date: 5/28/14

Name: _____

Floyd Lipp

Title: _____

Executive Director

City of Stamford:

Signature: _____

Date: June 17, 2014

Name: _____

David Martin

Title: _____

Mayor

IV. ATTACHMENTS

1. Draft Work Program; May, 2014
2. Project Schedule

Approved as to Form
Corporation Counsel

By AN

Date 6-12-14

V. MOA IMPLEMENTATION

This MOA will be in effect from the date of signature by all parties, will remain in effect through the duration of the planning process, and will terminate after adoption of the final FEMA-approved mitigation plan by all Participating Jurisdictions, or five years after FEMA approval, whichever is earlier. It may be terminated prior to that time for any Participating Jurisdiction by giving sixty days written notice. This MOA is to be implemented through the attached Work Program and Schedule, and any addendums that describe specific activities, programs, and projects, and if necessary, funding by separate instrument.

SWRPA:

Signature: _____

Date: 5/28/14

Name: _____

Floyd Lepp

Title: _____

Executive Director

Town of Weston:

Signature: _____

Date: 6/24/14

Name: _____

Gale Weinstein

Title: _____

First Selectman

IV. ATTACHMENTS

1. Draft Work Program; May, 2014
2. Project Schedule

V. MOA IMPLEMENTATION

This MOA will be in effect from the date of signature by all parties, will remain in effect through the duration of the planning process, and will terminate after adoption of the final FEMA-approved mitigation plan by all Participating Jurisdictions, or five years after FEMA approval, whichever is earlier. It may be terminated prior to that time for any Participating Jurisdiction by giving sixty days written notice. This MOA is to be implemented through the attached Work Program and Schedule, and any addendums that describe specific activities, programs, and projects, and if necessary, funding by separate instrument.

SWRPA:

Signature: _____

Date: 5/28/14

Name: _____

Floyd Lyle

Title: _____

Executive Director

Town of Westport:

Signature: _____

Date: 6/26/14

Name: _____

James S. Marpe

Title: _____

First Selectman

IV. ATTACHMENTS

1. Draft Work Program; May, 2014
2. Project Schedule

V. MOA IMPLEMENTATION

This MOA will be in effect from the date of signature by all parties, will remain in effect through the duration of the planning process, and will terminate after adoption of the final FEMA-approved mitigation plan by all Participating Jurisdictions, or five years after FEMA approval, whichever is earlier. It may be terminated prior to that time for any Participating Jurisdiction by giving sixty days written notice. This MOA is to be implemented through the attached Work Program and Schedule, and any addendums that describe specific activities, programs, and projects, and if necessary, funding by separate instrument.

SWRPA:

Signature: _____

Date: 5-29-2014

Name: _____

Title: _____

Town of Wilton:

Signature: _____

Date: 5/29/2014

Name: _____

Title: _____

IV. ATTACHMENTS

1. Draft Work Program; May, 2014
2. Project Schedule

Appendix A-2

Project Development Meetings

Appendix A-2.1

Regional Meetings



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901

203 316 5190 PHONE
203 316 4995 FAX
WWW.SWRPA.ORG

To: Pre-disaster Mitigation Plan Update Advisory Committee

From: Robert Sachnin, Regional Planner

Date: July 31, 2013

Re: PDM Advisory Committee Meeting – **9:00 AM to 11:00 AM Wednesday, August 14, 2013**

As part of the 2011 Pre-disaster Mitigation Plan, the Advisory Committee agreed to meet regularly to review progress towards implementation. The first meeting following the approval of the Pre-disaster Mitigation Plan is scheduled for Wednesday, August 14, 2013 from 9:00 AM to 11:00 AM. At this meeting we would like to take the time to discuss how the plan has worked for your community and any changes or additions you would like to see as we prepare to update the plan in 2014. The meeting will be held in the SWRPA conference room on the third floor of the Stamford Government Center, 888 Washington Blvd., Stamford, CT. If for any reason you are unable to attend please consider sending an alternative representative or calling in using the information below. The agenda for the meeting follows.

Pre-disaster Mitigation Plan Update

Advisory Committee

Wednesday August 14, 2013

9:00 AM – 11:00 AM

1. Introduction
2. PDM and Update Overview
3. Importance and Roles of the Advisory Committee
4. Review of 2011 Pre-disaster Mitigation Strategy Document
 - a. Strategies Implemented
 - b. What would you like to see included, enhanced, or removed
5. Hurricane Sandy, Irene, Winter Storm Nemo, etc
 - a. Impacts, Strategies Implemented
 - b. Lessons Learned and Safeguards moving forward

6. Next Steps

7. Next Meeting Date – Mid January, 2014

Please bring a copy of the 2011 Pre-disaster Mitigation Strategy Document (PDM) so that we may discuss the summary of implemented strategies for your town, as well as any updates that need to be made to the summary document. The PDM can be accessed electronically via the link provided below:

<http://www.swirpa.org/default.aspx?Regional=268>

Conference Call Instructions:

Conference Dial-in Number: **(218) 339-4600**

Participant Access Code: 500386#

PDM Update Advisory Committee
August 14, 2013
9:00 AM - SWRPA Conference Room

Name:	Title:	Municipality:	E-mail and Phone:
THOMAS LOMBARDO	EMD	STAMFORD	TLOMBARDO@CLISTAMFORD.CT.US
ANDREW KINGSBURY	EMD	WESTPORT	AKINGSBURY@WESTPORTCT.GOV
Alicia Mozian	Conservation Director	Westport	amozian@westportct.gov
michele DeLuca	Dept EMD	Norwalk	mdeluca@norwalkct.org
Nicole Davis	Regional Planner	SWRPA	davis@swrpa.org
Rob Schuhin	Regional Planner	SWRPA	schuhin@swrpa.org
Floyd Lipp	ED	SWRPA	lipp@swrpa.org

Pre-disaster Mitigation Plan Update
Advisory Committee
Wednesday August 14, 2013
9:00 AM – 11:00 AM

Present: Norwalk: Ms. Michele DeLuca; Stamford: Captain Thomas Lombardo; Westport: Chief Andrew Kingsbury, Ms. Alicia Mozian, Ms. Michelle Perillie; SWRPA: Dr. Floyd Lapp, Ms. Nicole Davis, Mr. Robert Sachnin

1. Introduction

Mr. Sachnin began the meeting by welcoming and thanking everyone for attending. He then asked the group to introduce themselves.

2. PDM and Update Overview

Mr. Sachnin indicated that the purpose of the Pre-disaster Mitigation Plan (PDM) was to develop strategies to reduce the loss of life and property as a result of natural disasters. He added that while work on the plan update is slated to begin during the spring of 2014, this meeting would function as part of an annual plan assessment, as well as to provide opportunities for the committee to provide feedback regarding plan implementation and proposed changes.

Mr. Sachnin also discussed how the PDM is required in order to remain eligible for FEMA funding assistance, and emphasized the importance of municipal participation in plan development.

3. Importance and Roles of the Advisory Committee

Following the said importance of municipal participation in plan development, Mr. Sachnin discussed the role of the advisory committee as a coordination liaison for planning efforts between the SWRPA Region and the respective municipalities. He added the importance of committee members in ensuring all potential mitigation projects for the municipality are included in the plan.

Ms. Davis added that formal correspondence would be sent to the First Selectman for each municipality requesting the designation of an appointee(s) to PDM plan development, with the suggested addition of the benefit of having multiple departments being involved in the plan development. The timing of such correspondence is anticipated around January of 2014. Dr. Lapp recommended the group consider scheduling a future presentation with the MPO discussing the PDM.

The plan update is expected to be in the Spring of 2014

4. Review of 2011 Pre-disaster Mitigation Strategy Document

Mr. Sachnin began by informing the group that Climate Change and Evacuation Planning were elements that will be incorporated into the plan update.

a. Strategies Implemented

No major comments were received regarding current strategies, as most of the discussion was focused on additional strategies, particularly as they relate to recent major storms. Since the adoption of the plan a number of homes have been elevated and Westport was currently seeking a grant to install a new generator for the police department.

b. What would you like to see included, enhanced, or removed

The group agreed flooding was a major concern for the region and its municipalities, including flooding from rain events, storm surge, and possible dam failure.

Ms. Deluca commented on the importance of planning and zoning department involvement in the PDM, adding department staff has recognized such importance in the wake of recent storms. A discussion on the land use and zoning aspects ensued and included regulations associated raising building elevations and the importance of freeboard, prevention of building within flood zones, potential enacting of stream clearing ordinances, and Community Rating System (CRS) activity ordinances. Chief Kingsbury added that Westport was exploring the possibility of land acquisition of a coastal parcel(s) for pre-disaster mitigation purposes, to which Ms. Davis replied that Darien had successfully acquired coastal property for that very reason.

The group felt dam safety at the larger dams was sufficient, Chief Kingsbury added that Westport is in frequent contact with area dam owners and are kept briefed on all dam related aspects. There was general consensus that smaller, privately owned dams that may not be regularly monitored dams could pose a potential flooding risk. Some concern was expressed regarding the lack of staffing for dam safety at the state level. The group agreed that dam safety is an important regional and local concern, which would be reflected in the PDM update.

5. Hurricane Sandy, Irene, Winter Storm Nemo, etc

a. Impacts, Strategies Implemented

Committee members discussed recent storm impacts, including coastal and inland flooding, tree damage and the effects on area utilities. Mr. Sachnin stressed the importance of evacuation planning, citing that while there are many hazards, each hazard has the potential to create many effects, which could vary depending on the geographic location relative to the hazard. He used coastal flooding as an example, adding that inundated coastal areas could trigger an influx of evacuees and corresponding effects/hazards to other inland areas/municipalities that were not inundated with water.

b. Lessons Learned and Safeguards moving forward

Ms. Mozian asked if there were any lessons learned in light of recent major storms in regards to after action reviews. Ms. Deluca referred to the previous nights informal Hurricane Preparedness discussion, citing preparedness response

and lessons learned, as well as the agreement of REPT members to create more topic-driven meetings. Dr. Lapp expressed concern over the length of time between recent storms and corresponding after action reviews. Dr. Lapp, Captain Lombardo and Chief Kingsbury also highlighted the need for improvement in regards to utility response, expressing a need to get utility companies more involved in both prevention and recovery efforts. It was suggested the greater emphasis be put on including utilities as part of the PDM update.

6. Next Steps

Mr. Sachnin informed the group that a questionnaire would be sent to committee members to more formally document and solicit existing mitigation strategies implemented, the success of the current PDM, as well as proposed changes to incorporate into the next PDM update.



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To: 2016 Pre-disaster Mitigation Plan (PDM) Update Advisory Committee

From: Robert Sachnin, Regional Planner

Date: June 10, 2014

Re: PDM Advisory Committee Meeting –2:00 pm to 3:30 pm; Thursday, June 12, 2014

The first meeting of the PDM Advisory Committee will be held in the SWRPA conference room, located on the third floor of the Stamford Government Center, 888 Washington Blvd., Stamford, CT. If for any reason you are unable to attend, please see the conference call instructions below.

The agenda for the meeting follows:

PDM Advisory Committee Meeting
Thursday, June 12, 2014
2:00 pm to 3:30 pm

- 1. Introductions**
- 2. Project Overview**
 - a. Purpose of PDM
 - b. Structural Components of Document
 - c. Importance and Roles of the Advisory Committee
- 3. Administrative and Financial**
 - a. Project Funding Breakdown
 - b. Project Schedule
 - i. Key Dates
 - ii. Local Approval Process Confirmation
- 4. Review of 2011 PDM and Inclusion into 2016 PDM**
 - a. Mitigation Strategies
 - i. Status Update of Implemented Strategies (if any)
 - ii. Difficulties Encountered (if any)
 - iii. Suggestions for New or Re-prioritized Mitigation Strategies (particularly in light of recent storm events)
 - b. Outreach Strategy

- i. Advisory Committee: who else should be participating?
- ii. Stakeholders: identify key stakeholders to keep involved in plan development
- iii. General Public: identify methods and formats to communicate and solicit input from the general public
- c. Capabilities Assessment
- d. Risk Assessment
 - i. Principal Hazard Types and Subsequent Municipal Impacts
 - ii. Critical Municipal Assets/Infrastructure
 - iii. Vulnerable Areas

5. Next Steps

- a. Meet with individual municipalities to discuss in more detail:
 - i. Community Capabilities
 - ii. Critical Assets/Infrastructure
 - iii. Vulnerable Areas and Corresponding Hazard Types
 - iv. Old and New Mitigation Strategies
- b. Next Advisory Committee Meeting: target date: TBD
 - i. Recap Individual Meeting Results
 - ii. Finalize and Document Outreach Plan
 - iii. Identify Regional:
 - 1. Capabilities
 - 2. Assets/Infrastructure
 - 3. Vulnerable Areas
 - 4. Old and New Mitigation Strategies

6. Handouts

- a. Mitigation Planning Team Worksheet
- b. Capability Assessment Worksheet
- c. National Flood Insurance Program (NFIP) Worksheet
- d. Safe Growth Audit

Please note the new conference call number below. I look forward to a great discussion with you all!

Conference Call Instructions:

Note the New Number!!!

Conference Dial-in Number: (712) 432-0360

Participant Access Code: 500386#

2:00 pm - SWRPA Conference Room

Notes:



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**Pre-disaster Mitigation Plan (PDM) Update
Advisory Committee Meeting
Thursday, June 12, 2014
2:00 pm to 3:30 pm
Meeting Summary**

Participants: Mr. Robert Sachnin, SWRPA; Dr. Floyd Lapp, SWRPA; Ms. Patty Payne (SWRPA); Mr. Marc McEwan (Darien); Mr. Dan Warzoha (Greenwich); Ms. Denise Savageau (Greenwich); Ms. Katie DeLuca (Greenwich); Chief Jack Hennessey (New Canaan); *Chief Denis McCarthy (Norwalk, via phone)*; *Ms. Michele DeLuca (Norwalk, via phone)*; Ms. Erin McKenna (Stamford); *Chief Andrew Kingsbury (Westport, via Phone)*; Ms. Michele Perillie (Westport)

1. Introductions

The meeting began at 2:06 pm with Mr. Sachnin welcoming the group; he thanked them for their time and commitment to project efforts. The group participants then introduced themselves.

2. Project Overview

Mr. Sachnin briefed the group on the purpose of the PDM Update, stating the objective of such efforts were to identify and plan for potential disasters prior an actual event, including mitigation measures to help reduce overall risk and vulnerability. He explained the plan is valid for five years, with the current plan expiring in June of 2016. Mr. Sachnin added that an adopted PDM is paramount for municipalities to remain eligible for many types of FEMA funding, and emphasized the importance of project efforts to ensure the new plan is adopted prior to expiration of the existing 2011 PDM to avoid any lapses in funding eligibility.

Lastly, Mr. Sachnin provided an overview of the structural components contained within the PDM, citing the new FEMA PDM guidance and briefly referencing the changes. PDM components included: determining the area and resources; building the planning team; creating a public outreach strategy; reviewing community capabilities; conducting a risk assessment; developing/updating mitigation strategies; plan maintenance; review and adoption of PDM; and creating safe and resilient communities.

3. Administrative and Financial

Ms. Payne informed the group of the administrative and financial aspects of the project, and noted that an in-kind match was required. The total project funding is \$55,600 and requires a non-federal match of \$13,900. She explained that during the development of the 2011 PDM Update, a standard rate of \$34/hour was used and based on the overall average municipal salary. Ms. Savageau stated that the hourly rate seemed low, and inquired about the incorporation of the burden-fringe-overhead (BFO) into the equation. Mr. Sachnin then added that he would inquire with the State of Connecticut and the Federal Emergency Management Agency (FEMA) as to an appropriate and compliant method for calculating hourly rates. He suggested that the group keep track of the hours in the interim, and pending

an answer from the state/FEMA, a specific rate(s) would then be implemented. The group agreed that this was sufficient course of action.

Mr. Sachnin next discussed to the short-term project schedule, outlining the aggressive schedule and key milestones. He again explained that the current 2011 PDM was set to expire in June of 2016, noting that this correlated with the start of hurricane season. Given this timing, he stressed the importance of having the 2016 PDM Update adopted in advance of this deadline, adding that a failure to do so could result in a window of time where the region would be ineligible for certain types of FEMA funding. He explained that the schedule also factored in state, FEMA, and public review, as well as the incorporation of any revisions. He highlighted importance of the advisory committee in helping to achieve the schedule goals, encouraging their ongoing and active participation.

Local Approval Process

Mr. Sachnin briefed the group on the PDM plan adoption process, explaining the importance of outlining the municipal steps and associated timing involved in plan adoption. He further explained that gaining an understanding of the process as early as possible was critical in order to ensure a seamless transition from 2011 to 2016 Plan Updates. This would help to avoid risking a window of time with no adopted plan and subsequent ineligibility of certain FEMA funding.

Ms. Katie DeLuca, Ms. Savageau, and Mr. Warzoha alluded to the schedule, explaining that in Greenwich, the adoption process would involve the Board of Selectmen, Planning and Zoning, as well as the Representative Town Meeting, which could take some time. Mr. McEwan also stated a minimum of six to eight weeks time required for Darien. Mr. Sachnin acknowledged the processes and associated timing, stating the importance and need for a transparent PDM process, which could help avoid delays to the greatest extent possible. He further explained by keeping FEMA, the State, stakeholders, the general public, as well as the municipalities informed of items in real time, he hoped that any issues that may arise could be handled and resolved expeditiously, avoiding “surprises” down the road.

4. Review of 2011 PDM and Inclusion into 2016 PDM

Mitigation Strategies

The conversation transitioned to mitigation strategy updates from the 2011 PDM update and the identification of new mitigation strategies. Mr. Sachnin opened up a general dialogue, but also explained that mitigation strategies, along with the risk assessment components, would be discussed in more detail during upcoming meetings with the individual municipalities. He added that following the individual municipal meetings, the advisory committee would reconvene and recap the results, as well as formulating mitigation strategies and risk assessment components for the region as a whole.

Ms. Katie DeLuca asked if the failure to identify mitigation strategies in the report could negatively impact consideration for certain grant applications, to which Mr. Sachnin stated difficulty in answering such a question without project specifics. He explained that there were no limits to the amount of mitigation strategies identified, and suggested all of the municipalities work diligently with SWRPA to ensure all potential vulnerabilities are identified and contained with 2016 PDM Update. Ms. Savageau also recommended in certain instances that impact vast geographies, such as flooding, to incorporate less site specific information and develop a mitigation strategy that includes all flood-prone areas. Mr. Sachnin also added that when writing grant letters of support for projects that do not have identified mitigation strategies in the PDM but are consistent with the PDM vision, he

acknowledges the consistency of such grant efforts and highlights their relation objectives and strategies outlined within the PDM.

Chief Hennessey explained to the group that dam safety was a growing concern in New Canaan, adding that two principal concerns were the lack of monitoring of certain dams upstream of New Canaan, in New York, as well the release of water from upstream dams in conjunction with rain events, leading to flooding issues. He suggested that better coordination and communication with the towns and/or Westchester County could be of great benefit in mitigating some riverine flooding exacerbated by the upstream New York dams.

Mr. Warzoha spoke to CL&P's locations of critical infrastructure along areas vulnerable to flooding, and inquired as to the progress regarding the construction of a dike around a power station in Greenwich.

Outreach Strategy

Mr. Sachnin informed the group that as part of the PDM process, an effective outreach strategy must be identified and documented within the PDM. He explained that there exists three tiers of PDM involvement, including the Advisory Committee/Planning Team, Stakeholders, and the General Public. The Advisory Committee/Planning Team serve as the steering committee for the project, providing input and guiding project development in a manner that yields the greatest benefits to the region and its municipalities. He added that this group will also serve as the liaisons and primary points of contact between the region and its municipalities. Stakeholders were identified as those persons, groups or institutions that can affect or be affected by the PDM and its courses of action. Mr. Sachnin added that unlike the Advisory Committee, stakeholders would be involved in the planning process and kept abreast of activities, providing input and comments as necessary, but less involved in the day-to-day operations taken on by the Advisory Committee. Lastly, Mr. Sachnin identified the third tier, which was the general public. He explained the PDM was a transparent process, and a significant component of the PDM Update would involve updating stakeholder sand the general public, as well as soliciting comments and feedback from them. Ms. Savageau also spoke to the importance of public participation as part of the PDM process.

Mr. Sachnin asked the group who else should be at the table, and in what role (stakeholder verses advisory committee) and distributed Worksheet 2.1: Mitigation Planning Team Worksheet. A discussed then ensued, the results of which are captured in the Table 1 below:

Table 1: 2016 PDM Update List of Additional Advisory Committee and Stakeholder Members

Federal Entities	Suggested Point of Contact(s)	Advisory Committee	Stakeholder
Federal Emergency Management Agency (FEMA)	TBD	X	
United States Army Corps of Engineers (USACOE)	TBD		X
Office of Congressman Jim Himes	Rachel Kelly		X
National Oceanic and Atmospheric Administration	TBD		X

(NOAA)			
State/Regional Entities			
Housatonic Valley Council of Elected Officials (HVCEO)	Dave Hannon	X	
Connecticut Division of Emergency Management and Homeland Security (DEMHS)	Tessa Gutowski, Robert Kenny, Chris Ackley	X	
The Nature Conservancy (TNC)	Adam Whelchel		X
Connecticut Department of Transportation (CTDOT)	TBD		X
Connecticut Department of Energy and Environmental Protection (DEEP)	Karen Michaels		X
Metro-North Railroad (MNR)	TBD		X
Connecticut Light and Power (CL&P)	TBD		X
American Red Cross (ARC)	Kristen Binau		X

*Note: Additional Advisory Committee and Stakeholders will be identified on an ongoing, as needed basis
Identified stakeholders may move into Advisory Committee roles and vice versa, depending on project needs

Finally, the group engaged in a conversation regarding outreach strategies, which would serve both to inform stakeholders and the general public about the PDM Update, as well as to obtain key information from them for inclusion into the PDM development process. Mr. Sachnin suggested utilizing The Natural Conservancy’s Hazards and Community Resilience Workshops, which actively engages the municipalities, stakeholders and the general public alike in a forum that discusses risk and vulnerabilities, commonalities, plans as well as mitigation, including actions to take and next steps. Given the size of the region, he suggested at least three workshops grouped based on comparable geographies and hazards, as follows (in no particular order): Workshop #1: Greenwich and Stamford; Workshop #2: Darien, Norwalk, Westport; Workshop #3: New Canaan, Wilton, Westport. Ms. Savageau highlighted the importance of having individual municipal public meetings/workshops, and the group agreed to conduct both formats of meetings/workshops. Mr. Sachnin also suggested including the Housatonic Valley Council of Elected Officials (HVCEO), citing that a merger is scheduled between SWRPA and HVCEO, as well as commonalities with respect to certain hazard types and geographies.

Capabilities Assessment

The group next discussed the capabilities assessment, where Mr. Sachnin explained that as part of the PDM process, the region and its municipalities must individually describe their capabilities with respect to reducing long-term vulnerability through mitigation planning. He referred the group to Worksheets: 4.1: *Capability Assessment Worksheet*; 4.2: *Safe Growth Audit*; 4.3: *National Flood Insurance Program (NFIP) Worksheet*. He asked that the group leverage other municipal departments to assist in the completion of the worksheets, adding that he would also be reaching out to the municipal planning directors for additional assistance. He asked the group complete the worksheets by July 18, 2014.

Risk Assessment

Mr. Sachnin briefed the group on the risk assessment process and associated components for the region and each municipality, including: principal hazard types and associated impacts; critical assets/infrastructure; as well as vulnerable areas. Ms. Savageau expressed the importance of focusing on all natural hazards, not just water resources, to which the group agreed. Lastly, Mr. Sachnin reiterated that specific risk assessment components would be discussed in greater detail during individual meetings with the participating municipalities. He stated an intention to conduct all meetings by July 18, so that all results could be discussed at the next Advisory Committee meeting, along with the development of regional risk components.

With no further questions or comments from the Advisory Committee, the meeting concluded at 3:05 pm.

5. Action Items

- Each municipality will complete Worksheet 4.1: Capability Assessment Worksheet by close of business, July 18, 2014.
- Each municipality will complete Worksheet 4.2: Safe Growth Audit, by close of business, July 18, 2014.
- Each municipality will complete Worksheet 4.3: National Flood Insurance Program (NFIP) Worksheet by close of business, July 18, 2014.
- SWRPA will coordinate and conduct individual meetings with all municipalities to discuss the risk assessment and mitigation strategies, to be completed by close of business, July 18, 2014.
- Next Advisory Committee meeting: late July/early August



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To: 2016 Hazard Mitigation Plan (HMP) Update Advisory Committee

From: Robert Sachnin, Senior Regional Planner; Mike Towle, Regional Planner

Date: September 17, 2014

Re: HMP Advisory Committee Meeting RE: The Nature Conservancy Hazard Mitigation Workshops –1:30 pm to 3:30 pm; Monday, September 22, 2014

The meeting of the HMP (formerly PDM) Advisory Committee will be held in the SWRPA conference room, located on the third floor of the Stamford Government Center, 888 Washington Blvd., Stamford, CT, at 1:30 pm. If for any reason you are unable to attend, please see the conference call instructions below.

The agenda for the meeting follows:

HMP Advisory Committee Meeting
Monday, September 22, 2014
1:30 pm to 3:30 pm

- 1. HMP Updates and Announcements**
 - a. Municipal Hazards and Assets Data – COMPLETED!
 - i. A special thank you to all the municipal representatives for your efforts towards this task!
 - b. 2016 Mitigation Strategies and Prioritization
- 2. TNC HMP Workshop Logistics**
 - a. Geography of “Cluster” Workshops
 - i. Partnering Municipalities
 - ii. Locations of Workshops
 - b. Invitation List
 - i. Confirm recipients/participants
 - ii. Confirm methodology for invitation invites
 - c. Timeline: Target: late October/early November – try not to exceed mid-November
- 3. Confirm Workshop Structure**
 - a. Overview
 - i. 1-day, 4-5 hours (can do something like 9am to 1 pm)
 - ii. Each municipality gets a table, or two tables? (this way they are treated individually)
 - b. Structural Components

Conference Call Instructions: *Note the New Number!!!!*****

Conference Dial-in Number: (760) 569-0100 Participant Access Code: 1012804#

2016 Pre-disaster Mitigation/Hazard Mitigation Plan Update Meeting

September 22, 2014

Time: 1:30 pm - 3:30 pm, Location: SWRPA and via phone

Name:	Municipality/Agency	Initial:	Notes:
Robert Sachnin	SWRPA	L.S.	
Mike Towle	SWRPA	M.T.	
Adam Wheelchel	TNC	A.W.	
Amanda Ryan	TNC	AR	
Dan Warzoha	Greenwich	W	via phone
Captain Tom Lombardo	Stamford	T	via phone
Erin McKenna	Stamford	EM	
Karen Commarota	Stamford		
Liz Rodriguez	Stamford		
Maria Goncalves-Vazquez	Stamford	J.G.	
Emily Provonsha	Stamford-DSSD	EP	
Marc McEwan	Darien		
Chief Kanterman	Wilton		
Steve Kleppin	New Canaan	SK	via phone
Michelle Perillie	Westport	MP	via phone
Alicia Mozian	Westport	AM	via phone
Tracy Kulilkowski	Weston	TK	via phone
Other Attendees:			
	Sweet's, Flapdopp	FL	
	Greenwich DMS		
Michelle Dolan	Norwalk	MD	via phone
Mike Rosack	Norwalk	MR	via phone
Mike Viniello	Westport/Wilton/Weston	MV	via phone
Rob Moray	Wilton	RM	via phone
Dave Thompson	Greenwich	DT	via phone
Frank Polise	Greenwich	FP	via phone

Alicia & Michelle
 Dave Thompson
 Frank Vazquez
 Michelle
 Dan Warzoha



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**Pre-disaster Mitigation Plan (PDM) Update
Advisory Committee Meeting
Monday, September 22, 2014
1:30 pm to 3:30 pm
Meeting Summary**

Participants (21): Mr. Robert Sachnin (SWRPA); Mr. Mike Towle (SWRPA); Dr. Adam Whelchel (TNC); Ms. Amanda Ryan (TNC); *Mr. Dan Warzoha (Greenwich via phone)*; Captain Tom Lombardo (Stamford); Ms. Erin McKenna (Stamford); Ms. Maria Goncalves-Vazquez (Stamford); Ms. Emily Provonsha (Stamford-DSSD); *Mr. Steve Kleppin (New Canaan via phone)*; *Ms. Michelle Perillie (Westport via phone)*; *Ms. Alicia Moztan (Westport via phone)*; *Ms. Tracy Kulikowski (Weston via phone)*; Ms. Denise Savageau (Greenwich); Dr. Floyd Lapp (SWRPA); *Ms. Michele Deluca (Norwalk via phone)*; *Mr. Mike Yeosock (Norwalk via phone)*; *Mr. Mike Vincelli (Westport/Wilton/ Weston via phone)*; *Mr. Bob Nerney (Wilton via phone)*; *Mr. Dave Thompson (Greenwich via phone)*; *Mr. Frank Petise (Greenwich via phone)*;

1. Introductions

The meeting began at 1:30 pm with Mr. Sachnin welcoming the group; he thanked them for their time and commitment to project efforts.

2. HMP Updates and Announcements

Mr. Sachnin declares that the collection and mapping of municipal asset data for the region is now complete. The asset data will be utilized for mapping in the HMP update and will be an input for disaster simulations in HAZUS. Mr. Sachnin then thanked the municipal representatives for their efforts towards the task.

Mr. Towle presented the current status and time line for the HMP plan. Current in-house projects include drafting 22 hazard summaries for each of the 8 towns, documenting the planning process, generating figures and maps, and preparing data for HAZUS simulations. Future goals for this month include planning the TNC HMP workshops. Until the end of the 2014 year SWRPA will be chipping away at the report. Current deadline for the first draft is late January to early February, to allow ample time for state and federal review, including any necessary edits. Mr. Sachnin explained the importance of allocating as much time for review as possible, since the existing plan is set to expire in June 2016, and without an approved plan in place, the municipalities would be ineligible for certain types of FEMA funding assistance. He added that the Department of Emergency Management and Homeland Security (DEMHS) had taken over the responsibility of reviewing HMP's for the State of Connecticut from the Department of Energy and Environmental Protection (DEEP), citing that until this new working relationship with FEMA was cultivated, the best way for the region to safeguard itself was to leave as much time for review as possible, hence the aggressive draft report deadline.

3. TNC HMP Workshop Logistics

Mr. Sachnin facilitated the discussion with respect to the potential clustering of towns for the TNC HMP workshops. He stated that in accordance with previous correspondence, including the meeting invitation, this meeting was the opportunity for each municipality to steer the direction of the workshops and the corresponding municipal clustering.

A healthy discussion ensued regarding potential cluster scenarios. Mr. Sachnin polled the participants of New Canaan, Wilton, and Weston about clustering those three municipalities, citing they were the inland communities, and likely had similar concerns with respect to hazard mitigation, including the lack of a coast line and associated storm surge. The municipal representatives agreed that clustering such municipalities made sense, and had no objections. Captain Lombardo noted that Greenwich and Stamford share similar obstacles, and have a strong history of shared services and working relationships. Ms. Savageau also highlighted the geographic similarities between Greenwich and Stamford, including the shared water supply and rivers. Mr. Warzoha and Mr. Thompson both stated agreement with Captain Lombardo. The municipalities of Norwalk, and Westport agreed to form a cluster with themselves and Darien. In summary, the following clusters were decided by the group:

- a. Greenwich, Stamford
- b. New Canaan, Wilton, Weston
- c. Darien, Norwalk, Westport

Dr. Lapp asked Dr. Wheelchel if there was concern regarding too many participants at a cluster workshop, to which Dr. Wheelchel agreed, and stated previous concern regarding the effectiveness of an overcrowded workshop. The group agreed to revisit the number of HMP workshops, should the need arise due to overcrowding. Mr. Sachnin stated this would be dependent on the number of confirmed invitees, and added that additional assistance would likely be required to help SWRPA and TNC facilitate and execute additional workshops. The participants tentatively agreed to provide additional assistance with workshops, should the total number exceed three. Additional information regarding workshop structure and size can be found in item #4 below.

Mr. Sachnin then facilitated a discussion on how to handle invitations. He proposed an initial idea to target members of the advisory committee, key stakeholders, public leaders, and a few open public seats. The group unanimously agreed with that option. Ms. McKenna recommended that invitations should be from the CEOs and Ms. Savageau recommended that the Emergency Director should also sign off on these invites to give them more weight. Ms. Savageau recommend bring in two other stakeholders: USGS, because they manage the stream gauges and will be inputting tide gauges in the future and also ConDOT to be represented for at least one of the workshops. Ms. Savageau also recommended that public invite letters and targeted letters should be treated as different types of letters. The group also agreed that the few open public seats at the workshop should be determined by RSVP.

4. Confirm Workshop Structure

Mr. Sachnin and Dr. Wheelchel proposed a 1 day workshop ~4-5 hours in length. The group unanimously agreed. Mr. Sachnin then introduced Dr. Wheelchel and Ms. Ryan with the TNC. Dr. Wheelchel walked the group through the structure of the TNC hazard workshops and key objectives, including the following:

- Understand connections between ongoing community issues, hazard, and local planning/mitigation processes in your municipality and region.

- Evaluate strengths and vulnerabilities of residents, infrastructure, and natural resources to hazards.
- Identify and map vulnerabilities and assets, as well as develop infrastructure, societal and natural resource risk profile.
- Develop and prioritize actions for your municipality, local organization, businesses, private citizens, neighborhoods, and community groups.
- Identify opportunities to advance actions that further reduce the impact of hazards and increase resilience in your municipality and the region.

Dr. Wheelchel identified that 8-10 people per table as the ideal size, with a facilitator for each table. This raised a concern that the workshops might become too large to manage in three workshops. Dr. Wheelchel recommended monitoring the invitee lists and to modify the workshop clusters or even do a 4th or 5th workshop if needed. Ms. Savageau also suggested invited members from MTA Metro-North and the Connecticut Department of Transportation to at least one workshop, considering the transportation infrastructure which transects the region.

5. Action Items

- SWRPA will provide a draft invitee list for each municipality. Each municipality will finalize the list and transmit to SWRPA.
- Once Invitee lists are finalized, SWRPA will provide a draft invitation to each municipality, who will then work with their respective CEOs and Emergency Management Directors (EMDs) for appropriate dissemination. SWRPA will provide municipalities with any assistance, where required.
- Agreed on 3 or 4 workshops, but the need for an addition workshop(s) or re-clustering is largely contingent on the amount of participants/invitees for each municipality.
- Anticipated dates for the TNC hazard workshops are somewhere in early November.

Meeting ended at 3:30 pm

12/22/14 - Demeths Regional 2 1:30-3:00pm

<u>Name</u>	<u>Title</u>	<u>Agency</u>
Rob Suchman	Sr. Regional Planner	WECOG/Summit
Chris Ackerly	RI Planner Demeths Regional	
Robert Kennedy	Reg EIM Coord.	CT DESPP-DEMHS

Appendix A-2.2

Darien Meetings



SOUTH WESTERN REGIONAL PLANNING AGENCY

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To: 2016 PDM/HMP Darien Appointees, Other Darien Municipal Staff

From: Robert Sachnin, Regional Planner

Date: July 15, 2014

Re: PDM/HMP Darien Individual Meeting, Monday July 21, 2014 – Time: 11:00 am

The individual Town of Darien PDM/HMP meeting will commence the morning of Monday, July 21, 2014 at 11:00 am.

The agenda for the meeting follows:

- 1. Introductions and Overview**
- 2. Status of Worksheets (handed out at Kick-off Meeting, and June Planning Directors Meeting)**
 - a. 4.1: Capability Assessment Worksheet
 - b. 4.2: Safe Growth Audit
 - c. 4.3: National Flood Insurance Program (NFIP) Worksheet
- 3. List of Stakeholders and Outreach Strategy – very brief discussion**
 - a. Stakeholder List – anyone missing?
 - i. Attachment #1: List of Stakeholders and Additional Advisory Committee Members
 - b. Outreach Strategy
 - i. Striking the balance between Municipal “Cluster” Workshops and Individual Municipal Meetings
- 4. Darien Hazards**
 - a. Group will complete Attachment #2: Hazards Summary Worksheet
- 5. Darien: Critical Assets and Infrastructure**
 - a. Group will confirm municipal assets and infrastructure, for inclusion in PDM/HMP report, adding/deleting elements, based on Figures 1 and 2
- 6. Mitigation Strategies**
 - a. Existing Mitigation Strategies

- i. Group will complete Attachment #3: Update to 2011 Mitigation Strategies
- b. New Mitigation Strategies (time permitting)
- i. Group will complete Attachment #4 “New Mitigation Strategies”

7. Attachments

Tables/Worksheets

1. Stakeholder List
2. Hazards Summary Worksheet
3. Update to 2011 Mitigation Strategies
4. New Mitigation Strategies

Figures

5. Figure 1: Darien Municipal Resources
6. Figure 2: Darien Community Resources

2016 Pre-disaster Mitigation/Hazard Mitigation Plan Update Meeting

July 21, 2014

Time: 11 am - 1 pm

, Location: Darien Town Hall

[illegible]



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2016 Hazard Mitigation Plan (HMP) Update (formerly Pre-Disaster Mitigation Plan or PDM) Town of Darien Individual Meeting: Darien Town Hall, Monday July 21, 2014–11:00am to 1:00 pm

Present: Mr. Jeremy Ginsberg, Mr. Edward Gentle, Mr. Darren Oustafine, Mr. Marc McEwan, Mr. Robert Sachnin

1. Introduction

Mr. Sachnin began the meeting at 11:02 am, and the group introduced themselves.

2. Status of worksheets

a. The group next discussed the status of FEMA worksheets “4.1: Capabilities Assessment Worksheet”, “4.2 Safe Growth Audit”, and “4.3: National Flood Insurance Program (NFIP) Worksheet. The worksheets come from FEMA’s March 2013 “Local Mitigation Planning Handbook” and were previously handed out during the June 12th kick-off meeting and June 17th planning directors meeting. There was no update as to progress, however Mr. Ginsberg asked that Mr. Sachnin resend the documents so that the town could complete them, to which Mr. Sachnin agreed. Mr. Sachnin then asked that the town representatives complete them as expeditiously as possible, and to the best of their respective abilities.

3. List of Stakeholders and Outreach Strategy

a. Stakeholder List:

The group next discussed the list of stakeholders, which was developed and vetted with the Regional Advisory Group at the June 12th kick-off meeting. Mr. Sachnin proceeded by asking if any Darien-specific stakeholders should be added to the list, highlighting that such entities would be frequently kept abreast of plan development activities, including the option to comment on the plan itself, but would not steer plan development like the advisory committee. The group unanimously agreed to add the following Darien stakeholders: Aquarion Water Company, Yankee Gas. Mr. Sachnin noted the additions and explained that the aforementioned stakeholders would be added to the stakeholder distribution list for all future HMP correspondence, once the appropriate contact information was provided by the Town of Darien.

b. Outreach Strategy:

Mr. Sachnin provided an overview of the proposed outreach strategy, including at least three “cluster” workshops with The Nature Conservancy (TNC), which would then be supplemented with individual municipal public meetings to allow the public to comment on the draft report development. Lastly, a third round of public involvement and outreach would be conducted, allowing each municipality, its stakeholders and general public to comment on the plan in advance of a final submission to the State of Connecticut and FEMA.

Mr. Sachnin further explained the TNC meetings, although clustered to contain multiple municipalities, would provide clear and distinctly separate opportunities for each municipality to identify vulnerable areas and assets, in conjunction with identifying mitigation strategies and techniques to help make each municipality more resilient to the hazards they individually identified. Results of the workshops would be incorporated into

the Hazard Mitigation Plan Update, to the extent possible and applicable. Lastly, Mr. Sachnin added that specific details would be sorted out well in advance of the meeting, recommending a call between the HMP advisory committee and TNC to ensure that the region and its municipalities receive workshops most suited to their needs.

Mr. Sachnin also explained that the individual municipal meetings provided another forum to provide the public an opportunity to review and comment on project work, and meeting specifics would be agreed upon with the Town of Darien to ensure effective communication and the greatest possible turnout by the public. The final individual meeting would be conducted following any changes to a draft document, in order to provide one last opportunity for public review and comment before the final report is submitted to the state and FEMA.

The group unanimously agreed that this was a sufficient strategy to pursue, and would explore the individual meeting specifics as the time approached.

4. Darien Hazards

The group next discussed natural hazards of concern in Darien, which led to the completion of Worksheet 5.1: Hazards Summary Worksheet. This worksheet also comes from FEMA's March 2013 Local Mitigation Planning Handbook. Darien results from Worksheet 5.1 will be incorporated into the Hazard Mitigation Plan.

5. Darien Critical Assets and Infrastructure

A review of the existing Town of Darien assets and infrastructure was conducted using GIS data. Such data was previously obtained through extensive work with Darien and outreach to other applicable stakeholders. The participants reviewed two maps depicting municipal and community assets. Mr. Oustafine noted that three pump stations were missing from the municipal resource maps, including: Noroton Bay, Stony Brook, Five Mile River Road Pump Stations. He marked the locations on the map sample, and the group agreed that it was worthwhile to illustrate these locations on the map. Mr. Sachnin agreed to add the three pump stations to Darien's Assets and Infrastructure map products, for purposes of the HMP/PDM.

6. Mitigation Strategies

The group next reviewed the 2011 mitigation strategies line by line, indicating updates and any progress made. A decision was made to identify and prioritize new 2016 strategies at a later meeting.

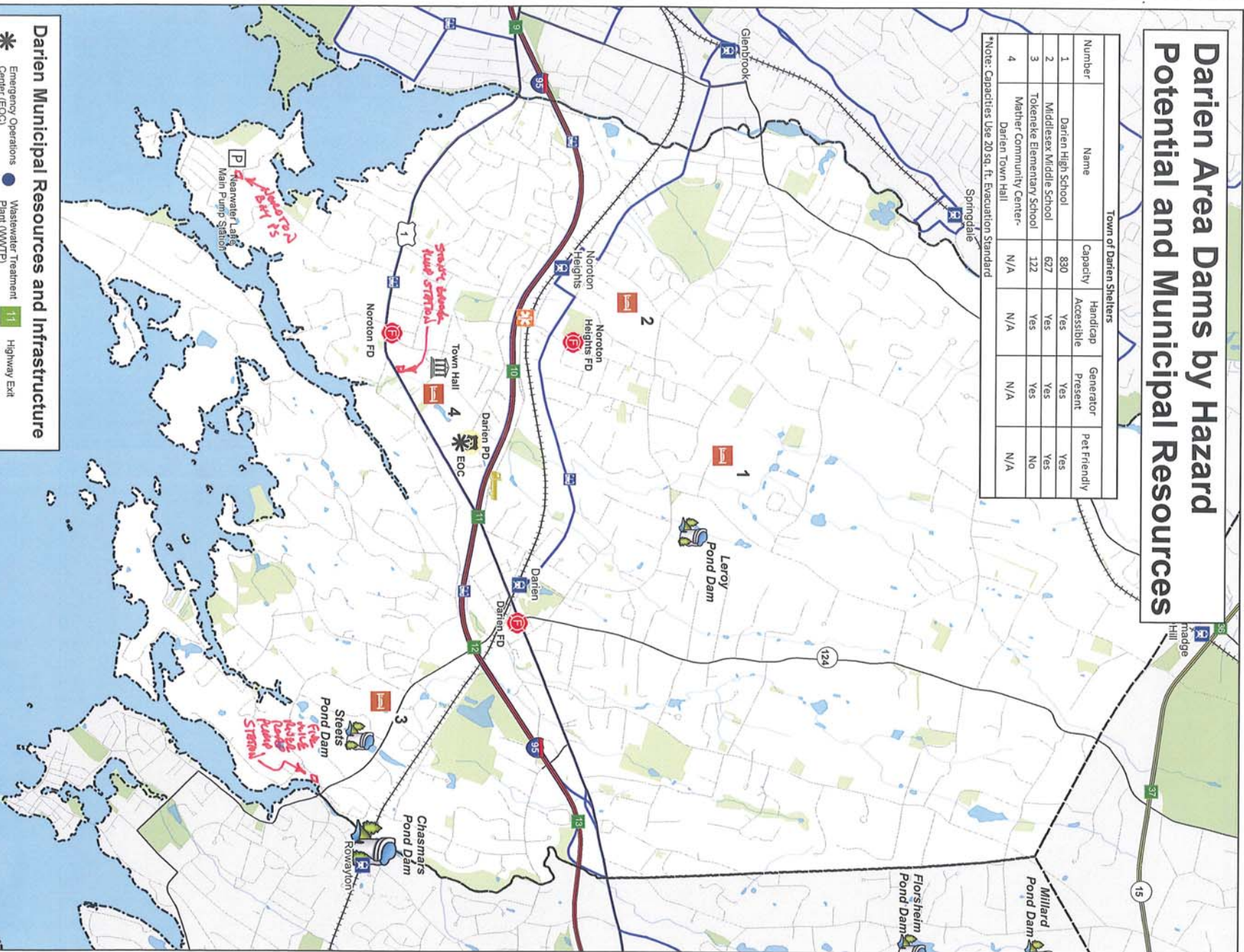
The meeting ended at 1 pm.

Darien Area Dams by Hazard Potential and Municipal Resources

Town of Darien Shelters					
Number	Name	Capacity	Handicap Accessible	Generator Present	Pet Friendly
1	Darien High School	830	Yes	Yes	Yes
2	Middlesex Middle School	627	Yes	Yes	Yes
3	Tokeneke Elementary School	122	Yes	Yes	No
4	Mather Community Center- Darien Town Hall	N/A	N/A	N/A	N/A

(Note: Capacities Use 20 sq. ft. Evacuation Standard)

*Note: Capacities Use 20 sq. ft. Evacuation Standard



Darien Municipal Resources and Infrastructure

- Emergency Operations Center (EOC)
- Police
- Fire
- Emergency Medical Services (EMS)
- Shelter
- Public Works (DPW)
- Open Space
- Wastewater Treatment Plant (WWTP)
- Town Hall
- Pump Station
- Railroad Station
- Railroad
- Bus Route
- Water
- Highway Exit
- Limited Access Road
- Interstate
- Local Road
- Municipal Boundary

- ### Area Dams (Class B or Higher)
- Class B - Significant Hazard Potential
 - Class C - High Hazard Potential (most extreme CT classification)

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SOUTHWESTERN REGIONAL PLANNING AGENCY

Disclaimer: This Map is for general planning purposes only.

Sources: Connecticut Department of Transportation; Connecticut Department of Environmental Protection; CT GEIS; Teledata; Southwestern Regional Planning Agency; Town of Darien

WESTERN CONNECTICUT COUNCIL OF GOVERNMENTS

888 Washington Boulevard, 3rd Floor, Stamford, CT 06901

Brookfield Office (203) 775-6256 – Stamford Office (203) 316-5190



DATE: December 5, 2014

TO: Darien HMP Advisory Committee and Staff

FROM: Rob Sachnin, Mike Towle

RE: Darien Individual Meeting: Friday December 19, 2014, 2:00 pm

Agenda: 12/19/14 Darien Individual HMP Meeting

Location: Darien Town Hall

1. **Updates and Announcements**
 - a. Proposed Draft Deadline
 - b. Public Comment Period and Associated Actions
 - c. Darien-specific Capabilities
2. **2016 Mitigation Strategies**
3. **Other**

Attachments:

1. Darien 2016 Mitigation Strategies
2. STAPLEE Reference Sheet
3. Darien Capabilities Text

2:00 PM - Darien

2:00 pm - 3:30 pm

[illegible]

Appendix A-2.3

Greenwich Meetings



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901
203 316 5190 PHONE
203 316 4995 FAX
www.swrpa.org

To: 2016 PDM/HMP Greenwich Appointees, Other Greenwich Municipal Staff

From: Robert Sachnin, Regional Planner

Date: July 3, 2014

Re: PDM/HMP Greenwich Individual Meeting, Friday July 11, 2014 – Time: 11:30 am

The individual Town of Greenwich PDM/HMP meeting will commence the morning of Friday, July 1, 2014 at 11:30 am.

The agenda for the meeting follows:

- 1. Introductions and Overview**
- 2. Status of Worksheets (handed out at Kick-off Meeting, and June Planning Directors Meeting)**
 - a. 4.1: Capability Assessment Worksheet
 - b. 4.2: Safe Growth Audit
 - c. 4.3: National Flood Insurance Program (NFIP) Worksheet
- 3. List of Stakeholders and Outreach Strategy – very brief discussion**
 - a. Stakeholder List – anyone missing?
 - i. Attachment #1: List of Stakeholders and Additional Advisory Committee Members
 - b. Outreach Strategy
 - i. Striking the balance between Municipal “Cluster” Workshops and Individual Municipal Meetings
- 4. Greenwich Hazards**
 - a. Group will complete Attachment #2: Hazards Summary Worksheet
- 5. Greenwich: Critical Assets and Infrastructure**
 - a. Group will confirm municipal assets and infrastructure, for inclusion in PDM/HMP report, adding/deleting elements, based on Figures 1 and 2
- 6. Mitigation Strategies**
 - a. Existing Mitigation Strategies

- i. Group will complete Attachment #3: Update to 2011 Mitigation Strategies
- b. New Mitigation Strategies (time permitting)
 - i. Group will complete Attachment #4 “New Mitigation Strategies”

7. Attachments

Tables/Worksheets

1. Stakeholder List
2. Hazards Summary Worksheet
3. Update to 2011 Mitigation Strategies
4. New Mitigation Strategies

Figures

5. Figure 1: Greenwich Community Resources
6. Figure 2: Greenwich Municipal Resources
7. Figure 3: Greenwich Housing Resources

2016 Pre-disaster Mitigation/Hazard Mitigation Plan Update Meeting

July 11, 2014

Time: 11:30 am - 2:15 pm

, Location: Greenwich Town Hall

[illegible]



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901
203 316 5190 PHONE
203 316 4995 FAX
WWW.SWRPA.ORG

**2016 Hazard Mitigation Plan (HMP) Update (formerly Pre-Disaster Mitigation Plan or PDM)
Town of Greenwich Individual Meeting: Greenwich Town Hall
Tuesday July 1, 2014 – 11:00 am to 1:00 pm**

Present: Ms. Amy Siebert, Ms. Katie DeLuca, Ms. Denise Savageau, Mr. Jim Michel, Mr. Robert Sachnin

1. Introduction

Mr. Sachnin began the meeting at 11:03 am, and introductions followed.

2. Status of worksheets

- a. The group next discussed the status of FEMA worksheets “4.1: Capabilities Assessment Worksheet”, “4.2 Safe Growth Audit”, and “4.3: National Flood Insurance Program (NFIP) Worksheet. The worksheets come from FEMA’s March 2013 “Local Mitigation Planning Handbook” and were previously handed out during the June 12th kick-off meeting. Ms. DeLuca indicated an intention to complete the worksheets, but asked Mr. Sachnin to resend the documents, which he agreed to do.

3. List of Stakeholders and Outreach Strategy

a. Stakeholder List:

The group next discussed the list of stakeholders, which was developed and vetted with the Regional Advisory Group at the June 12th kick-off meeting. Mr. Sachnin proceeded by asking if any Greenwich-specific stakeholders should be added to the list. A brief discussion regarding the role of stakeholders ensued. Key additions identified by the town representatives included: Greenwich Hospital, Nathaniel Witherell Nursing Home, Board of Education, Housing Authority, United Way, Connecticut Natural Gas, Aquarion, and the Greenwich Emergency Medical Service (GEMS). Mr. Sachnin asked the group to provide contact information for the aforementioned stakeholders, which will be added to the stakeholder distribution list for all future HMP correspondence.

b. Outreach Strategy:

Mr. Sachnin provided an overview of the proposed outreach strategy, which included at least three “cluster” workshops with The Nature Conservancy (TNC), which would then be supplemented with individual municipal public meetings to allow the public (and stakeholders) to comment on the draft report development. Lastly, a third round of public involvement and outreach would be conducted allowing each municipality and its general public to comment on the plan document prior to a final submission to the State of Connecticut and FEMA.

Mr. Sachnin further explained the TNC meetings, although clustered to contain multiple municipalities, would provide clear and distinctly separate opportunities for each municipality to identify vulnerable areas and assets, in conjunction with identifying mitigation strategies and techniques to help make each municipality more resilient to the hazards they individually identified. Results of the workshops would be incorporated into the Hazard Mitigation Plan Update, to the extent possible and applicable. He added that the individual municipal meetings provided another forum to provide the public an opportunity to review and comment on project work, and meeting specifics would be

agreed upon with the Town of Greenwich to ensure effective communication and the greatest possible turnout by the public. The final individual meeting would be conducted following any changes to a draft document, in order to provide one last opportunity for public review and comment before the final report is submitted to the state and FEMA.

4. Greenwich Hazards

The group unanimously agreed that this was a sufficient strategy to pursue.

The group next discussed natural hazards of concern in Greenwich, which led to the completion of Worksheet 5.1: Hazards Summary Worksheet. This worksheet also comes from FEMA's March 2013 Local Mitigation Planning Handbook. Greenwich results from Worksheet 5.1 will be incorporated into the Hazard Mitigation Plan.

5. Greenwich Critical Assets and Infrastructure

A review of the existing Town of Greenwich assets and infrastructure was conducted using GIS data previously obtained through extensive work with Greenwich and outreach to other applicable stakeholders. Mr. Sachnin emphasized that all assets and infrastructure discussed for HMP/PDM purposes would be made publically available, and cautioned the group to consider this when making decisions on what assets and critical infrastructure to map. Ms. Siebert noted some potential changes to a few area dams, one of which involved the classification. She agreed to follow up and provide any new information. Additional housing locations and corresponding information was also provided, including the need to clarify the grouping of "affordable" and "family" housing in the legend provided as part of the sample map used. The municipal representatives from Greenwich agreed to finalize the corrections by making up the sample maps, which will then be scanned and e-mailed to Mr. Sachnin to make appropriate corrections. The correct assets and infrastructure for the Town of Greenwich will then be mapped and included within the updated plan.

6. Mitigation Strategies

The group next reviewed the 2011 mitigation strategies line by line, indicating updates and any progress made. A few emergency management strategies were deferred until progress/results could be vetted with Mr. Warzoha. All participants agreed to identify and prioritize new 2016 mitigation strategies in a future meeting.

7. Other

The group briefly discussed the importance of planning in the hazard mitigation process. Ms. Siebert mentioned the potential benefits of having a regional hazard awareness week, which would convey important reminders of regional hazards and associated risks across the board to the public and municipalities alike. Ms. Savageau stressed the importance of intra and inter-municipal communication when planning for and addressing the impacts of hazards. Mr. Sachnin added that an important benefit of the HMP/PDM process was that it provides a forum to bring the necessary municipalities and their departments, as well as key stakeholders such as utilities, and the general public together to address hazard mitigation.

The meeting ended at 2:08 pm.



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901
203 316 5190 PHONE
203 316 4995 FAX
WWW.SWRPA.ORG

To: 2016 PDM/HMP Westport Appointees, Other Westport Municipal Staff

From: Rob Sachnin, Senior Regional Planner; Mike Towle, Regional Planner

Date: August 26, 2014

**Re: PDM/HMP Greenwich Individual Meeting: Part 2, Thursday August 28, 2014 –
Time 12:30 pm**

The individual Town of Greenwich PDM/HMP meeting will commence the afternoon of Thursday, August 28, 2014 at 12:30pm. The meeting will be located at Greenwich Town Hall.

The agenda for the meeting follows:

- 1. Updates and Announcements**
- 2. Overview of Existing Work Products**
 - a. Greenwich Asset Update
 - i. Town of Greenwich will provide SWRPA an update regarding critical town assets and infrastructure, for inclusion in HMP Update
 - b. Capability Assessment and Safe Growth Worksheets - Greenwich
- 3. Mitigation Strategies**
 - a. 2016 Mitigation Strategies
 - i. Group will identify and prioritize new 2016 mitigation strategies (where applicable)
 1. Will utilize the “STAPLEE” method
 2. Include associated goals, objectives and actions (where applicable)
 - ii. Group will reorganize and make appropriate edits to official 2016 mitigation strategy table, including:
 1. ensuring that all identified hazards have at least one mitigation action strategy
 2. there exists one action dealing with:
 - a. existing structures
 - b. new development
- 4. Attachments**
 - Tables/Worksheets**
 1. Greenwich Capability Assessment, Safe Growth Audit and NFIP
 2. Greenwich 2016 Mitigation Strategies

August 28, 2014

Time:

[illegible]



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901

203 316 5190 PHONE
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2016 Hazard Mitigation Plan (HMP) Update (formerly Pre-Disaster Mitigation Plan or PDM) Town of Greenwich Individual Meeting: Greenwich Town Hall, Thursday August 28, 2014 12:30 pm to 2:30 pm

Present: Ms. Denise Savageau, Ms. Katie DeLuca, Ms. Amy Siebert, Mr. James Michel, Mr. Robert Sachnin, Mr. Mike Towle

1. Updates and Announcements

Mr. Sachnin began the meeting at 12:30 pm and the group introduced themselves. Mr. Sachnin also gave a summary on a recent presentation for the COAST tool which provides cost benefit results on a parcel level for flood mitigation strategies.

2. Overview of Existing Work Products

The group unanimously agreed to include a “Severe Storm” category to account for weather natural hazards not already covered in the Hazard Summary report

a. Greenwich Asset Update

Mr. Sachnin and Mr. Towle inquired as to the status of Greenwich Town Assets, which Mr. Sachnin indicated would be used for project mapping, and to some extent, for inclusion into the HAZUS-MH risk assessment. Ms. Siebert explained that she had reached out to Greg Sullivan, Greenwich GIS Coordinator, to prepare a Greenwich inventory for SWRPA. SWRPA then agreed to contact Mr. Sullivan for a status update, indicating that the HAZUS risk assessment would be initiated in the near future.

b. Capability Assessment and Safe Growth Worksheets – Greenwich

In order to capitalize on the opportunity of having various town departments in one room, the group to discussed and populated the department specific Capability Assessment and Safe Growth Audit worksheets, which Ms. DeLuca had initially populated to the best of her abilities. Ms. Siebert confirmed that Greenwich has an EOC plan. With respect to the town taxing authority from the worksheets, the group stated that the only utility taxing authority is with the sewer system, since the remaining utilities such as gas and electric are private (not municipally owned). Ms. Siebert mentioned that financial details can be confirmed by Peter Mynarski, and the town agreed to complete the remaining items of both worksheets.

3. Mitigation Strategies

Mr. Sachnin walked the group through FEMA’s STAPLEE rating process, which also included a 3-point scale (high, medium, or low priorities) used to identify priorities for each listed action. After defining each type of priority and providing examples of costs and benefits, the group then began rating each action item included Greenwich’s Mitigation Strategies. After rating 4 actions Ms. Savageau and Siebert discussed the potential of reevaluated and reorganizing Greenwich’s actions and strategies. The group unanimously agreed to strike out strategy #9. Following this discussion, SWRPA agreed to send an excel version of Greenwich’s mitigation strategies, for the

town to reorganize and reevaluate. Mr. Sachnin and Towle also volunteered to accommodate any questions or concerns the group may have when they begin to revise their strategies. Mr. Sachnin cautioned the group to be mindful of specific FEMA requirements that pertain to the mitigation strategies during any revisions.

The meeting ended at 2:30



WESTERN CONNECTICUT COUNCIL OF GOVERNMENTS

888 Washington Boulevard, 3rd Floor, Stamford, CT 06901

Brookfield Office (203) 775-6256 – Stamford Office (203) 316-5190

DATE: December 5, 2014

TO: Greenwich HMP Advisory Committee and Staff

FROM: Rob Sachnin, Mike Towle

RE: Greenwich Individual Meeting: Wednesday December 24, 2014, 9:00 am

Agenda: 12/24/14 Greenwich Individual HMP Meeting

Location: Greenwich Town Hall

- 1. Updates and Announcements**
 - a. Proposed Draft Deadline
 - b. Public Comment Period and Associated Actions
 - c. Greenwich-specific Capabilities
 - 2. 2016 Mitigation Strategies**
 - 3. Other**
-
- Attachments:**
 1. Greenwich 2016 Mitigation Strategies
 2. STAPLEE Reference Sheet
 3. Greenwich Capabilities Text

HMP Followup Meeting

~~December 19, 2014~~ 12/24/2014

9:00 AM - Greenwich

Name:	Title:	Municipality:	E-mail and Phone:
Michael Toule	Regional Planner	WCCOG	
Rob Sachnin	Sr. Regional Planner	WCCOG/swamp	
KATIE DELUCA	Director Pt 2	Greenwich	
Amy Siebert	DPW Comm.	"	203 622 7740
Denise Savage	Gen. Director	"	203-622-6461

Appendix A-2.4

New Canaan Meetings



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901
203 316 5190 PHONE
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www.swrpa.org

To: 2016 PDM/HMP New Canaan Appointees, Other New Canaan Municipal Staff

From: Robert Sachnin, Senior Regional Planner

Date: July 17, 2014

Re: PDM/HMP New Canaan Individual Meeting, Tuesday July 22, 2014–Time: 2:00 pm

The individual Town of New Canaan PDM/HMP meeting will commence the afternoon of Tuesday, July 22, 2014 at 2:00 pm.

The agenda for the meeting follows:

- 1. Introductions and Overview**
- 2. Status of Worksheets (handed out at Kick-off Meeting, and June Planning Directors Meeting)**
 - a. 4.1: Capability Assessment Worksheet
 - b. 4.2: Safe Growth Audit
 - c. 4.3: National Flood Insurance Program (NFIP) Worksheet
- 3. List of Stakeholders and Outreach Strategy – very brief discussion**
 - a. Stakeholder List – anyone missing?
 - i. Attachment #1: List of Stakeholders and Additional Advisory Committee Members
 - b. Outreach Strategy
 - i. Striking the balance between Municipal “Cluster” Workshops and Individual Municipal Meetings
- 4. New Canaan Hazards**
 - a. Group will complete Attachment #2: Hazards Summary Worksheet
- 5. New Canaan: Critical Assets and Infrastructure**
 - a. Group will confirm municipal assets and infrastructure, for inclusion in PDM/HMP report, adding/deleting elements, based on Figures 1 and 2
- 6. Mitigation Strategies**
 - a. Existing Mitigation Strategies

- i. Group will complete Attachment #3: Update to 2011 Mitigation Strategies
- b. New Mitigation Strategies (time permitting)
- i. Group will complete Attachment #4 “New Mitigation Strategies”

7. Attachments

Tables/Worksheets

- 1. Stakeholder List
- 2. Hazards Summary Worksheet
- 3. Update to 2011 Mitigation Strategies
- 4. New Mitigation Strategies

Figures

- 5. Figure 1: New Canaan Community Resources
- 6. Figure 2: New Canaan Municipal Resources

2016 Pre-disaster Mitigation/Hazard Mitigation Plan Update Meeting

July 22, 2014

Time: 2:00 pm - 3:45 pm

, Location: New Canaan Police Department

[illegible]



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
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Stamford, Connecticut 06901
203 316 5190 PHONE
203 316 4995 FAX
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**2016 Hazard Mitigation Plan (HMP) Update (formerly Pre-Disaster Mitigation Plan or PDM)
Town of New Canaan Individual Meeting: New Canaan Police Department, Tuesday July 22, 2014
2:00pm to 3:45 pm**

Present: Mr. Michael Handler, Chief Jack Hennessey, Mr. Tiger Mann, Mr. Robert Sachnin

1. Introduction

Mr. Sachnin began the meeting at 2:05 pm, and the group introduced themselves.

2. Status of worksheets

a. The group next discussed the status of FEMA worksheets “4.1: Capabilities Assessment Worksheet”, “4.2 Safe Growth Audit”, and “4.3: National Flood Insurance Program (NFIP) Worksheet. The worksheets come from FEMA’s March 2013 “Local Mitigation Planning Handbook” and were previously handed out during the June 12th kick-off meeting and June 17th planning directors meeting. Chief Hennessey explained that he had circulated the handouts to the municipal departments following the kick-off meeting, but wasn’t aware of any progress made to the worksheets. Mr. Sachnin then asked that the town representatives complete them as expeditiously as possible, and to the best of their respective abilities. He also agreed to help reach out to certain municipal departments, if needed.

3. List of Stakeholders and Outreach Strategy

a. Stakeholder List:

The group next discussed the list of stakeholders, which was developed and vetted with the Regional Advisory Group at the June 12th kick-off meeting. Mr. Sachnin proceeded by asking if any New Canaan-specific stakeholders should be added to the list, highlighting that such entities would be frequently kept abreast of plan development activities, including the option to comment on the plan itself, but would not steer plan development like the advisory committee. The group unanimously agreed to add the following New Canaan stakeholders: Aquarion Water Company, 1st and 2nd Taxing Districts (Norwalk), Silver Hill Hospital, Emergency Medical Services (EMS), Community Emergency Response Team (CERT), and the Health Department. Mr. Sachnin noted the additions and explained that the aforementioned stakeholders would be added to the stakeholder distribution list for all future HMP correspondence, once the appropriate contact information was provided by the Town of New Canaan.

b. Outreach Strategy:

Mr. Sachnin provided an overview of the proposed outreach strategy, including at least three “cluster” workshops with The Nature Conservancy (TNC), which would then be supplemented with individual municipal public meetings to allow public review and comment on the draft report. Lastly, a third round of public involvement and outreach would be conducted, allowing each municipality, its stakeholders and general public to comment on the plan in advance of a final submission to the State of Connecticut and FEMA.

Mr. Sachnin further explained the TNC meetings, although clustered to contain multiple municipalities, would provide clear and distinctly separate opportunities for each

municipality to identify vulnerable areas and assets, in conjunction with identifying mitigation strategies and techniques to help make each municipality more resilient to the hazards they individually identified. Results of the workshops would be incorporated into the Hazard Mitigation Plan Update, to the extent possible and applicable. Lastly, Mr. Sachnin added that specific details would be sorted out well in advance of the meeting, recommending a call between the HMP advisory committee and TNC to ensure that the region and its municipalities receive workshops most suited to their needs.

Mr. Sachnin also explained that the individual municipal meetings provided another forum to provide the public an opportunity to review and comment on project work, and meeting specifics would be agreed upon with the Town of New Canaan to ensure effective communication and the greatest possible turnout by the public. The final individual meeting would be conducted following any changes to a draft document, in order to provide one last opportunity for public review and comment before the final report is submitted to the state and FEMA.

The group unanimously agreed that this was a sufficient strategy to pursue, and would explore the individual meeting specifics as the time approached.

4. New Canaan Hazards

The group next discussed natural hazards of concern in New Canaan, which led to the completion of Worksheet 5.1: Hazards Summary Worksheet. This worksheet also comes from FEMA's March 2013 Local Mitigation Planning Handbook. New Canaan results from Worksheet 5.1 will be incorporated into the Hazard Mitigation Plan.

5. New Canaan Critical Assets and Infrastructure

A review of the existing Town of New Canaan assets and infrastructure was conducted using GIS data. Such data was previously obtained through extensive work with New Canaan and outreach to other applicable stakeholders. The participants reviewed two maps depicting municipal and community assets and marked up the maps accordingly, additional assets and critical infrastructure included: School House Apartments (senior housing), XXXXXX (special needs housing), the 1st district water company, Silver Hill Hospital, a CL&P substation, the New Canaan Inn (Assisted Living), and the Waveny Care Center. Mr. Sachnin agreed to add the requested assets to the HMP/PDM project map products.

6. Mitigation Strategies

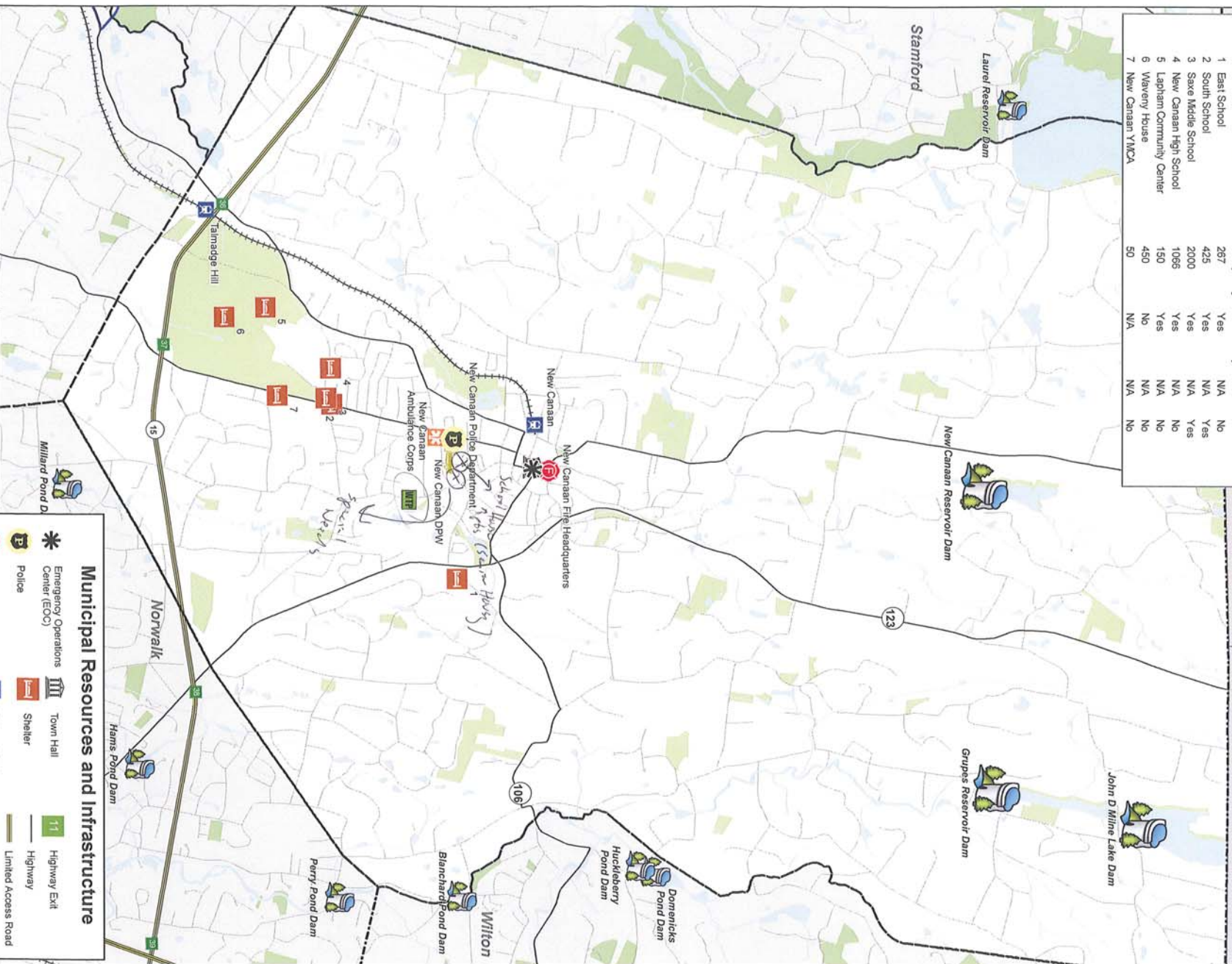
The group next reviewed the 2011 mitigation strategies line by line, indicating updates and any progress made. The group next discussed the list of 2016 mitigation strategies; Mr. Mann requested that the maintenance dredging of Mill and Mead ponds be added to the 2016 list, indicating that this was a high priority of DPW. Minor changes were made to existing strategies, which were then reprioritized and added to the new 2016 list.

The meeting ended at 3:45 pm.

New Canaan Area Dams by Hazard Potential and Municipal Resources

Lewisboro

Number	Name	Capacity	Handicap	Pet	Generator
1	East School	267	Yes	N/A	No
2	South School	425	Yes	N/A	Yes
3	Saxe Middle School	2000	Yes	N/A	Yes
4	New Canaan High School	1066	Yes	N/A	No
5	Lapham Community Center	150	Yes	N/A	No
6	Wavery House	450	No	N/A	No
7	New Canaan YMCA	50	N/A	N/A	No



SWRPA 50

SOUTH WESTERN REGIONAL PLANNING AGENCY

Disclaimer: This Map is for general planning purposes only.

Sources: Connecticut Department of Transportation; Connecticut Department of Environmental Protection; CT GIS; TeleAtlas; Southwestern Regional Planning Agency; Town of New Canaan

Area Dams
(Class B or Higher)

Class B - Significant Hazard Potential

Class C - High Hazard Potential (most extreme CT classification)

Municipal Resources and Infrastructure

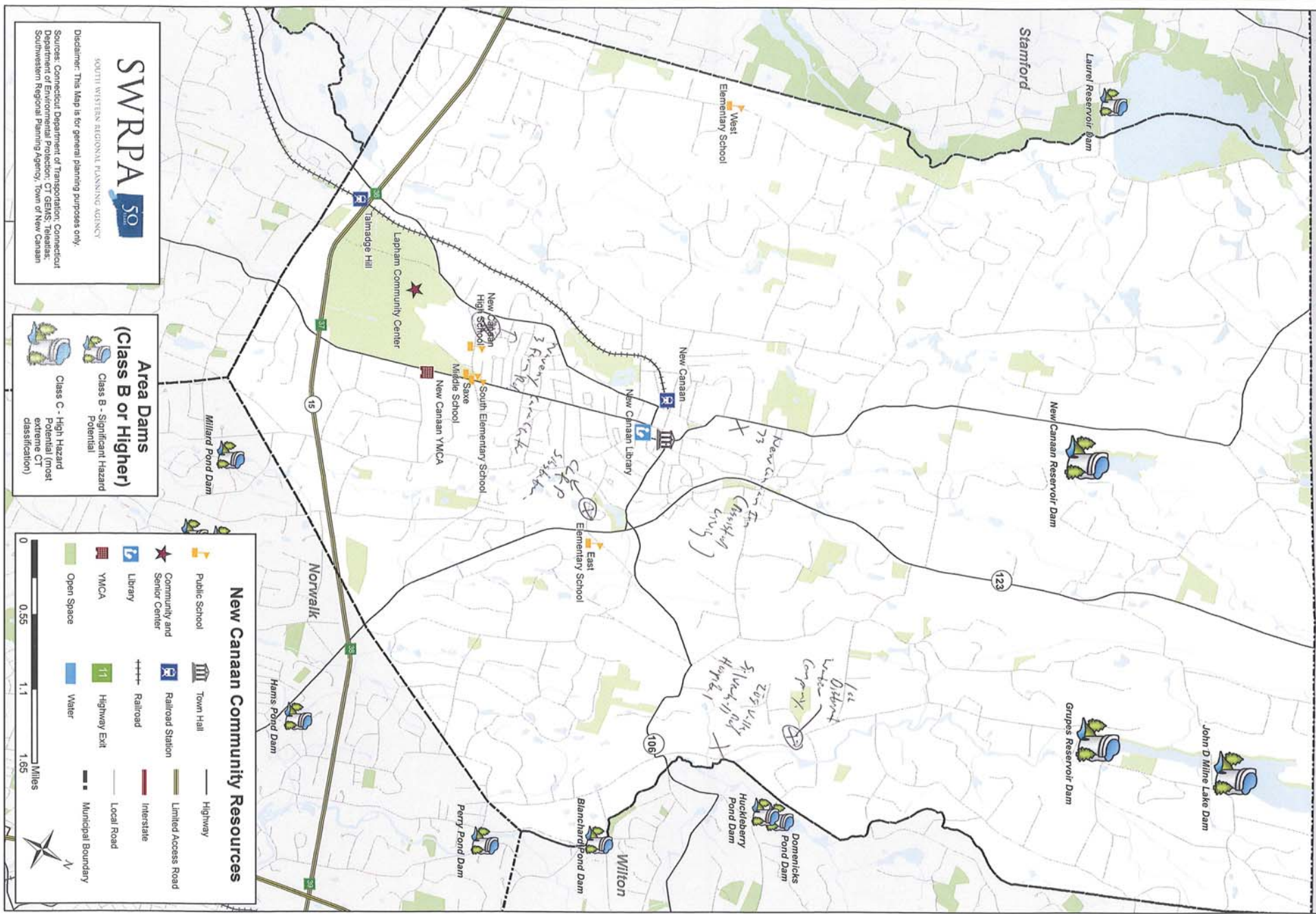
- Emergency Operations Center (EOC)
- Police
- Fire
- Emergency Medical Services (EMS)
- Wastewater Treatment Plant
- Public Works (DPW)
- Town Hall
- Shelter
- Railroad Station
- Railroad
- Open Space
- Water
- Highway Exit
- Highway
- Limited Access Road
- Interstate
- Local Road
- Municipal Boundary

0 0.55 1.1 1.65 Miles



New Canaan Area Dams by Hazard Potential and Community Resources

Lewisboro



Appendix A-2.5

Norwalk Meetings



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901
203 316 5190 PHONE
203 316 4995 FAX
www.swrpa.org

To: 2016 PDM/HMP Norwalk Appointees, Other Norwalk Municipal Staff

From: Robert Sachnin, Regional Planner

Date: July 10, 2014

Re: PDM/HMP Norwalk Individual Meeting, Thursday July 17, 2014 – Time: 2:00 pm

The individual City of Norwalk PDM/HMP meeting will commence the afternoon of Thursday, July 17, 2014 at 2:00 pm.

The agenda for the meeting follows:

- 1. Introductions and Overview**
- 2. Status of Worksheets (handed out at Kick-off Meeting, and June Planning Directors Meeting)**
 - a. 4.1: Capability Assessment Worksheet
 - b. 4.2: Safe Growth Audit
 - c. 4.3: National Flood Insurance Program (NFIP) Worksheet
- 3. List of Stakeholders and Outreach Strategy – very brief discussion**
 - a. Stakeholder List – anyone missing?
 - i. Attachment #1: List of Stakeholders and Additional Advisory Committee Members
 - b. Outreach Strategy
 - i. Striking the balance between Municipal “Cluster” Workshops and Individual Municipal Meetings
- 4. Norwalk Hazards**
 - a. Group will complete Attachment #2: Hazards Summary Worksheet
- 5. Norwalk: Critical Assets and Infrastructure**
 - a. Group will confirm municipal assets and infrastructure, for inclusion in PDM/HMP report, adding/deleting elements, based on Figures 1 and 2
- 6. Mitigation Strategies**
 - a. Existing Mitigation Strategies

- i. Group will complete Attachment #3: Update to 2011 Mitigation Strategies
- b. New Mitigation Strategies (time permitting)
- i. Group will complete Attachment #4 “New Mitigation Strategies”

7. Attachments

Tables/Worksheets

- 1. Stakeholder List
- 2. Hazards Summary Worksheet
- 3. Update to 2011 Mitigation Strategies
- 4. New Mitigation Strategies

Figures

- 5. Figure 1: Norwalk Critical Resources
- 6. Figure 2: Norwalk Care Facilities
- 7. Figure 3: Norwalk Community Resources
- 8. Figure 4: Norwalk Housing

2016 Pre-disaster Mitigation/Hazard Mitigation Plan Update Meeting

July 17, 2014

Time: 2 pm - 4 pm

, Location: Norwalk Fire Department/EOC

[illegible]



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901
203 316 5190 PHONE
203 316 4995 FAX
WWW.SWRPA.ORG

2016 Hazard Mitigation Plan (HMP) Update (formerly Pre-Disaster Mitigation Plan or PDM) City of Norwalk Individual Meeting: Norwalk Fire HQ, Thursday July 17, 2014–2:00 to 4:00 pm

Present: Chief Denis McCarthy, Ms. Michele Deluca, Mr. Harold Alvord, Mr. Michael Yeosock, Mr. Robert Sachnin

1. Introduction

Mr. Sachnin began the meeting at 2:04 pm, and the group introduced themselves.

2. Status of worksheets

a. The group next discussed the status of FEMA worksheets “4.1: Capabilities Assessment Worksheet”, “4.2 Safe Growth Audit”, and “4.3: National Flood Insurance Program (NFIP) Worksheet. The worksheets come from FEMA’s March 2013 “Local Mitigation Planning Handbook” and were previously handed out during the June 12th kick-off meeting and June 17th planning directors meeting. While progress to date was limited, the municipal representatives agreed to jointly review the worksheets and complete any sections for which they had information for. He asked that the town representatives complete them as expeditiously as possible, and to the best of their respective abilities. Mr. Sachnin also agreed to forward all applicable worksheets to Planning and Conservation Departments to complete their applicable sections.

3. List of Stakeholders and Outreach Strategy

a. Stakeholder List:

The group next discussed the list of stakeholders, which was developed and vetted with the Regional Advisory Group at the June 12th kick-off meeting. Mr. Sachnin proceeded by asking if any Norwalk-specific stakeholders should be added to the list, highlighting that such entities would be frequently kept abreast of plan development activities, including the option to comment on the plan itself, but would not steer plan development like the advisory committee. The group unanimously agreed to add the following Norwalk stakeholders: Housing Authority, Board of Education, Norwalk Hospital, Redevelopment Agency, Maritime Aquarium, Seaport Association, Norwalk Transit District, Norwalk Taxing Districts/Utilities. Mr. Sachnin noted the additions and explained that the aforementioned stakeholders would be added to the stakeholder distribution list for all future HMP correspondence, once the appropriate contact information was provided by the City of Norwalk.

b. Outreach Strategy:

Mr. Sachnin provided an overview of the proposed outreach strategy, including at least three “cluster” workshops with The Nature Conservancy (TNC), which would then be supplemented with individual municipal public meetings to allow the public to comment on the draft report development. Lastly, a third round of public involvement and outreach would be conducted, allowing each municipality, its stakeholders and general public to comment on the plan in advance of a final submission to the State of Connecticut and FEMA.

Mr. Sachnin further explained the TNC meetings, although clustered to contain multiple municipalities, would provide clear and distinctly separate opportunities for each

municipality to identify vulnerable areas and assets, in conjunction with identifying mitigation strategies and techniques to help make each municipality more resilient to the hazards they individually identified. Results of the workshops would be incorporated into the Hazard Mitigation Plan Update, to the extent possible and applicable. Lastly, Mr. Sachnin added that specific details would be sorted out well in advance of the meeting, recommending a call between the HMP advisory committee and TNC to ensure that the region and its municipalities receive workshops most suited to their needs.

Mr. Sachnin also explained that the individual municipal meetings provided another forum to provide the public an opportunity to review and comment on project work, and meeting specifics would be agreed upon with the City of Norwalk to ensure effective communication and the greatest possible turnout by the public. City suggestions for an individual meeting included conducting a session before or during a Board of Selectmen meeting, in hopes it would yield a greater turnout. The final individual meeting would be conducted following any changes to a draft document, in order to provide one last opportunity for public review and comment before the final report is submitted to the state and FEMA.

The group unanimously agreed that this was a sufficient strategy to pursue, and would explore the individual meeting specifics as the time approached. Some concern was raised regarding individual meetings and feedback, citing past experiences where such interactions were primarily negative and not constructive. Mr. Sachnin agreed to explore the potential to hold an alternative form of public participation, and one idea that surfaced was to make the plan available at local libraries, in conjunction with a specific date/time where a representative would be onsite to answer any questions the general public may have. Mr. Sachnin agreed to look into such measures to ensure consistency with the regulatory requirements of the HMP. All participants agreed to revisit this as time neared.

4. Norwalk Hazards

The group next discussed natural hazards of concern in Norwalk, which led to the completion of Worksheet 5.1: Hazards Summary Worksheet. This worksheet also comes from FEMA's March 2013 Local Mitigation Planning Handbook. Wilton results from Worksheet 5.1 will be incorporated into the Hazard Mitigation Plan.

5. Norwalk Critical Assets and Infrastructure

A review of the existing City of Norwalk assets and infrastructure was conducted using GIS data. Such data was previously obtained through extensive work with Norwalk and outreach to other applicable stakeholders. The participants reviewed four variations of maps depicting the assets. Chief McCarthy asked the asset and infrastructure list used to prepare the maps be provided, which would assist the confirmation of appropriate assets and infrastructure to include in the report mapping. Mr. Sachnin agreed to submit the list, and asked that following a review by the City of Norwalk, final items be provided to Mr. Sachnin.

6. Mitigation Strategies

The group next reviewed the 2011 mitigation strategies line by line, indicating updates and any progress made. Follow ups will be made with Planning and Conservation regarding updates to certain strategies that could not be answered during the meeting. A decision was made to identify new 2016 strategies at a later meeting, after Planning and Conservation have had opportunities to review and comment on the 2011 strategies.

The meeting ended at 4 pm.

WESTERN CONNECTICUT COUNCIL OF GOVERNMENTS

888 Washington Boulevard, 3rd Floor, Stamford, CT 06901

Brookfield Office (203) 775-6256 – Stamford Office (203) 316-5190



DATE: December 3, 2014

TO: Norwalk HMP Advisory Committee and Staff

FROM: Robert Sachnin, Mike Towle

RE: Norwalk Individual Meeting: Wednesday December 10, 2014, 2:30 pm

Agenda: 12/10/14 Norwalk Individual HMP Meeting

Location: Norwalk Fire HQ, 121 Connecticut Ave, 3rd Floor

1. **Updates and Announcements**
 - a. Proposed Draft Deadline
 - b. Public Comment Period and Associated Actions
 - c. Norwalk-specific Capabilities
2. **2016 Mitigation Strategies**
3. **Other**

Attachments:

1. Norwalk 2016 Mitigation Strategies
2. STAPLEE Reference Sheet
3. Norwalk Capabilities Text

HMP Followup Meeting

December 10, 2014

2:30 - 3:30 PM

11:00 AM - Norwalk - City Hall, DPW - 2nd Floor

Name:	Title:	Municipality:	E-mail and Phone:
Rob Sechnin	Sr. Regional Planner	WECOG/SWRPA	
Hal Alvord	Director of Public Works	Norwalk	halvord@norwalkct.org 203-854-7970
Mike Yewich	Senior Engineer	Norwalk	MYEWICH@NORWALKCT.ORG 203-854-7899
Denis McCarthy	EMD	Norwalk	DMcCarthy@norwalkct.org
Michelle Deluca	Dep EMD	"	Mdeluca@norwalkct.org

Appendix A-2.6

Stanford Meetings



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901
203 316 5190 PHONE
203 316 4995 FAX
www.swrpa.org

To: 2016 PDM/HMP Stamford Appointees, Other Stamford Municipal Staff

From: Robert Sachnin, Senior Regional Planner

Date: July 25, 2014

Re: PDM/HMP Stamford Individual Meeting, Friday August 1, 2014 – Time: 10:00 am

The individual City of Stamford PDM/HMP meeting will commence the morning of Friday, August 1, 2014 at 10:00 am.

The agenda for the meeting follows:

- 1. Introductions and Overview**
- 2. Status of Worksheets (handed out at Kick-off Meeting, and June Planning Directors Meeting)**
 - a. 4.1: Capability Assessment Worksheet
 - b. 4.2: Safe Growth Audit
 - c. 4.3: National Flood Insurance Program (NFIP) Worksheet
- 3. List of Stakeholders and Outreach Strategy – very brief discussion**
 - a. Stakeholder List – anyone missing?
 - i. Attachment #1: List of Stakeholders and Additional Advisory Committee Members
 - b. Outreach Strategy
 - i. Striking the balance between Municipal “Cluster” Workshops and Individual Municipal Meetings
- 4. Stamford Hazards**
 - a. Group will complete Attachment #2: Hazards Summary Worksheet
- 5. Stamford: Critical Assets and Infrastructure**
 - a. Group will confirm municipal assets and infrastructure, for inclusion in PDM/HMP report, adding/deleting elements, based on Figures 1, 2, and 3
- 6. Mitigation Strategies**
 - a. Existing Mitigation Strategies

- i. Group will complete Attachment #3: Update to 2011 Mitigation Strategies
- b. New Mitigation Strategies (time permitting)
 - i. Group will complete Attachment #4 “New Mitigation Strategies”

7. Attachments

Tables/Worksheets

1. Stakeholder List
2. Hazards Summary Worksheet
3. Update to 2011 Mitigation Strategies
4. New Mitigation Strategies

Figures

5. Figure 1: Stamford Municipal Resources
6. Figure 2: Stamford Community Resources
7. Figure 3: Stamford Transportation Resources

2016 Pre-disaster Mitigation/Hazard Mitigation Plan Update Meeting

August 1, 2014

Time: 10:00 am - 12:15 pm

, Location: SWRPA

[illegible]



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901
203 316 5190 PHONE
203 316 4995 FAX
WWW.SWRPA.ORG

2016 Hazard Mitigation Plan (HMP) Update (formerly Pre-Disaster Mitigation Plan or PDM) City of Stamford Individual Meeting: SWRPA, Friday August 1, 2014 10:00 am to 12:15 pm

Present: Captain Tom Lombardo, Ms. Erin McKenna, Mr. Ted Jankowski (via phone), Ms. Elizabeth Rodriguez, Mr. Robert Sachnin

1. Introduction

Mr. Sachnin began the meeting at 10:03 am, and the group introduced themselves.

2. Status of worksheets

a. The group next discussed the status of FEMA worksheets “4.1: Capabilities Assessment Worksheet”, “4.2 Safe Growth Audit”, and “4.3: National Flood Insurance Program (NFIP) Worksheet. The worksheets come from FEMA’s March 2013 “Local Mitigation Planning Handbook” and were previously handed out during the June 12th kick-off meeting and June 17th planning directors meeting. Mr. Sachnin explained the purpose of worksheets 4.1 and 4.2, which were to assess community capabilities and gaps with respect to hazard mitigation. He added that information from the worksheets would add to the report, and highlighted the need for inter-departmental assistance in completing all sections of the brief forms.

Some participants were unfamiliar with the worksheets, which in response, Mr. Sachnin agreed to distribute electronic copies to all participants. He then asked that the city representatives complete them as expeditiously as possible, and to the best of their respective abilities. He also agreed to help reach out to certain municipal departments, if needed.

3. List of Stakeholders and Outreach Strategy

a. Stakeholder List:

The group next discussed the list of stakeholders, which was developed and vetted with the Regional Advisory Group at the June 12th kick-off meeting. Mr. Sachnin proceeded by asking if any Stamford-specific stakeholders should be added to the list, highlighting that such entities would be frequently kept abreast of plan development activities, including the option to comment on the plan itself, but would not steer plan development like the advisory committee. The group unanimously agreed to add the following Stamford Stakeholders: Fairfield Business Council (and Stamford 2030), Chamber of Commerce, Downtown Special Services District, Stamford Hospital, Aquarion, Yankee Gas. Mr. Sachnin noted the additions and explained that the aforementioned stakeholders would be added to the stakeholder distribution list for all future HMP correspondence, once the appropriate contact information was provided by the City of Stamford.

b. Outreach Strategy:

Mr. Sachnin provided an overview of the proposed outreach strategy, including at least three “cluster” workshops with The Nature Conservancy (TNC), which would then be supplemented with individual municipal public meetings to allow public review and comment on the draft report. Lastly, a third round of public involvement and outreach would be conducted, allowing each municipality, its stakeholders and general public to

comment on the plan in advance of a final submission to the State of Connecticut and FEMA.

Mr. Sachnin further explained the TNC meetings, although clustered to contain multiple municipalities, would provide clear and distinctly separate opportunities for each municipality to identify vulnerable areas and assets, in conjunction with identifying mitigation strategies and techniques to help make each municipality more resilient to the hazards they individually identified. Results of the workshops would be incorporated into the Hazard Mitigation Plan Update, to the extent possible and applicable. In the overview, Mr. Sachnin explained the “participatory mapping” component of the workshop, where participants will draw key assets and vulnerable areas on map. Ms. McKenna inquired as to the benefits of having a map without key infrastructure and hazards mapped, to which Mr. Sachnin highlighted the blank maps would help demonstrate key concerns of residents and stakeholders alike, which may or may not differ from the municipality’s. He further explained that the primary benefit was the greater exchange of information and understanding between residents, stakeholders, and municipal staff, a key project benefit of the HMP plan. Lastly, Mr. Sachnin added that specific details would be sorted out well in advance of the meeting, recommending a call between the HMP advisory committee and TNC to ensure that the region and its municipalities receive workshops most suited to their needs.

Mr. Sachnin also explained that the individual municipal meetings provided another forum to provide the public an opportunity to review and comment on project work, and meeting specifics would be agreed upon with the City of Stamford to ensure effective communication and the greatest possible turnout by the public. The final individual meeting would be conducted following any changes to a draft document, in order to provide one last opportunity for public review and comment before the final report is submitted to the state and FEMA. Thoughts for the individual meeting could include a presentation and discussion with the public regarding plan activities.

The group unanimously agreed that this was a sufficient strategy to pursue, and would explore the individual meeting specifics as the time approached.

4. Stamford Hazards

The group next discussed natural hazards of concern in Stamford, which led to the completion of Worksheet 5.1: Hazards Summary Worksheet. This worksheet also comes from FEMA’s March 2013 Local Mitigation Planning Handbook. Stamford results from Worksheet 5.1 will be incorporated into the Hazard Mitigation Plan. Captain Lombardo provided an overview of key hazards and associated impacts to Stamford, citing historical evidence where applicable. He added that Stamford has many small private dams, but with respect to impacts, there were four principal dams within the town. The effects of Hurricanes and flooding felt within the town were also discussed, included down trees and utilities, which can result in power outages/issues. Captain Lombardo added that salt water intrusion from coastal flooding at times worked to exacerbate the integrity of previously inundated utilities. Erosion, particularly along the coast, was a concern, with the group adding the mitigation of coastal erosion was important, given the existence of sea walls.

5. Stamford Critical Assets and Infrastructure

A review of the existing City of Stamford assets and infrastructure was deferred in the interest of time. Captain Lombardo suggested the team contact Cindy Barber to assist with the GIS data. Mr. Sachnin added that the release of any GIS data for project purposes would require approval at higher levels, and asked that the municipal representatives assist with this effort. Mr. Sachnin also

highlighted that the HMP/PDM would be a public document, and the inclusion of some assets and infrastructure should be considered, in case anything was security sensitive.

Ms. Rodriguez agreed to provide senior housing data, and any other data deemed relevant by the Health Department, such as assisted living or shelters. Mr. Jankowski and Captain Lombardo agreed to revisit key assets and infrastructure of importance to Emergency Management.

Mr. Sachnin agreed to add any assets/infrastructure provided by Stamford to the HMP/PDM project map products.

6. Mitigation Strategies

The group next reviewed the 2011 mitigation strategies line by line, indicating updates and any progress made. In the interest of time, the group decided to address 2016 mitigation strategies at a later date. The participants highlighted a few key new mitigation strategies to consider, including seeking new generators for public buildings, retrofitting/reinforcing existing coastal utilities to make them more resilient, which the group agreed to add as part of the 2016 strategies. Mr. Jankowski also provided additional strategies for inclusion into the report, including: Weather monitoring equipment along the coast, in mid-Stamford, and in northern Stamford. He added that such real-time weather reporting would also greatly assist first responders navigate to/from emergencies. Other suggestions included, but were not limited to: exploring the feasibility of a new EOC in a more resilient area, possibly in conjunction with the new police headquarters, and 911 communications center. Lastly, the consideration of better livable space for employees at the Army Corps hurricane barrier station was discussed.

The meeting ended at 12:15 pm.

WESTERN CONNECTICUT COUNCIL OF GOVERNMENTS

888 Washington Boulevard, 3rd Floor, Stamford, CT 06901
Brookfield Office (203) 775-6256 – Stamford Office (203) 316-5190



DATE: December 3, 2014
TO: Stamford HMP Advisory Committee and Staff
FROM: Robert Sachnin, Mike Towle
RE: Stamford Individual Meeting: Thursday December 11, 2014, 11:15am

Agenda: 12/11/14 Stamford Individual HMP Meeting

Location: WCCOG/SWRPA Offices, Stamford Government Center, 3rd Floor

1. **Updates and Announcements**
 - a. Proposed Draft Deadline
 - b. Public Comment Period and Associated Actions
 - c. Stamford-specific Capabilities
2. **2016 Mitigation Strategies**
3. **Other**

Attachments:

1. Stamford 2016 Mitigation Strategies
2. STAPLEE Reference Sheet
3. Stamford Capabilities Text

HMP Followup Meeting

December 11, 2014

11:15 AM - Stamford End 1:00 pm

Name:	Title:	Municipality:	E-mail and Phone:
Rob Suchnin	Sr. Program Planner	WCCOG/SWAPA	
Tom Lombardo	EMD	STAMFORD	
Erin McKenna	Assoc. Planner	City of Stamford	
RICK TALAMELLI	Env. Planner	City of Stamford	rtalamelli@ci.stamford.ct.us 203 9774965
Mike Towle	Reg Planner	WCCOG	
Cindy Barber	GIS Coordinator	City of Stamford	

Appendix A-2.7

Weston Meetings



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901
203 316 5190 PHONE
203 316 4995 FAX
www.swrpa.org

To: 2016 PDM/HMP Weston Appointees, Other Weston Municipal Staff

From: Robert Sachnin, Senior Regional Planner

Date: July 25, 2014

Re: PDM/HMP Weston Individual Meeting, Wednesday July 30, 2014 – Time: 1:00 pm

The individual Town of Weston PDM/HMP meeting will commence the afternoon of Wednesday, July 30, 2014 at 1:00 pm.

The agenda for the meeting follows:

- 1. Introductions and Overview**
- 2. Status of Worksheets (handed out at Kick-off Meeting, and June Planning Directors Meeting)**
 - a. 4.1: Capability Assessment Worksheet
 - b. 4.2: Safe Growth Audit
 - c. 4.3: National Flood Insurance Program (NFIP) Worksheet
- 3. List of Stakeholders and Outreach Strategy – very brief discussion**
 - a. Stakeholder List – anyone missing?
 - i. Attachment #1: List of Stakeholders and Additional Advisory Committee Members
 - b. Outreach Strategy
 - i. Striking the balance between Municipal “Cluster” Workshops and Individual Municipal Meetings
- 4. Weston Hazards**
 - a. Group will complete Attachment #2: Hazards Summary Worksheet
- 5. Weston: Critical Assets and Infrastructure**
 - a. Group will confirm municipal assets and infrastructure, for inclusion in PDM/HMP report, adding/deleting elements, based on Figures 1 and 2
- 6. Mitigation Strategies**
 - a. Existing Mitigation Strategies

- i. Group will complete Attachment #3: Update to 2011 Mitigation Strategies
- b. New Mitigation Strategies (time permitting)
 - i. Group will complete Attachment #4 “New Mitigation Strategies”

7. Attachments

Tables/Worksheets

1. Stakeholder List
2. Hazards Summary Worksheet
3. Update to 2011 Mitigation Strategies
4. New Mitigation Strategies

Figures

5. Figure 1: Weston Municipal Resources
6. Figure 2: Weston Community Resources

2016 Pre-disaster Mitigation/Hazard Mitigation Plan Update Meeting

July 30, 2014

Time: 1 pm - 3 pm

, Location: Weston Town Hall

[illegible]



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901

203 316 5190 PHONE
203 316 4995 FAX
WWW.SWRPA.ORG

**2016 Hazard Mitigation Plan (HMP) Update (formerly Pre-Disaster Mitigation Plan or PDM)
Town of Weston Individual Meeting: Weston Town Hall, Wednesday July 30, 2014 1:00pm to 3:00
pm**

Present: Ms. Tracy Kulikowski, Chief John Pokorny, Mr. John Conte, Mr. Robert Sachnin

1. Introduction

Mr. Sachnin began the meeting at 1:00 pm, and the group introduced themselves.

2. Status of worksheets

- a. The group next discussed the status of FEMA worksheets “4.1: Capabilities Assessment Worksheet”, “4.2 Safe Growth Audit”, and “4.3: National Flood Insurance Program (NFIP) Worksheet. The worksheets come from FEMA’s March 2013 “Local Mitigation Planning Handbook” and were previously handed out during the June 12th kick-off meeting and June 17th planning directors meeting. Ms. Kulikowski distributed a printout of the worksheets received at the planning directors meeting, as some participants were unfamiliar with them. The group briefly discussed the contents of the worksheets and need for input by multiple municipal departments for completion. Mr. Sachnin explained that the purpose of such worksheets were to determine both the town’s existing community capabilities with respect to hazard mitigation planning, as well as to identify gaps that may be addressed in future planning efforts. Mr. Sachnin agreed to distribute electronic copies to all participants, asking that the town representatives complete them as expeditiously as possible, and to the best of their respective abilities. He also agreed to help reach out to certain municipal departments, if needed.

3. List of Stakeholders and Outreach Strategy

- a. Stakeholder List:
The group next discussed the list of stakeholders, which was developed and vetted with the Regional Advisory Group at the June 12th kick-off meeting. Mr. Sachnin proceeded by asking if any Weston-specific stakeholders should be added to the list, highlighting that such entities would be frequently kept abreast of plan development activities, including the option to comment on the plan itself, but would not steer plan development like the advisory committee. The group unanimously agreed to add the following Weston Stakeholders: Aquarion Water Company, Emergency Medical Services, Aspetuck Land Trust (David Brant), Weston Shopping Center (property manager), Board of Education (Facilities Director), Town of Weston Shelter - Water Supply provider. Mr. Sachnin noted the additions and explained that the aforementioned stakeholders would be added to the stakeholder distribution list for all future HMP correspondence, once the appropriate contact information was provided by the Town of Weston.
- b. Outreach Strategy:

Mr. Sachnin provided an overview of the proposed outreach strategy, including at least three “cluster” workshops with The Nature Conservancy (TNC), which would then be supplemented with individual municipal public meetings to allow public review and comment on the draft report. Lastly, a third round of public involvement and outreach would be conducted, allowing each municipality, its stakeholders and general public to

comment on the plan in advance of a final submission to the State of Connecticut and FEMA.

Mr. Sachnin further explained the TNC meetings, although clustered to contain multiple municipalities, would provide clear and distinctly separate opportunities for each municipality to identify vulnerable areas and assets, in conjunction with identifying mitigation strategies and techniques to help make each municipality more resilient to the hazards they individually identified. Results of the workshops would be incorporated into the Hazard Mitigation Plan Update, to the extent possible and applicable. Lastly, Mr. Sachnin added that specific details would be sorted out well in advance of the meeting, recommending a call between the HMP advisory committee and TNC to ensure that the region and its municipalities receive workshops most suited to their needs.

Mr. Sachnin also explained that the individual municipal meetings provided another forum to provide the public an opportunity to review and comment on project work, and meeting specifics would be agreed upon with the Town of Weston to ensure effective communication and the greatest possible turnout by the public. The final individual meeting would be conducted following any changes to a draft document, in order to provide one last opportunity for public review and comment before the final report is submitted to the state and FEMA. The municipal representatives highlighted that a good opportunity for Weston individual meetings would be alongside a Board of Selectman meeting, a public event which could include a presentation and discussion with the public regarding plan activities.

The group unanimously agreed that this was a sufficient strategy to pursue, and would explore the individual meeting specifics as the time approached.

4. Weston Hazards

The group next discussed natural hazards of concern in Weston, which led to the completion of Worksheet 5.1: Hazards Summary Worksheet. This worksheet also comes from FEMA's March 2013 Local Mitigation Planning Handbook. Weston results from Worksheet 5.1 will be incorporated into the Hazard Mitigation Plan. Key hazards discussed included impacts resulting from a breach at the Samuel Senior Dam. The effects of Hurricanes felt within the town were also discussed, included down trees and utilities, which can result in lengthy power outages/issues.

5. Weston Critical Assets and Infrastructure

A review of the existing Town of Weston assets and infrastructure was conducted using GIS data. Such data was previously obtained through extensive work with Weston and outreach to other applicable stakeholders. The participants reviewed two maps depicting municipal and community assets and marked up the maps accordingly, additional assets and critical infrastructure included: Weston Intermediate School, Aspetuck County Club, Weston Shopping Center, Cobbs Mill Restaurant, Field Club (private club). Many commercial and private entities were included because of the volume of people they often house during certain events. Weston Shopping Center was included because it houses many of the resources residents seek, such as food, banking, and hardware (tools/equipment). Mr. Sachnin agreed to add the requested assets to the HMP/PDM project map products.

6. Mitigation Strategies

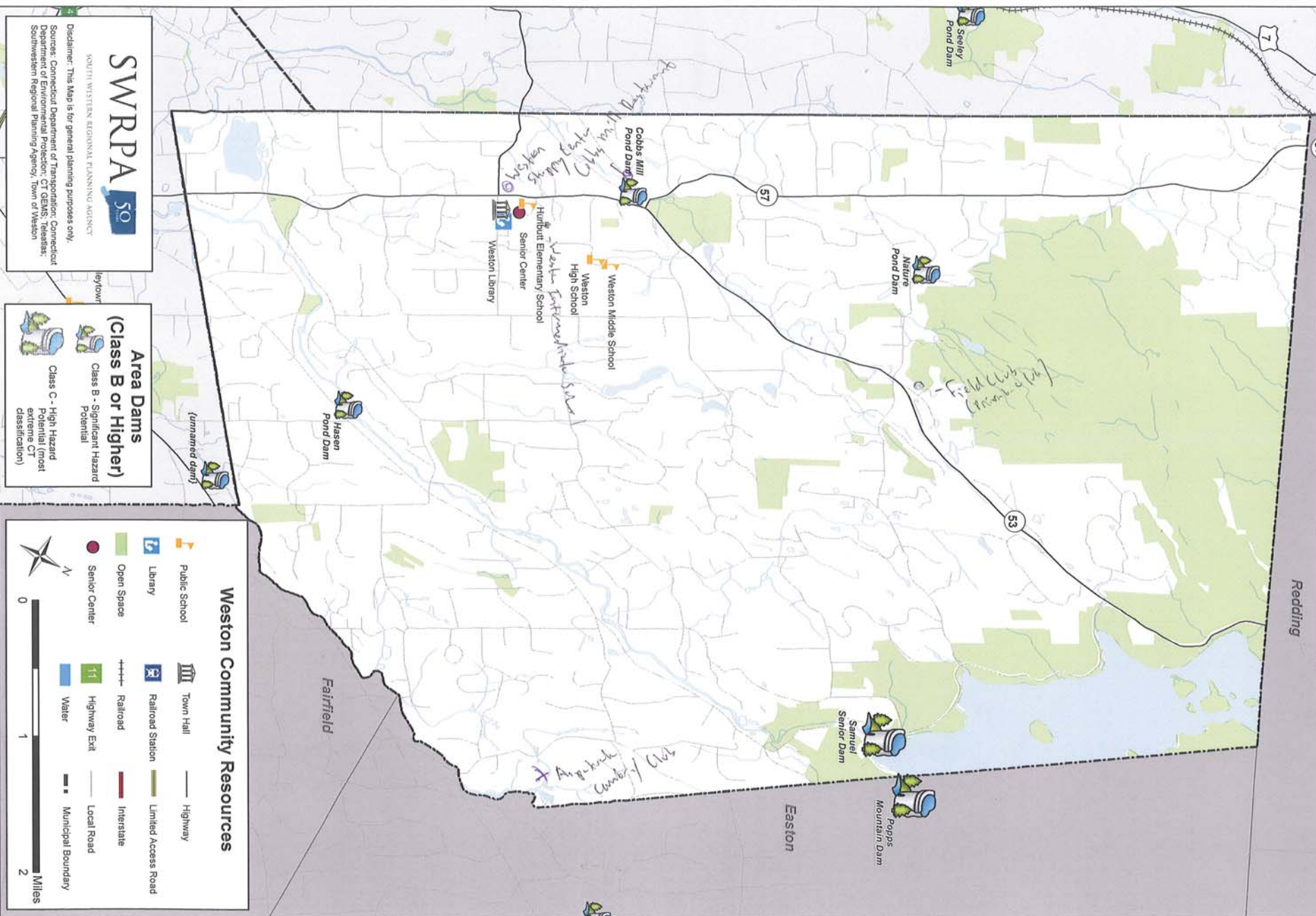
The group next reviewed the 2011 mitigation strategies line by line, indicating updates and any progress made. In the interest of time, the group decided to address 2016 mitigation strategies at a later date. Chief Pokorny had earlier discussed the importance and need for maintenance of

existing fire ponds, as well as new locations, which the group agreed to add as part of the 2016 strategies.

The meeting ended at 3:00 pm.

DRAFT

Weston Area Dams by Hazard Potential and Community Resources



WESTERN CONNECTICUT COUNCIL OF GOVERNMENTS

888 Washington Boulevard, 3rd Floor, Stamford, CT 06901

Brookfield Office (203) 775-6256 – Stamford Office (203) 316-5190



DATE: December 3, 2014

TO: Weston HMP Advisory Committee and Staff

FROM: Rob Sachnin, Mike Towle

RE: Weston Individual Meeting: Wednesday December 17, 2014, 2:30 pm

Agenda: 12/17/14 Weston Individual HMP Meeting

Location: Weston Town Hall

1. **Updates and Announcements**
 - a. Proposed Draft Deadline
 - b. Public Comment Period and Associated Actions
 - c. Weston-specific Capabilities
2. **2016 Mitigation Strategies**
3. **Other**

Attachments:

1. Weston 2016 Mitigation Strategies
2. STAPLEE Reference Sheet
3. Weston Capabilities Text

HMP Followup Meeting
December 17, 2014
2:30 PM - Weston

Name:	Title:	Municipality:	E-mail and Phone:
Rob Sachnin	Sr. Regional Planner	WCCOG/SWRPA	
Mike Towle	Regional Planner	WCCOG	
Mike Faruolo	EMD	WESTON	
John Pokorny	Fire ^{marshal} chief	Weston	j.pokorny@westonct.gov
DAVID PATTEE	CONSERVATION PLANNER	WESTON	DPATTEE@WESTONCT.GOV
JOHN CONTE	TOWN ENGINEER	WESTON	JCONTE@WESTONCT.GOV
Tracy Kulikowski	Land Use Director	Weston	+kulikowski@westonct.gov

Appendix A-2.8

Westport Meetings



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901
203 316 5190 PHONE
203 316 4995 FAX
www.swrpa.org

To: 2016 PDM/HMP Westport Appointees, Other Westport Municipal Staff

From: Robert Sachnin, Regional Planner

Date: June 30, 2014

Re: PDM/HMP Westport Individual Meeting, Tuesday July 1, 2014 – Time TBD

The individual Town of Westport PDM/HMP meeting will commence the afternoon of Tuesday, July 1, 2014. Specific time and locations will be determined by the group, on Tuesday morning.

The agenda for the meeting follows:

- 1. Introductions and Overview**
- 2. Status of Worksheets (handed out at Kick-off Meeting, and June Planning Directors Meeting)**
 - a. 4.1: Capability Assessment Worksheet
 - b. 4.2: Safe Growth Audit
 - c. 4.3: National Flood Insurance Program (NFIP) Worksheet
- 3. List of Stakeholders and Outreach Strategy – very brief discussion**
 - a. Stakeholder List – anyone missing?
 - i. Attachment #1: List of Stakeholders and Additional Advisory Committee Members
 - b. Outreach Strategy
 - i. Striking the balance between Municipal “Cluster” Workshops and Individual Municipal Meetings
- 4. Westport Hazards**
 - a. Group will complete Attachment #2: Hazards Summary Worksheet
- 5. Westport: Critical Assets and Infrastructure**
 - a. Group will confirm municipal assets and infrastructure, for inclusion in PDM/HMP report, adding/deleting elements, based on Figures 1 and 2
- 6. Mitigation Strategies**
 - a. Existing Mitigation Strategies

- i. Group will complete Attachment #3: Update to 2011 Mitigation Strategies
- b. New Mitigation Strategies
- i. Group will complete Attachment #4 “New Mitigation Strategies”

7. Attachments

Tables/Worksheets

- 1. Stakeholder List
- 2. Hazards Summary Worksheet
- 3. Update to 2011 Mitigation Strategies
- 4. New Mitigation Strategies

Figures

- 5. Figure 1: Westport Community Resources
- 6. Figure 2: Westport Municipal Resources

2016 Pre-disaster Mitigation/Hazard Mitigation Plan Update Meeting

July 1, 2014

Time: 2 pm - 4:30 pm

, Location: Westport Fire HQ

[illegible]



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901
203 316 5190 PHONE
203 316 4995 FAX
WWW.SWRPA.ORG

2016 Hazard Mitigation Plan (HMP) Update (formerly Pre-Disaster Mitigation Plan or PDM)

**Town of Westport Individual Meeting: Westport Fire HQ
Tuesday July 1, 2014 – 2:00 pm to 4:00 pm**

Present: Chief Andrew Kingsbury, Deputy Chief Robert Kepchar, Ms. Michelle Perillie, Mr. Robert Sachnin

1. Introduction

Mr. Sachnin began the meeting at 2:03 pm, and the group introduced themselves.

2. Status of worksheets

a. The group next discussed the status of FEMA worksheets “4.1: Capabilities Assessment Worksheet”, “4.2 Safe Growth Audit”, and “4.3: National Flood Insurance Program (NFIP) Worksheet. The worksheets come from FEMA’s March 2013 “Local Mitigation Planning Handbook” and were previously handed out during the June 12th kick-off meeting, and were subsequently completed by Ms. Perillie, who handed the worksheets to Mr. Sachnin for integration into the HMP Update.

3. List of Stakeholders and Outreach Strategy

a. Stakeholder List:

The group next discussed the list of stakeholders, which was developed and vetted with the Regional Advisory Group at the June 12th kick-off meeting. Mr. Sachnin proceeded by asking if any Westport-specific stakeholders should be added to the list. Chief Kingsbury, Deputy Chief Kepchar and Ms. Perillie unanimously agreed that adding the “Downtown Merchants” would be worthwhile, which was noted and added to the stakeholder distribution list for all future HMP correspondence.

b. Outreach Strategy:

Mr. Sachnin provided an overview of the proposed outreach strategy, which included at least three “cluster” workshops with The Nature Conservancy (TNC), which would then be supplemented with individual municipal public meetings to allow the public to comment on the draft report development. Lastly, a third round of public involvement and outreach would be conducted allowing each municipality and its general public to comment on the plan document prior to a final submission to the State of Connecticut and FEMA.

Mr. Sachnin further explained the TNC meetings, although clustered to contain multiple municipalities, would provide clear and distinctly separate opportunities for each municipality to identify vulnerable areas and assets, in conjunction with identifying mitigation strategies and techniques to help make each municipality more resilient to the hazards they individually identified. Results of the workshops would be incorporated into the Hazard Mitigation Plan Update, to the extent possible and applicable. He added that the individual municipal meetings provided another forum to provide the public an opportunity to review and comment on project work, and meeting specifics would be agreed upon with the Town of Westport to ensure effective communication and the

greatest possible turnout by the public. The final individual meeting would be conducted following any changes to a draft document, in order to provide one last opportunity for public review and comment before the final report is submitted to the state and FEMA.

4. Westport Hazards
The group unanimously agreed that this was a sufficient strategy to pursue.

The group next discussed natural hazards of concern in Westport, which led to the completion of Worksheet 5.1: Hazards Summary Worksheet. This worksheet also comes from FEMA's March 2013 Local Mitigation Planning Handbook. Westport results from Worksheet 5.1 will be incorporated into the Hazard Mitigation Plan.

5. Westport Critical Assets and Infrastructure

A review of the existing Town of Westport assets and infrastructure was conducted using GIS data previously obtained through extensive work with Westport and outreach to other applicable stakeholders. Key updates included revising the shelter locations to reflect the most current conditions, which are Staples and Long Lots High Schools, as well as the Westport Senior Center. Minor changes to the labeling of Fire stations (station #6 should be #4 and vice versa) and labeling the Canal Park affordable housing complex were also conducted.

6. Mitigation Strategies

The group next reviewed the 2011 mitigation strategies line by line, indicating updates and any progress made. About 70% of the 2011 strategies were completed, with Ms. Perillie agreeing to reach out to DPW and Conservation Departments for strategies specifically related to those departments. A decision was made to revisit the 2011 strategies and the identification of new 2016 strategies at another meeting, which was scheduled for Tuesday, 7/22.

The meeting ended at 4:17 pm.



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901
203 316 5190 PHONE
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www.swrpa.org

To: 2016 PDM/HMP Westport Appointees, Other Westport Municipal Staff

From: Robert Sachnin, Senior Regional Planner

Date: July 17, 2014

Re: PDM/HMP Westport Individual Meeting: Part 2, Tuesday July 22, 2014 – Time 10:00 am

The individual Town of Westport PDM/HMP meeting will commence the afternoon of Tuesday, July 22, 2014 at 10:00 am. The meeting will be located at Westport Town Hall.

The agenda for the meeting follows:

- 1. Updates and Announcements**
- 2. Mitigation Strategies**
 - a. 2011 Mitigation Strategy Implementation
 - i. Group will complete updates to the 2011 mitigation strategies
 - b. 2016 Mitigation Strategies
 - i. Group will confirm appropriate 2011 ongoing strategies to incorporate into 2016 strategy
 - ii. Group will identify and prioritize new 2016 mitigation strategies (where applicable)
 1. Will utilize the “STAPLEE” method
 2. Include associated goals, objectives and actions (where applicable)
 - iii. Group will reorganize and make appropriate edits to official 2016 mitigation strategy table, including:
 1. ensuring that all identified hazards have at least one mitigation action strategy
 2. there exists one action dealing with:
 - a. existing structures
 - b. new development
- 3. Attachments**
 - Tables/Worksheets**
 1. Westport Hazards Summary Worksheet
 2. Update to 2011 Mitigation Strategies
 3. New “Draft” 2016 Mitigation Strategies

Time: 10:00 am - 12:15 pm

, Location: Westport Town Hall

[illegible]



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901
203 316 5190 PHONE
203 316 4995 FAX
WWW.SWRPA.ORG

To: 2016 PDM/HMP Westport Appointees, Other Westport Municipal Staff

From: Robert Sachnin, Senior Regional Planner

Date: August 20, 2014

Re: PDM/HMP Westport Individual Meeting: Part 3, Thursday August 21, 2014 – Time 9:15 am

The individual Town of Westport PDM/HMP meeting will commence the afternoon of Thursday, August 21, 2014 at 9:15am. The meeting will be located at Westport Town Hall.

The agenda for the meeting follows:

1. Updates and Announcements
2. Overview of Existing Work Products
 - a. Hazard Summary – Westport
 - b. Capability Assessment and Safe Growth Worksheets - Westport
3. Mitigation Strategies
 - a. 2016 Mitigation Strategies
 - i. Group will identify and prioritize new 2016 mitigation strategies (where applicable)
 1. Will utilize the “STAPLEE” method
 2. Include associated goals, objectives and actions (where applicable)
 - ii. Group will reorganize and make appropriate edits to official 2016 mitigation strategy table, including:
 1. ensuring that all identified hazards have at least one mitigation action strategy
 2. there exists one action dealing with:
 - a. existing structures
 - b. new development
4. Attachments
 - Tables/Worksheets
 1. Westport Hazard Summary
 2. Westport Capability Assessment and Safe Growth Audit
 3. Finalize and Prioritize New 2016 Mitigation Strategies

Time: 9:15 am - 11:15 am , Location: Westport Town Hall

, Location: Westport Town Hall

, Location: Westport Town Hall

[illegible]



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901

203 316 5190 PHONE
203 316 4995 FAX
WWW.SWRPA.ORG

2016 Hazard Mitigation Plan (HMP) Update (formerly Pre-Disaster Mitigation Plan or PDM) Town of Westport Individual Meeting: Westport Town Hall, Thursday August 21, 2014 – 9:15 am to 11:15 am

Present: Chief Andrew Kingsbury, Ms. Michelle Perillie, Ms. Alicia Mozian, Mr. Michael Vincelli, Mr. Michael Towle, Mr. Robert Sachnin

1. Updates and Announcements

Mr. Sachnin began the meeting at 9:20 am, and the group introduced themselves. Mr. Sachnin also gave a summary on a recent presentation for the COAST tool which provides cost benefit results on a parcel level for flood mitigation strategies.

2. Overview of Existing Work Products

a. Hazard Summary – Westport

The town briefly discussed their identified hazards to date, and a discussion as to possible additions ensued. Upon hearing hazards included in other towns Following this discussion,

- b. and after careful thought of Westport-specific hazards, the group unanimously agreed to include droughts, extreme heat and cold events to their hazard summary. Chief Kingsbury and Mr. Vincelli suggested to include a “severe storm” category to account for intense storms not covered by the other hazard categories, the group unanimously agreed to add this to their hazards summary worksheet for the Town of Westport. The group unanimously agreed to not include Tsunami in their hazard summary. The belief is that protection from the long island and the shallow waters of the eastern continental shelf prevents such hazard events from occurring.

c. Capability Assessment and Safe Growth Worksheets – Westport

Tabled for another time

3. 2016 Mitigation Strategies

Mr. Robert Sachnin walked the group through the rating process which includes a 3 point scale (high, medium, or low priorities) used to identify priorities for each listed action. After defining each type of priority and providing examples of costs and benefits, the group then began rating each action item included Westport’s Mitigation Strategies. After rating 16 actions and approaching the end of the allotted time, Ms. Michelle Perillie suggested targeting specific actions which required input from the collective departments. SWRPA agreed to compile these 2016 strategy results, which will be sent to the town. All town officials agreed to populate their respective sections on their own time, and submit the results back to SWRPA for inclusion in the HMP update.

The meeting ended at 11:15 am.

Appendix A-2.9

Wilton Meetings



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901
203 316 5190 PHONE
203 316 4995 FAX
www.swrpa.org

To: 2016 PDM/HMP Wilton Appointees, Other Wilton Municipal Staff

From: Robert Sachnin, Regional Planner

Date: July 15, 2014

Re: PDM/HMP Wilton Individual Meeting, Wednesday July 16, 2014 – Time: 9:00 am

The individual Town of Wilton PDM/HMP meeting will commence the morning of Wednesday, July 15, 2014 at 9:00 am.

The agenda for the meeting follows:

- 1. Introductions and Overview**
- 2. Status of Worksheets (handed out at Kick-off Meeting, and June Planning Directors Meeting)**
 - a. 4.1: Capability Assessment Worksheet
 - b. 4.2: Safe Growth Audit
 - c. 4.3: National Flood Insurance Program (NFIP) Worksheet
- 3. List of Stakeholders and Outreach Strategy – very brief discussion**
 - a. Stakeholder List – anyone missing?
 - i. Attachment #1: List of Stakeholders and Additional Advisory Committee Members
 - b. Outreach Strategy
 - i. Striking the balance between Municipal “Cluster” Workshops and Individual Municipal Meetings
- 4. Wilton Hazards**
 - a. Group will complete Attachment #2: Hazards Summary Worksheet
- 5. Wilton: Critical Assets and Infrastructure**
 - a. Group will confirm municipal assets and infrastructure, for inclusion in PDM/HMP report, adding/deleting elements, based on Figures 1 and 2
- 6. Mitigation Strategies**
 - a. Existing Mitigation Strategies

- i. Group will complete Attachment #3: Update to 2011 Mitigation Strategies
- b. New Mitigation Strategies (time permitting)
 - i. Group will complete Attachment #4 “New Mitigation Strategies”

7. Attachments

Tables/Worksheets

1. Stakeholder List
2. Hazards Summary Worksheet
3. Update to 2011 Mitigation Strategies
4. New Mitigation Strategies

Figures

5. Figure 1: Wilton Community Resources
6. Figure 2: Wilton Municipal Resources

2016 Pre-disaster Mitigation/Hazard Mitigation Plan Update Meeting

July 15, 2014

Time: 9am - 11:15am

, Location: Wilton Fire Department

[illegible]



SOUTH WESTERN REGIONAL PLANNING AGENCY

Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901

203 316 5190 PHONE
203 316 4995 FAX
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**2016 Hazard Mitigation Plan (HMP) Update (formerly Pre-Disaster Mitigation Plan or PDM)
Town of Wilton Individual Meeting: Wilton Fire Training Room
Wednesday July 16, 2014 – 9:00 am to 11:15 am**

Present: Chief Ronald Kanterman, Deputy Chief Mark Amatrudo, Ms. Patricia Sesto, Mr. Robert Nerney, Mr. Michael Vincelli, Mr. Robert Sachnin

1. Introduction

Mr. Sachnin began the meeting at 9:03 am, and the group introduced themselves.

2. Status of worksheets

a. The group next discussed the status of FEMA worksheets “4.1: Capabilities Assessment Worksheet”, “4.2 Safe Growth Audit”, and “4.3: National Flood Insurance Program (NFIP) Worksheet. The worksheets come from FEMA’s March 2013 “Local Mitigation Planning Handbook” and were previously handed out during the June 12th kick-off meeting and June 17th planning directors meeting. Some members of the town were unaware of the worksheets, so Mr. Sachnin agreed to resend the documents. He asked that the town representatives complete them as expeditiously as possible, and to the best of their respective abilities.

3. List of Stakeholders and Outreach Strategy

a. Stakeholder List:

The group next discussed the list of stakeholders, which was developed and vetted with the Regional Advisory Group at the June 12th kick-off meeting. Mr. Sachnin proceeded by asking if any Wilton-specific stakeholders should be added to the list, highlighting that such entities would be frequently kept abreast of plan development activities, including the option to comment on the plan itself, but would not steer plan development like the advisory committee. The group unanimously agreed to add the following Wilton stakeholders: Community Emergency Response Team (CERT), South Norwalk Electric and Water (SNEW), Aquarion, and Yankee Gas. Chief Kanterman also requested that the new Town of Wilton Facilities Director (once hired) should be added to the Advisory Committee, an action which the group agreed was important given the scope of work entailed as part of that position. Mr. Sachnin noted the additions and explained that the aforementioned stakeholders would be added to the stakeholder distribution list for all future HMP correspondence, once the appropriate contact information was provided by the Town of Wilton.

b. Outreach Strategy:

Mr. Sachnin provided an overview of the proposed outreach strategy, including at least three “cluster” workshops with The Nature Conservancy (TNC), which would then be supplemented with individual municipal public meetings to allow the public to comment on the draft report development. Lastly, a third round of public involvement and outreach would be conducted, allowing each municipality, its stakeholders and general public to comment on the plan in advance of a final submission to the State of Connecticut and FEMA.

Mr. Sachnin further explained the TNC meetings, although clustered to contain multiple municipalities, would provide clear and distinctly separate opportunities for each municipality to identify vulnerable areas and assets, in conjunction with identifying mitigation strategies and techniques to help make each municipality more resilient to the hazards they individually identified. Results of the workshops would be incorporated into the Hazard Mitigation Plan Update, to the extent possible and applicable. Ms. Sesto expressed some concern regarding the public perception of such a workshop, creating the potential for a misunderstanding that such efforts would only involve natural hazard elements, and not actual damages associated from the hazards, citing houses that could be at risk to flooding as an example. Mr. Sachnin acknowledged the concern and spoke to the importance of a clear, concise, message announcing the workshops.

Mr. Sachnin also explained that the individual municipal meetings provided another forum to provide the public an opportunity to review and comment on project work, and meeting specifics would be agreed upon with the Town of Wilton to ensure effective communication and the greatest possible turnout by the public. Town suggestions for an individual meeting included conducting a session before or during a Board of Selectmen meeting, in hopes it would yield a greater turnout. The final individual meeting would be conducted following any changes to a draft document, in order to provide one last opportunity for public review and comment before the final report is submitted to the state and FEMA.

The group unanimously agreed that this was a sufficient strategy to pursue, and would explore the individual meeting specifics as the time approached.

4. Wilton Hazards

The group next discussed natural hazards of concern in Wilton, which led to the completion of Worksheet 5.1: Hazards Summary Worksheet. This worksheet also comes from FEMA's March 2013 Local Mitigation Planning Handbook. Wilton results from Worksheet 5.1 will be incorporated into the Hazard Mitigation Plan.

5. Wilton Critical Assets and Infrastructure

A review of the existing Town of Wilton assets and infrastructure was conducted using GIS data. Such data was previously obtained through extensive work with Wilton and outreach to other applicable stakeholders. The participants reviewed two variations of maps depicting the assets. A list of key assets and infrastructure was provided by Chief Kanterman, and the group agreed that a good approach was to map such asset locations, but strike any specific details such as owner name or contact information. Ms. Sesto recommended the locations of the utility transition and substations be included, and Mr. Nerney added the DOT and DPW facilities would be important structures to include. Mr. Sachnin asked the municipal representatives to provide names and addresses for all additional assets not already mapped or including in the list provided by Wilton Fire, stating that once received, SWRPA would add this to the mapping efforts.

6. Mitigation Strategies

The group next reviewed the 2011 mitigation strategies line by line, indicating updates and any progress made. Follow ups will be made to DPW for updates to certain strategies that could not be answered during the meeting. A decision was made to identify new 2016 strategies at a later meeting.

The meeting ended at 11:15 am.

WESTERN CONNECTICUT COUNCIL OF GOVERNMENTS

888 Washington Boulevard, 3rd Floor, Stamford, CT 06901
Brookfield Office (203) 775-6256 – Stamford Office (203) 316-5190



DATE: December 9, 2014
TO: Wilton HMP Advisory Committee and Staff
FROM: Robert Sachnin, Mike Towle
RE: Wilton Individual Meeting: Monday December 15, 2014, 11:00 am

Agenda: 12/15/14 Wilton Individual HMP Meeting

Location: Wilton Town Hall Complex

1. **Updates and Announcements**
 - a. Proposed Draft Deadline
 - b. Public Comment Period and Associated Actions
 - c. Wilton-specific Capabilities
2. **2016 Mitigation Strategies**
3. **Other**

Attachments:

1. Wilton 2016 Mitigation Strategies
2. STAPLEE Reference Sheet
3. Wilton Capabilities Text

HMP Followup Meeting
December 15, 2014
11:00 AM - Wilton

Name:	Title:	Municipality:	E-mail and Phone:
Michael Towle	Regional Planner	WCCOG	—
Rob Suchnin	Sr. Regional Planner	WCCOG / SWPPA	
B. J. Dennis	Deputy Planner	Wilton	
Van Kalkbrenner	Chief	Wilton	
Mark Ametula	EMD	Wilton	

Appendix A-3

Outreach Strategy

Appendix A-3.1

Stakeholder and Public Engagement

Hazard Mitigation Survey Outreach

FOR IMMEDIATE RELEASE – November 10, 2014

CONTACT:

Rob Sachnin – Senior Regional Planner
Western Connecticut Council of Governments (WCCOG)
South Western Regional Planning Agency (SWRPA)
(203) 316-5190

Now Available: Natural Hazard Survey for South Western Region

A Natural Hazard Survey has just been released to solicit public feedback regarding natural hazards in the South Western Region. The survey aims to identify the natural hazards of greatest public concern, including vulnerable locations and potential mitigation opportunities.

The Western Connecticut Council of Governments (WCCOG, formerly SWRPA) is issuing this survey in conjunction with its ongoing Hazard Mitigation Plan (HMP) efforts, a key planning document which keeps participating municipalities eligible for many types of Federal Emergency Management Agency (FEMA) funding. The eight HMP municipalities include: Darien, Greenwich, New Canaan, Norwalk, Stamford, Weston, Westport, and Wilton.

South Western Connecticut has experienced an array of extreme weather events in recent years. The resulting damage and financial impacts have spurred a sense of urgency to increase resilience to such natural hazards. WCCOG, its municipalities and key stakeholders have worked tirelessly to better prepare the area, and seek public input to ensure adequate preparedness for future disasters.

Survey results will be utilized to help protect the region against the impacts of extreme weather and climate change, providing emergency responders and key decision maker's greater understanding of public perception to natural hazards, including vulnerabilities. This information is vital, and provides opportunities to more effectively target outreach and education efforts in local communities, while also confirming critical vulnerable areas suitable for mitigation measures. Such efforts increase overall public safety, reduce vulnerability to key assets and infrastructure, while also reducing human and financial impacts associated with natural disasters, consistent with HMP goals and objectives.

“A key component to natural hazard mitigation is getting the right people at the table. The Natural Hazard Mitigation Survey provides an unparalleled opportunity to cast a wider net and better involve the public.” said Robert Sachnin, Senior Regional Planner at WCCOG and HMP project manager. “These are the people who are directly affected by disasters, and it's important that their voices are heard. The public's feedback concurrently assists emergency responders, so it's really a win/win for the community.”

The survey can be found here:

https://docs.google.com/forms/d/1L21_wL8TR9APXwAPIM9QPODzL1HTTDwh7irFFEngEc8O/viewform?edit_requested=true

Additional HMP information found at WCCOG/SWRPA's website:
<http://www.swrpa.org/default.aspx?Regional=268>.

###

Robert Sachnin

From:
Sent:
To:

Robert Sachnin
Monday, November 10, 2014 10:06 AM
'nancy@nancyonmwalk.com'; 'Tribuna Newspaper (tribunanews@gmail.com)';
'ads@lavozhispanact.com'; 'Fairfield Minuteman (editor@fairfieldminuteman.com)'; 'Kaomi
Goetz (kaomig@wshu.org)'; 'itsrelevant.com (support@itsrelevant.com)'; 'Connecticut Haitian
Voice (admin@haitianvoice.com)'; 'Fairfield County Independent
(advertising@fairfieldcountyind.com)'; 'Aaron Boyd (aaron@patch.com)'; 'Kathryn Hauser
(khauser@news12.com)'; 'Melvin Mason (mmason@TheDailyNewCanaan.com)'; 'Kevin
Zimmerman (kzimmerman@TheDailyWilton.com)'; 'Samantha Henry
(sherry@TheDailyWeston.com)'; 'Vanessa Inzitari (vinzitari@TheDailyWestport.com)';
'Norwalk Daily Voice (cdonahue@dailyvoice.com)'; 'Casey Donahue
(cdonahue@dailyvoice.com)'; 'Stamford Daily Voice (FMacEachern@dailyvoice.com)';
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(kborsuk@greenwich-post.com)'; 'Greenwich Time City Desk (gtcitydesk@scni.com)'; 'Albert
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'Jeremy Soulliere (jsoulliere@thehour.com)'; 'Fran Schneidau (fransch@optonline.net)';
'Avery, Dominique (Dominique.Avery@cga.ct.gov)'; 'Moore, Jim
(metro_hfd@metronetworks.com)'; 'Hour, The (news@thehour.com)';
'ikram@nhregister.com'; 'kadden@nytimes.com'; 'k Koch@thehour.com'; 'Tony Savino
(tony.savino@wgch.com)'; 'Weston Forum/Redding Pilot/Ridgefield
(editor@thewestonforum.com)'; 'news12ct@news12.com'; 'features@nhregister.com';
'peappl@nytimes.com'; 'newstips@nbc30.com'; 'nhutson@newstimes.com';
'mnicefaro@contact.com'; 'delucia@courant.com'; 'Gail Hunt (ghunt@wshu.org)';
'lproberg@news12.com'; 'Kirk Lang (ldoody@bcnnew.com)'; 'jschwing@ctpost.com';
'Jeannette Ross (editor@wiltonbulletin.com)'; 'Greenwich Citizen (gcitizen@bcnnew.com)';
'WGCHnews@aol.com'; 'Channel 3 News (newsdesk3@wfsb.com)'; 'WTNH Channel 8
(news8@wtnh.com)'; 'vvarnon@ctpost.com'; 'jonathan.lucas@scni.com'; 'News 12
(news12ct@news12.com)'; 'Jim Nash (jsoulliere@thehour.com)';
Michael Towle
For Immediate Release Release of South Western Region's Natural Hazard Mitigation
Survey
14-1110_NaturalHazardSurvey_Media release.pdf

Cc:
Subject:

Attachments:

Good Morning,

Please publish the attached media release regarding the South Western Region's Natural Hazard Mitigation Survey. The survey is intended to solicit public feedback regarding natural hazards in the area, including those hazards of greatest concern, vulnerable areas, and possible opportunities for mitigation. Such efforts will be incorporated into the region's Hazard Mitigation Plan Update.

A link to the survey itself is provided below, as well as in the media release:
https://docs.google.com/forms/d/1L2LWL8TR9APXwAPIM9QPDzL1HTDwh7iFfEngEc8Q/viewform?edit_requested=true

Thank you for your assistance in this matter,

Robert Sachnin, AICP
Senior Regional Planner
Western CT Council of Governments (WCCOG)
South Western Regional Planning Agency (SWRPA)

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What Are the Natural Hazards in Wilton?

By Barbara Heins (Patch Staff)

☐ Updated November 10, 2014 at 8:28 am ☐ ☐



The Western Connecticut Council of Governments (WCCOG, formerly the South Western Regional Plan Association) announced on Monday it is conducting a Natural Hazard Survey to solicit public feedback about natural hazards in the South Western Region of Fairfield County. The survey aims to identify the natural hazards of greatest public concern, including vulnerable locations and potential mitigation opportunities.

WCCOG is conducting the survey in conjunction with its ongoing Hazard Mitigation Plan (HMP) efforts, a key planning document which keeps participating municipalities eligible for many types of Federal Emergency Management Agency (FEMA) funding. The eight HMP municipalities include: Darien, Greenwich, New Canaan, Norwalk, Stamford, Weston, Westport, and Wilton.

South Western Connecticut has experienced an array of extreme weather events in recent years. The resulting damage and financial impacts have spurred a sense of urgency to increase resilience to such natural hazards. WCCOG, its municipalities and key stakeholders have worked to better prepare the area, and seek public input to ensure adequate preparedness for future disasters.

Survey results will be utilized to help protect the region against the impacts of extreme weather and climate change, providing emergency responders and key decision maker's greater understanding of public perception to natural hazards, including vulnerabilities. This information is vital, and provides opportunities to more effectively target outreach and education efforts in local communities, while also confirming critical vulnerable areas suitable for mitigation measures. Such efforts increase overall public safety, reduce vulnerability to key assets and infrastructure, while also reducing human and financial impacts associated with natural disasters, consistent with HMP goals and objectives.

"A key component to natural hazard mitigation is getting the right people at the table. The Natural Hazard Mitigation Survey provides an unparalleled opportunity to cast a wider net and better involve the public," said Robert Sachnin, Senior Regional Planner at WCCOG and HMP project manager. "These are the people who are directly affected by disasters, and it's important that their voices are heard. The public's feedback concurrently assists emergency responders, so it's really a win/win for the community."

The survey can be found here:

https://docs.google.com/forms/d/1L2l_wL8TR9APXwAPIM9QPQDZL1HTTDwh7irFEEngEc8Q/viewform?edit_r_requested=true

Additional HMP information found at WCCOG/SWRPA's website: <http://www.swrpa.org/default.aspx?Regional=268>.

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What Are a Natural Hazards in Westport?

November 13, 2014NorwalkNo Comments

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The Western Connecticut Council of Governments (WCCOG, before a South Western Regional Plan Association) announced on Monday it is conducting a Natural Hazard Survey to appeal open feedback about healthy hazards in a South Western Region of Fairfield County. The consult aims to brand a healthy hazards of biggest open concern, including exposed locations and intensity slackening opportunities.

WCCOG is conducting a consult in conjunction with a ongoing Hazard Mitigation Plan (HMP) efforts, a pivotal formulation request that keeps participating municipalities authorised for many forms of Federal Emergency Management Agency (FEMA) funding. The 8 HMP municipalities include: Darien, Greenwich, New Canaan, Norwalk, Stamford, Weston, Westport, and Wilton.

South Western Connecticut has gifted an array of impassioned continue events in new years. The resulting damage and financial impacts have spurred a clarity of coercion to boost resilience to such healthy hazards. WCCOG, a municipalities and pivotal stakeholders have worked to improved ready a area, and seek public submit to safeguard adequate preparedness for destiny disasters.

Survey formula will be employed to assistance strengthen a segment opposite a impacts of impassioned continue and climate change, providing puncture responders and pivotal preference maker's larger bargain of open notice to natural hazards, including vulnerabilities. This information is vital, and provides opportunities to some-more effectively target overdo and preparation efforts in internal communities, while also confirming vicious exposed areas suitable for slackening measures. Such efforts boost altogether open safety, revoke disadvantage to pivotal resources and infrastructure, while also shortening tellurian and financial impacts compared with healthy disasters, unchanging with HMP goals and objectives.

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"A pivotal member to healthy jeopardy slackening is removing a right people during a table. The Natural Hazard Mitigation Survey provides an forlorn event to expel a wider net and improved engage a public." said

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Robert Sachnin, Senior Regional Planner during WCCOG and HMP plan manager. “These are a people who are directly influenced by disasters, and it’s critical that their voices are heard. The public’s feedback concurrently assists puncture responders, so it’s unequivocally a win/win for a community.”

The consult can be found here:
https://docs.google.com/forms/d/1L2I_wL8TR9APXwAPIM9QPQDzL1HTTDwh7irFEngEc8Q/viewform?edit_requested=true

Additional HMP information found during WCCOG/SWRPA’s website:
<http://www.swrpa.org/default.aspx?Regional=268>.

Have a news tip? Email barbara.heins@patch.com. You can also post your possess news, events and announcements on Patch by following these directions. Curious about how the new commenting platform, Disqus, works? Learn some-more about it here and start interacting with your neighbors on Patch.

Article source: <http://patch.com/connecticut/westport/what-are-natural-hazards-westport-0>

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What Are the Natural Hazards in Weston?

Residents can weigh in on a regional survey soliciting feedback on what natural hazards are of concern to them so towns can better prepare.

By Barbara Heins (Patch Staff)

☐ Updated November 10, 2014 at 11:14 am | ☐ | ☐



The effects of Superstorm Sandy and Hurricane Irene remain all too vivid in local residents' memories and many are still dealing with the impact of the storms.

The Western Connecticut Council of Governments (WCCOG, formerly the South Western Regional Plan Association) announced on Monday it is conducting a Natural Hazard Survey to solicit public feedback about natural hazards in the South Western Region of Fairfield County. The survey aims to identify the natural hazards of greatest public concern, including vulnerable locations and potential mitigation opportunities.

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Survey results will be utilized to help protect the region against the impacts of extreme weather and climate change, providing emergency responders and key decision maker's greater understanding of public perception to natural hazards, including vulnerabilities. This information is vital, and provides opportunities to more effectively target outreach and education efforts in local communities, while also confirming critical vulnerable areas suitable for mitigation measures. Such efforts increase overall public safety, reduce vulnerability to key assets and infrastructure, while also reducing human and financial impacts associated with natural disasters, consistent with HMP goals and objectives.

"A key component to natural hazard mitigation is getting the right people at the table. The Natural Hazard Mitigation Survey provides an unparalleled opportunity to cast a wider net and better involve the public," said Robert Sachnin, Senior Regional Planner at WCCOG and HMP project manager. "These are the people who are directly affected by disasters, and it's important that their voices are heard. The public's feedback concurrently assists emergency responders, so it's really a win/win for the community."

The survey can be found here:

https://docs.google.com/forms/d/1L2l_wL8TR9APXwAPIM9QPQDZL1HTTDwh7irFEngEc8Q/viewform?edit_r_requested=true

Additional HMP information found at WCCOG/SWRPA's website: <http://www.swrpa.org/default.aspx?Regional=268>.

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What Are the Natural Hazards in Stamford?

Residents can weigh in on a regional survey soliciting feedback on what natural hazards are of concern to them so towns can better prepare.

By Barbara Heins (Patch Staff)

☐ Updated November 10, 2014 at 8:26 am | ☐ | ☐



The effects of Superstorm Sandy and Hurricane Irene remain all too vivid in local residents' memories and many are still dealing with the impact of the storms.

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Norwalk

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What Are the Natural Hazards in Norwalk?

Residents can weigh in on a regional survey soliciting feedback on what natural hazards are of concern to them so towns can better prepare.

By Barbara Heins (Patch Staff)

☐ Updated November 11, 2014 at 8:36 pm | ☐ | ☐



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What Are the Natural Hazards in New Canaan?

Residents can weigh in on a regional survey soliciting feedback on what natural hazards are of concern to them so towns can better prepare.

By Barbara Heins (Patch Staff)

[Updated November 10, 2014 at 8:26 am](#) [Patch](#) [Patch](#) [Patch](#)



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Greenwich

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What Are the Natural Hazards in Greenwich?

Residents can weigh in on a regional survey soliciting feedback on what natural hazards are of concern to them so towns can better prepare.

By Barbara Heins (Patch Staff)

☐ Updated November 10, 2014 at 8:25 am ☐ ☐ ☐



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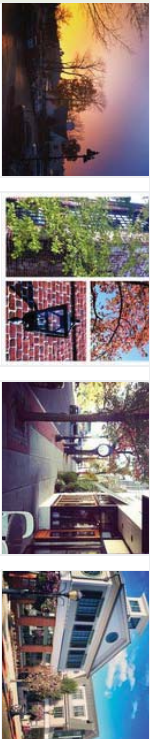
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What Are the Natural Hazards in Darien?

Residents can weigh in on a regional survey soliciting feedback on what natural hazards are of concern to them so towns can better prepare.

By Barbara Heins (Patch Staff)

☐ Updated November 11, 2014 at 3:29 pm | ☐ | ☐



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Hazard Mitigation Workshop Outreach

Robert Sachnin

From: Robert Sachnin
Sent: Monday, October 20, 2014 10:12 AM
To: brigitte.ndikum-nyada@fema.dhs.gov; 'Marilyn.Hilliard@fema.dhs.gov'; 'Urbansky, Edward'; Gutowski, Teresa; 'Michaels, Karen'; 'eeb6@westchestergov.com'; David Hannon; 'Mark Hoover'; Mark Goetz
Cc: Floyd Lapp; Michael Towle; 'Adam W. Whelchel'; 'Amanda Ryan'; Patricia Payne; Donna Stone
Subject: South Western Region Hazard Mitigation Workshops
Attachments: 14-1008_Workshop Invitation Letter or Email.docx

Good Morning Everyone,

Hope you all had wonderful weekends. Please be advised that SWRPA/WCCOG has partnered with The Nature Conservancy (TNC) to conduct four Hazard Mitigation Workshops within the South Western Region. The groupings were based on a variety of factors, including comparable hazard profiles, geographic similarities and vulnerabilities, as well as previous working relationships/shared resources/services with respect to hazard mitigation. Below please find the Workshop dates and associated regions, all workshops will run from 8:45am to 1:30 pm:

- ***November 18, 2014:** New Canaan, Wilton, Weston – Wilton Town Hall, Meeting Room A
- ***November 24, 2014:** Darien, Norwalk, Westport – Norwalk Community Room 128, Norwalk City Hall
- **December 1, 2014:** Stamford – 6th Floor Safety Training Room, Stamford Government Center
- **December 18, 2014:** Greenwich – Town Hall Meeting Room, Greenwich Town Hall

*Although workshop contains multiple municipalities, each municipality will sit at their own table(s) so that their specific/individual municipal concerns and input are appropriately captured.

A sample invite is attached, to provide perspective on Workshop format and objectives. Lastly, those adjacent communities/regions have also been copied on this correspondence, and a representative is welcome to join the workshop so long as they RSVP, details are provided below:

RSVP Contact: Adam Whelchel at 860-970-8442 or awhelchel@tnc.org.

Thanks and feel free to reach out with any questions or concerns.

Best Regards,

Robert Sachnin, AICP
Senior Regional Planner
Western CT Council of Governments (WCCOG)
South Western Regional Planning Agency (SWRPA)
Telephone: (203) 316-5190
Direct: (203) 965-4971
Fax: (203) 316-4995
Email: Sachnin@swrpa.org

Robert Sachnin

From:
Sent:
To:

Robert Sachnin
Monday, October 27, 2014 8:30 AM
'Stephen G. Walko (stephen.walko@housegop.ct.gov)'; 'Thomas O'Dea (tom.odea@housegop.ct.gov)'; 'Dan Fox (Dan.Fox@cga.ct.gov)'; 'Toni Boucher@cga.ct.gov'; 'Bruce Morris (Bruce.Morris@cga.ct.gov)'; 'Christopher Perone (Chris.Perone@cga.ct.gov)'; 'John McKinney (John.McKinney@cga.ct.gov)'; 'Tong William (William.Tong@cga.ct.gov)'; 'Jonathan Steinberg (Jonathan.Steinberg@cga.ct.gov)'; 'Honorable L. Scott Frantz (Scott.Frantz@cga.ct.gov)'; 'Terrie Wood (Terrie.Wood@cga.ct.gov)'; 'Gerald Fox (Gerald.Fox@cga.ct.gov)'; 'Carlo Leone (Carlo.Leone@cga.ct.gov)'; 'Kim Fawcett (Kim.Fawcett@cga.ct.gov)'; 'John Shaban (John.Shaban@housegop.ct.gov)'; 'Livvy Floren (Livvy.Floren@housegop.ct.gov)'; 'Richard Blumenthal (richard.blumenthal@blumenthal.senate.gov)'; 'Michael Molgano (Michael.Molgano@cga.ct.gov)'; 'Patricia Miller (Patricia.Miller@cga.ct.gov)'; 'Gail Lavielle'; 'Alfred Camillo (Fred.Camillo@cga.ct.gov)'; 'Robert B. Duff (Duff@senatedems.ct.gov)'; 'Floyd Lapp; Michael Towle; 'Adam W. Wheelchel'
FEMA Funding and Hazard Mitigation
14-1008_Workshop Invitation Letter or Email.docx

Cc:
Subject:
Attachments:

Contacts:

Stephen G. Walko - 150th District; Thomas O'Dea - 125th District; Daniel J. Fox - 148th District; Toni Boucher; Bruce V. Morris; Christopher Perone - District 137; John McKinney - 28th District; William Tong - 147th District; James Himes - (R) 4th District; Jonathan Steinberg - 136th District; Honorable L. Scott Frantz - 36th District; Terrie Wood - 141st District; Gerald M. Fox - 146th District; Carlo Leone - District 27; Kim Fawcett - 133rd District; John Shaban - 135th District; Livvy Floren - State Representative; Richard Blumenthal; Michael Molgano - 144th District (R); Patricia Miller - 145th District; Gail Lavielle - 143rd District; Alfred Camillo - 151st District; Robert B. Duff - 25th District

Good Morning Legislators,

As you know, the Hazard Mitigation Plan is a precursor to receiving many types of FEMA funding, which of course has been more critical than even in light of recent storm events such as Sandy and Irene.

SWRPA/WCCOG has partnered with The Nature Conservancy (TNC) and cordially invites you to attend one or more of a series of Hazard Mitigation Workshops in the South Western Region. The workshops serve to promote both intra- and inter-municipal coordination. A sample invite is attached, which provides perspective on Workshop format and objectives. Below please find the Workshop dates and associated regions, all workshops will run from 8:45am to 1:30 pm:

- ***November 18, 2014:** New Canaan, Wilton, Weston – Wilton Town Hall, Meeting Room A
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- **December 18, 2014:** Greenwich – Town Hall Meeting Room, Greenwich Town Hall

*Although workshop contains multiple municipalities, each municipality will sit at their own table(s) so that their specific/individual municipal concerns and input are appropriately captured.

We hope you can join us for this unprecedented hazard mitigation forum, a first for the region. If interested, please see RSVP information below:

RSVP Contact: Adam Wheelchel at 860-970-8442 or awhelchel@tnc.org.

Thanks and feel free to reach out any questions or concerns.

Best Regards,

Robert Sachnin

From: Robert Sachnin
Sent: Tuesday, November 04, 2014 2:28 PM
To: 'Fromson, Roxane M'
Cc: Michael Towle
Subject: WCCOG/SWRPA Hazard Mitigation Workshops
Attachments: 14-1008_Workshop Invitation Letter or Email_Norwalk.docx

Good Afternoon Roxane,

Hope you are well and had a wonderful weekend. Mike and I wanted to personally let you know that we have partnered with The Nature Conservancy (TNC) to conduct four Hazard Mitigation Workshops within the South Western Region. We would welcome yourself and any other CTDOT representatives at any of the workshops. DEMHS Hazard Mitigation will be attending the 11/24 and 12/18. Below please find the Workshop dates and associated regions, all workshops will run from 8:45am to 1:30 pm:

- ***November 18, 2014:** New Canaan, Wilton, Weston – Wilton Town Hall, Meeting Room A
- ***November 24, 2014:** Darien, Norwalk, Westport – Norwalk Community Room 128, Norwalk City Hall
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Thanks and feel free to reach out with any questions or concerns!

Best Regards,

Robert Sachnin, AICP
Senior Regional Planner

Western CT Council of Governments (WCCOG)

South Western Regional Planning Agency (SWRPA)

Telephone: (203) 316-5190

Direct: (203) 965-4971

Fax: (203) 316-4995

Email: Sachnin@swrpa.org

Robert Sachnin

From: Robert Sachnin
Sent: Monday, October 20, 2014 3:45 PM
To: Kenny, Robert; christopher.ackley@ct.gov
Cc: 'DeLuca, Michele'; 'aschirillo@yahoo.com'
Subject: FW: South Western Region Hazard Mitigation Workshops
Attachments: 14-1008_Workshop Invitation Letter or Email.docx

Bob and Chris,

Hope you both are well, how's life? I wanted to pass the information below along to you as well. Considering your involvement in Region 1, you may find the workshops beneficial. RSVP contact information is provided below, and please do not hesitate to reach out with any questions or concerns.

Thanks and have a great day!

Best Regards,

Rob

From: Robert Sachnin
Sent: Monday, October 20, 2014 10:12 AM
To: brigitte.ndikum-nyada@fema.dhs.gov; 'Marilyn.Hilliard@fema.dhs.gov'; 'Urbansky, Edward'; Gutowski, Teresa; 'Michaels, Karen'; 'eeb6@westchester.gov.com'; David Hannon; 'Mark Hoover'; Mark Goetz
Cc: Floyd Lapp; 'Michael Towle'; 'Adam W. Whelchel'; 'Amanda Ryan'; Patricia Payne; Donna Stone
Subject: South Western Region Hazard Mitigation Workshops

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*Although workshop contains multiple municipalities, each municipality will sit at their own table(s) so that their specific/individual municipal concerns and input are appropriately captured.

A sample invite is attached, to provide perspective on Workshop format and objectives. Lastly, those adjacent communities/regions have also been copied on this correspondence, and a representative is welcome to join the workshop so long as they RSVP, details are provided below:

RSVP Contact: Adam Whelchel at 860-970-8442 or awhelchel@tnc.org.

Thanks and feel free to reach out with any questions or concerns.

Robert Sachnin

From: Robert Sachnin
Sent: Monday, November 03, 2014 12:28 PM
To: Nancy Upton
Cc: Michael Towle
Subject: New Canaan Hazard Mitigation Workshop
Attachments: 14-1008_Workshop Invitation Letter or Email_NewCanaan.docx

Good Afternoon Nancy,

Hope you are well, as a member of New Canaan CERT, Mike and I would like to formally invite you to an upcoming (11/18) Hazard Mitigation Workshop, details are attached.

If you can attend you can RSVP by simply replying to this e-mail and stating your intentions to go. If you cannot make it, please feel free to send a representative.

Thanks and talk soon,

Robert Sachnin, AICP
Senior Regional Planner

[Western CT Council of Governments \(WCCOG\)](#)

South Western Regional Planning Agency (SWRPA)

Telephone: (203) 316-5190

Direct: (203) 965-4971

Fax: (203) 316-4995

Email: Sachnin@swrpa.org

Robert Sachnin

From: David M. Reed, MD, MPH, MBA <drgadjet@yahoo.com>
Sent: Tuesday, November 04, 2014 2:14 PM
To: Michael Towle
Subject: Re: New Canaan Hazard Mitigation Workshop

I will not be able to attend.

In looking over the program it looks most appropriate for Mike Handler our Director of Emergency Preparedness.

DMR

David M. Reed,MD,MPH,MBA,FACS

46 Pequot Lane
New Canaan, CT 06840
Tel/FAX: (203) 966-1808
Cell: (203) 273-2224

From: Michael Towle <Towle@swrpa.org>
To: "DReedmd@gmail.com" <DReedmd@gmail.com>
Cc: Robert Sachnin <Sachnin@swrpa.org>
Sent: Tuesday, November 4, 2014 12:07 PM
Subject: New Canaan Hazard Mitigation Workshop

Good Afternoon Dr. Reed,

I Hope this email finds you well. The New Canaan Health Department is a key stakeholder during a natural disaster, and as such Rob and I would like to formally invite you to an upcoming (11/18) Hazard Mitigation Workshop (details are attached).

If you can attend you can RSVP by simply replying to this e-mail and stating your intentions to go. If you cannot make it, please feel free to send a representative.

Thanks and talk soon,

Michael Towle

Regional Planner
Western Connecticut Council of Governments (WCCOG formerly SWRPA)
888 Washington Blvd. 3rd Floor
Stamford CT 06901
Phone: (203) 965-4975
Email: towle@swrpa.org

Robert Sachnin

From: School House <SchoolHouse@ehmchn.org>
Sent: Wednesday, November 05, 2014 10:52 AM
To: Michael Towle
Subject: RE: New Canaan Hazard Mitigation Workshop Tuesday 11/18/2014

I'm planning on attending.

Tatiana De Jesus
Schoolhouse Apartments

From: Michael Towle [Towle@swrpa.org]
Sent: Tuesday, November 04, 2014 4:18 PM
To: School House
Cc: Robert Sachnin
Subject: New Canaan Hazard Mitigation Workshop Tuesday 11/18/2014

To School House Apartment Representatives,

Tatiana directed me to this email address and I hope it finds you well. I wanted to inform you of an upcoming hazard mitigation workshop for New Canaan. The workshop brings together municipal staff and community stakeholders to discuss natural disaster resilience and mitigation. The School House Apartments has been identified as a key stakeholder for natural disasters and we'd love to incorporate the senior housing perspective for hazard planning.

Rob and I would like to formally invite you to an upcoming (11/18) Hazard Mitigation Workshop, details are attached. If you can attend you can RSVP by replying to this e-mail and stating your intentions to go. If you cannot make it, please feel free to send a representative.

Don't hesitate to reach out to Rob or I if you have any questions.

Thanks and talk soon,

Michael Towle
Regional Planner
Western Connecticut Council of Governments (WCCOG formerly SWRPA)
888 Washington Blvd. 3rd Floor
Stanford CT 06901
Phone: (203) 965-4975
Email: towle@swrpa.org<<mailto:towle@swrpa.org>>

Robert Sachnin, AICP
Senior Regional Planner
Western CT Council of Governments (WCCOG) South Western Regional Planning Agency (SWRPA)
Telephone: (203) 316-5190
Direct: (203) 965-4971
Fax: (203) 316-4995
Email: Sachnin@swrpa.org<<mailto:Sachnin@swrpa.org>>

Robert Sachnin

From: Mike Behm <mbehm@silverhillhospital.org>
Sent: Tuesday, November 04, 2014 12:54 PM
To: Michael Towle
Subject: RE: New Canaan Hazard Mitigation Workshop

Did not find the attachment.

*Mike Behm
Safety Officer
Silver Hill Hospital
203-801-2258
mbehm@silverhillhospital.org*

From: Michael Towle [mailto:Towle@swrpa.org]
Sent: Tuesday, November 04, 2014 12:30 PM
To: Mike Behm
Cc: Robert Sachnin
Subject: RE: New Canaan Hazard Mitigation Workshop

Good Afternoon Mike,

Hope you are well, I wanted to follow up with the message I left you and provide some more info on this hazard mitigation workshop. The town of New Canaan has identified Silver Hill Hospital as a key asset and stakeholder in the case of Natural Disaster, so Rob and I would like to formally invite you to an upcoming (11/18) Hazard Mitigation Workshop, details are attached.

If you can attend you can RSVP by simply replying to this e-mail and stating your intentions to go. If you cannot make it, please feel free to send a representative. If you have any questions don't hesitate to call or email me.

Thanks and talk soon,

Michael Towle

Regional Planner

Western Connecticut Council of Governments (WCCOG formerly SWRPA)

888 Washington Blvd. 3rd Floor

Stamford CT 06901

Phone: (203) 965-4975

Email: towle@swrpa.org

**Robert Sachnin, AICP
Senior Regional Planner**

Western CT Council of Governments (WCCOG)

South Western Regional Planning Agency (SWRPA)

Telephone: (203) 316-5190

Direct: (203) 965-4971

Fax: (203) 316-4995

Robert Sachnin

From: Dennis Huntley <dhuntley@waveny.org>
Sent: Tuesday, November 04, 2014 4:38 PM
To: Michael Towle; awhelchel@tnc.org
Cc: Robert Sachnin; Ron Bucci
Subject: RE: New Canaan Hazard Mitigation Workshop

Good afternoon Michael and Adam,
It would be my pleasure to attend this workshop. I look forward to meeting other community members and discussing this very important issue.

Thank you for your cordial invitation.
Sincerely,

Dennis K. Huntley
Director of Facility Operations
Waveny Health Care Center
3 Farm Rd.
New Canaan, CT 06840
Dhuntley@waveny.org
Office: 203-594-5210
Cell: 203-604-3541



From: Michael Towle [mailto:Towle@swrpa.org]
Sent: Tuesday, November 04, 2014 4:04 PM
To: Dennis Huntley
Cc: Robert Sachnin
Subject: New Canaan Hazard Mitigation Workshop

Good Afternoon Dennis Huntley,

I Hope this email finds you well. This is the follow up to the voicemail I left in regards to the New Canaan Hazard Mitigation Workshop. The workshops bring together municipal staff and community stakeholders to discuss natural disaster resilience and mitigation. The Waveny Care Center has been identified as a key stakeholder for natural disasters and we'd love to incorporate the Waveny LifeCare perspective for hazard planning.

Rob and I would like to formally invite you to an upcoming (11/18) Hazard Mitigation Workshop, details are attached. If you can attend you can RSVP by replying to this e-mail and stating your intentions to go. If you cannot make it, please feel free to send a representative.

Don't hesitate to reach out to Rob or I if you have any questions.

Thanks and talk soon,

Michael Towle

Robert Sachnin

From: Michael Towle
Sent: Thursday, November 06, 2014 2:26 PM
To: 'Michaels, Karen'; Ifkovic, Diane
Cc: Sattler, David; Robert Sachnin
Subject: RE: attendance at the 11/18 and 11/24 planning meetings

Hello Karin and Diane,

I'm so excited that you can make it for the 11/18/2014 Hazard Mitigation workshop (and Diane for the 11/24 as well)! Your expertise and experience in all things "natural hazard" is going to be a huge asset to the workshops. Thank you so much for RSVP'ing. Rob and I look forward to seeing you there!

Best,

Michael Towle

Phone: (203) 965-4975

Email: towle@swrpa.org

From: Michaels, Karen [mailto:Karen.Michaels@ct.gov]
Sent: Thursday, November 06, 2014 12:34 PM
To: Michael Towle
Cc: Ifkovic, Diane; Sattler, David
Subject: attendance at the 11/18 and 11/24 planning meetings

Hi Michael,

Thank you for the invitation to attend your series of planning meetings for you HMP Update. Diane and I will be attending the 11/18/14 meeting and Diane will also attend the 11/24/14 meeting.

Looking forward to seeing all of you at the former SWRPA and attending the meeting.

Sincerely,

Karen

Karen A. Michaels
Environmental Analyst/Risk MAP Coordinator
Flood Management
Inland Water Resources Division
Bureau of Water Protection and Land Reuse
Connecticut Department of Energy and Environmental Protection
79 Elm Street, Hartford, CT 06106-5127
P: 860.424.3779 | F: 860.424.4054 | E: karen.michaels@ct.gov

Robert Sachnin

From: Michael Towle
Sent: Tuesday, November 25, 2014 9:52 AM
To: lissette.andino@nu.com
Cc: Robert Sachnin
Subject: RE: Hazard Mitigation Workshops

Good morning Lissette,

I hope this message finds you well. We missed you at yesterday's workshop and I meant to follow up and ask, 'which Monday you were referring to?' If you have the opportunity, next Monday, Dec 1st is the Stamford Hazard Mitigation Workshop and we'd love to have you there.

I've reposted the details for our remaining workshops below, please feel free to reach out if you have any questions,

3. Monday 12/1/2014 w/ Stamford @ Stamford Government Center, 6th Floor Safety Training Room
4. Thursday 12/18/2014 w/ Greenwich @ Greenwich Town Hall, Town Hall Meeting Room

Sincerely,

Michael Towle

Phone: (203) 965-4975

Email: towle@swrpa.org

From: lissette.andino@nu.com [mailto:lissette.andino@nu.com]
Sent: Friday, November 21, 2014 11:36 AM
To: Michael Towle
Subject: Re: Hazard Mitigation Workshops

Hi Michael,

I am available to attend part of the workshop on Monday. See you there.

Warmest Regards,
Lissette

Lissette Andino

Manager, Community Relations and Economic Development-Connecticut | Northeast Utilities |
PO Box 270, Hartford, CT 06146 | ☎ 203.845.3466(office) | ☎ 203.845.3622(fax) | ☎ 203.733.4547(cell)

✉ lissette.andino@nu.com □ www.ct-p.com □ www.yankeegas.com □ www.nu.com

From: Michael Towle <Towle@swrpa.org>
To: Lissette Andino/NUS@NU, Tracey V. Alston/NUS@NU,
Cc: Robert Sachnin <Sachnin@swrpa.org>
Date: 11/04/2014 03:51 PM
Subject: Hazard Mitigation Workshops

Good Afternoon Lissette and Tracey,

I Hope this email finds you well. This is the follow up to the voicemail I left in regards to the Hazard Mitigation Workshops we're hosting for the South West Region. The workshops bring together municipal staff and community stakeholders to discuss natural disaster resilience and mitigation. We'd love to have North East Utilities represented at one or more of the workshops.

The dates of the workshops are:

1. Tuesday 11/18/2014 w/ New Canaan, Wilton, and Weston @ Wilton Town Hall, Meeting Room A
2. Monday 11/24/2014 w/ Darien, Norwalk, Westport @ Norwalk City Hall, Norwalk Community Room 128
3. Monday 12/1/2014 w/ Stamford @ Stamford Government Center, 6th Floor Safety Training Room
4. Thursday 12/18/2014 w/ Greenwich @ Greenwich Town Hall, Town Hall Meeting Room

I suspect first workshop on the list would be a good fit, since these towns are more remote and less resilient to power outages.

I've attached a flyer for the 11/18 workshop. If you can attend you can RSVP by replying to this e-mail and stating your intentions to go. If you cannot make it, please feel free to send a representative.

Don't hesitate to reach out to Rob or I if you have any questions.

Thanks and talk soon,

Michael Towle

Regional Planner
Western Connecticut Council of Governments (WCCOG formerly SWRPA)
888 Washington Blvd. 3rd Floor
Stamford CT 06901
Phone: (203) 965-4975
Email: towle@swrpa.org

Robert Sachnin, AICP

Senior Regional Planner
Western CT Council of Governments (WCCOG)
South Western Regional Planning Agency (SWRPA)
Telephone: (203) 316-5190
Direct: (203) 965-4971
Fax: (203) 316-4995
Email: Sachnin@swrpa.org

[attachment "14-1008_Workshop Invitation Letter or Email2.docx" deleted by Lissette Andino/NUS]

Robert Sachnin

From: Michael Towle
Sent: Friday, November 14, 2014 12:01 PM
To: tracey.alston@nu.com
Cc: Robert Sachnin
Subject: RE: Hazard Mitigation Workshops

Greetings Tracey,

I hope you are having a sunny fall day.

Our first hazard workshop is nearly upon us for Tuesday 11/18/2014 @ Wilton Town Hall, Meeting Room A and I wanted to follow up on our conversation about having potential North East Utilities' representatives for the event. NE Utilities would be strong asset to these workshops.

I hope to hear from you soon.

Sincerely,

Mike Towle
Regional Planner
WCCOG (Formerly [SWRPA](#) and [HVCEO](#))
Direct Line: 203-965-4975
Email: towle@swrpa.org

From: Michael Towle
Sent: Tuesday, November 04, 2014 3:51 PM
To: lissette.andino@NU.com; tracey.alston@nu.com
Cc: Robert Sachnin
Subject: Hazard Mitigation Workshops

Good Afternoon Lissette and Tracey,

I Hope this email finds you well. This is the follow up to the voicemail I left in regards to the Hazard Mitigation Workshops we're hosting for the South West Region. The workshops bring together municipal staff and community stakeholders to discuss natural disaster resilience and mitigation. We'd love to have North East Utilities represented at one or more of the workshops.

The dates of the workshops are:

1. Tuesday 11/18/2014 w/ New Canaan, Wilton, and Weston @ Wilton Town Hall, Meeting Room A
2. Monday 11/24/2014 w/ Darien, Norwalk, Westport @ Norwalk City Hall, Norwalk Community Room 128
3. Monday 12/1/2014 w/ Stamford @ Stamford Government Center, 6th Floor Safety Training Room
4. Thursday 12/18/2014 w/ Greenwich @ Greenwich Town Hall, Town Hall Meeting Room

I suspect first workshop on the list would be a good fit, since these towns are more remote and less resilient to power outages.

I've attached a flyer for the 11/18 workshop. If you can attend you can RSVP by replying to this e-mail and stating your intentions to go. If you cannot make it, please feel free to send a representative.

Website Screen Capture: Hazard Mitigation Survey Overview and RSVP info

Hazard Mitigation Workshops (*NEW!*)

SWRPA has partnered with The Nature Conservancy (TNC) to conduct Hazard Mitigation Workshops for the region and each municipality. Workshop objectives seek to:

- Understand connections between ongoing community issues, hazard and local planning/mitigation processes.
- Evaluate strengths and vulnerabilities of residents, infrastructure and natural resources to hazards.
- Develop and prioritize actions for the municipality, local organizations, businesses, private citizens, neighborhoods, and community groups
- Identify and map vulnerabilities and assets and develop infrastructure, societal and natural resource risk profiles.
- Identify opportunities to advance actions that further reduce the impact of hazards and increase resilience.

The workshops will run from 8:45am to 1:30pm. The dates, locations, involved municipalities, and RSVP details are included below:

- ***November 18, 2014:** New Canaan, Wilton, Weston – Wilton Town Hall, Meeting Room A
- ***November 24, 2014:** Darien, Norwalk, Westport – Norwalk Community Room 128, Norwalk City Hall
- **December 1, 2014:** Stamford – 6th Floor Safety Training Room, Stamford Government Center
- **December 18, 2014:** Greenwich - Town Hall Meeting Room, Greenwich Town Hall

*Although workshop contains multiple municipalities, each municipality will sit at their own table(s) so that their specific/individual municipal concerns and input are appropriately captured.

RSVP: Dr. Adam Whelchel; 860-970-8442 or awhelchel@tnc.org

Space is limited, so please RSVP as soon as possible

Robert Sachnin

From:
Sent:
To:

Robert Sachnin
Friday, November 14, 2014 2:29 PM
'nancy@nancyonnorwalk.com'; 'Tribuna Newspaper (tribunanews@gmail.com)';
'ads@lavozhispanact.com'; 'Fairfield Minuteman (editor@fairfieldminuteman.com)'; 'Kaomi
Goetz (kaomig@wshu.org)'; 'itsrelevant.com (support@itsrelevant.com)'; 'Connecticut Haitian
Voice (admin@haitianvoice.com)'; 'Fairfield County Independent
(advertising@fairfieldcountyind.com)'; 'Aaron Boyd (aaron@patch.com)'; 'Kathryn Hauser
(khauser@news12.com)'; 'Melvin Mason (mmason@TheDailyNewCanaan.com)'; 'Kevin
Zimmerman (kzimmerman@TheDailyWilton.com)'; 'Samantha Henry
(sherry@TheDailyWeston.com)'; 'Vanessa Inzitari (vinzitari@TheDailyWestport.com)';
'Norwalk Daily Voice (cdonahue@dailyvoice.com)'; 'Casey Donahue
(cdonahue@dailyvoice.com)'; 'Stamford Daily Voice (FMacEachern@dailyvoice.com)';
'Greenwich Daily Voice (FMacEachern@dailyvoice.com)'; 'Barbara Heins'; 'Barbara Heins
(barbara.heins@patch.com)'; 'David Gurliacci'; 'Barbara Heins'; 'cathryn.j.prince'; 'David
Gurliacci (david.gurliacci@patch.com)'; 'Harold F. Cobin (hcobin@snet.net)'; 'Ken Borsuk
(kborsuk@greenwich-post.com)'; 'Greenwich Time City Desk (gtcitydesk@scni.com)'; 'Albert
Yuravich (albert.yuravich@scni.com)'; 'Westport Now (editor@westportnow.com)'; 'David
Gurliacci (david.gurliacci@patch.com)'; ' (editor@westportminuteman.com)'; 'Greenwich Post
(editor@greenwich-post.com)'; 'Darien Times'; 'Ashley Varese (avarese@bcnnew.com)';
'Martin Cassidy (martin.cassidy@scni.com)'; 'Wendy Corey (wendy.corey@coxradio.com)';
'Jeremy Soulliere (jsoulliere@thehour.com)'; 'Fran Schneidau (fransch@optonline.net)';
'Avery, Dominique (Dominique.Avery@cga.ct.gov)'; 'Moore, Jim
(metro_hfd@metronetworks.com)'; 'Hour, The (news@thehour.com)';
'ikram@nhregister.com'; 'kadden@nytimes.com'; 'k Koch@thehour.com'; 'Tony Savino
(tony.savino@wgch.com)'; 'Weston Forum/Redding Pilot/Ridgefield
(editor@thewestonforum.com)'; 'news12ct@news12.com'; 'features@nhregister.com';
'peappl@nytimes.com'; 'newstips@nbc30.com'; 'nhutson@newstimes.com';
'mnicefaro@contact.com'; 'delucia@courant.com'; 'Gail Hunt (ghunt@wshu.org)';
'lproberg@news12.com'; 'Kirk Lang (ldoody@bcnnew.com)'; 'jschwing@ctpost.com';
'Jeannette Ross (editor@wiltonbulletin.com)'; 'Greenwich Citizen (gcitizen@bcnnew.com)';
'WGCHnews@aol.com'; 'Channel 3 News (newsdesk3@wfsb.com)'; 'WTNH Channel 8
(news8@wtnh.com)'; 'vvarnon@ctpost.com'; 'jonathan.lucas@scni.com'; 'News 12
(news12ct@news12.com)'; 'Jim Nash (jsoulliere@thehour.com)';
Michael Towle
For Media Only: Hazard Mitigation Workshop Invitation

Cc:

Subject:

Good Afternoon,

You are invited to four upcoming South Western Region Hazard Mitigation Workshops. Specific time has been reserved for media interviews, and you are welcomed to also capture footage of the workshops, or interview participants.

1. **Tuesday 11/18/2014 w/ New Canaan, Wilton, Weston @ Wilton Town Hall, Meeting Room A**
(Interview times (8:30am-9:00am & after 1:30pm))
2. **Monday 11/24/2014 w/ Norwalk, Darien, Westport @ Norwalk City Hall, Norwalk Community Room**
128 (8:30am-9:00am & after 1:15pm)
3. **Monday 12/1/2014 w/ Stamford @ Stamford Government Center, 6th Floor Safety Training Room**
(Interview times 8:30am-9:00am & after 1:15pm)
4. **Thursday 12/18/2014 w/ Greenwich @ Greenwich Town Hall, Town Hall Meeting Room (Interview times 8:30am-9:00am & after 1:30pm))**

The workshops seek to bring municipalities and key stakeholders to the table to discuss natural hazard risks, vulnerable areas, and potential opportunities for mitigation.

Thanks and hope you see you there,

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Area towns identify natural hazards

By Jeanette Ross and Kimberly Donnelly on November 26, 2014 in [Land Use](#) · 0 Comments

About author



Jeanette Ross and
Kimberly Donnelly

Flooding, high winds, severe storms — all are serious hazards affecting Weston and neighboring towns.

To get a handle on the most serious problems, the Western Connecticut Council of Governments (WCCOG) is updating



the Hazard Mitigation Plan used by towns in its region. The council includes the former Southwestern Regional Planning Agency (SWRPA), and it is managing the multi-jurisdictional plan required by the Federal Emergency Management Agency (FEMA). This plan keeps participating municipalities eligible for many types of FEMA funding, and it must be updated every five years.

Representatives from New Canaan, Weston and Wilton — including representatives from police, fire, planning, and environmental affairs — as well as the Nature Conservancy, the state Department of Energy and Environmental Protection (DEEP), Northeast Utilities, and South Norwalk Electric & Water (SNEW) gathered for a four-hour workshop in Wilton on Tuesday, Nov. 18. Also stopping in for a portion of the meeting was state Sen. Toni Boucher (R-26).

Robert Sachnin, a regional planner with WCCOG, said the focus of Tuesday's workshop was to "identify hazards and vulnerabilities" facing the towns and "how to mitigate and safeguard against those hazards."

Weston contingent

The Weston contingent consisted of Tracy Kulikowski, the town's land use director; Tom Falla, chairman of the Planning and Zoning Commission and a former Conservation Commission chairman; Fire Marshal and Chief John Pokorny; resident and planning expert Margaret Wittenberg; and Cynthia Fawx, director of the Nature Conservancy's Devil's Den Preserve in Weston.

Ms. Kulikowski said the workshop was very productive, and helped town leaders identify top priority hazards and how to mitigate them. Grouping the three similar towns together was also helpful, she said, because they often experience similar issues.

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For Weston, Ms. Kulikowski said, those priorities included “anything that brings trees onto power lines,” such as wind, flooding, and severe storms, and onto local roads and the Samuel Senior Dam at the Saugatuck Reservoir.

Ms. Kulikowski said the Weston representatives’ strategies for dealing with these hazards included:

- The need for a more robust generator capable of powering the entire center of town, including town hall, the library, emergency services, at least some school facilities for use as an emergency shelter, and the commercial shopping center.
- Maintaining existing and identifying locations for new dry hydrants throughout town. Ms. Kulikowski said she believes the town needs to start thinking of these as “capital improvements” since the town is obligated to maintain them, even if they are on private property.
- Comprehensively looking at all town roads, including the 305 or so that are privately maintained. Part of that effort is making sure CL&P continues roadside tree maintenance. Ms. Kulikowski said she believes the highway department could benefit from using GIS (geographic information system) technology currently being developed for the town.

- Maintaining and expanding the volunteer Neighborhood Captain program, where individuals sign up to be responsible for communication in small neighborhood areas throughout town. Ms. Kulikowski said it might be time for the town to offer IT and Web support. “The other towns were definitely impressed with the amount of volunteer efforts in town,” Ms. Kulikowski said.

She said her biggest realization was the importance of providing power to the town center. Not only do people need a place to gather socially and to charge electronic devices, as they have in the past at town hall, she said, but the commercial center provides groceries and a pharmacy and can meet other essential needs, she said.

Public input

Part of the effort to update the Hazard Mitigation Plan — which was last updated in 2011 — includes a Natural Hazard Survey that seeks public feedback regarding natural hazards of greatest concern to area residents, including vulnerable locations and potential mitigation opportunities.

Survey results will be used to help protect the region against the impacts of extreme weather and climate change, providing emergency responders and key decision makers greater understanding of public perception of natural hazards, including vulnerabilities.

“It’s all connected,” Mr. Sachin said of the workshop, survey, and other aspects of the plan. “The survey gives us the opportunity to cast a wider net, to learn things you can’t get at public meetings.

“These are the people who are directly affected by disasters, and it’s important that their voices are heard,” he said. “The public’s feedback concurrently assists emergency responders, so it’s really a win/win for the community.”

The survey will be available into January online at [swrpa.org](http://www.swrpa.org).

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The current Hazard Mitigation Plan is also available at swrpa.org.

Ms. Kulikowski said Weston officials, including those who attended the workshop and the first selectman, the town engineer, and the emergency management director, will meet together to review the Hazard Mitigation Plan and the new strategy suggestions. They will identify low, medium, and high priorities, long- and short-range goals, etc.

Each town is expected to have a draft plan to present to the whole group of former SWRPA members by February 2015.

In addition to Weston, Wilton, and New Canaan, the other municipalities involved in this plan are Darien, Greenwich, Norwalk, Stamford, and Westport.

A draft of the updated plan is expected to be completed next spring and submitted to FEMA in the summer of 2015. It will go into effect July 1, 2016.

Tags: [dept of energy and environmental protection](#), [flood](#), [hazard mitigation plan](#), [natural hazards](#), [nature conservancy](#), [regional highlight](#), [storm](#), [wccog](#), [Western Connecticut Council of Governments](#), [winds](#)



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☐ Victor Diaz — Congrats to the Trojans, especially the Class of 2015, on winning the Turkey Bowl in Coach Pace's first ... ☐ lbhajdu1 . — Look at the picture very carefully. The needles in the picture are blunt (not sharp), these are industrial ...

[Boucher congratulates Foley, praises McKinney](#) [COMMENTARY: Marching to preserve the world](#)

1 comment · 4 months ago ·

1 comment · 2 months ago ·

☐ Iken — She certainly knows how to sit on that fence, covering all eventualities just in case. ☐ Jim Corcoran — With 60 BILLION food animals on the planet, this should be our first step in the Climate ...

Area towns seek to identify natural hazards, responses

by Jeannette Ross
and Kimberly Donnelly
editor@theWestonForum.com

Flooding, high winds, severe storms — all are serious hazards affecting Weston and neighboring towns.

To get a handle on the most serious problems, the Western Connecticut Council of Governments (WCCOG) is updating the Hazard Mitigation Plan used by towns in its region. The council includes the former Southwestern Regional Planning Agency (SWRPA), and it is managing the multi-jurisdictional plan required by the Federal Emergency Management Agency (FEMA). This plan keeps participating municipalities eligible for many types of FEMA funding, and it must be updated every five years.

Representatives from New

Canaan, Weston and Wilton — including representatives from police, fire, planning, and environmental affairs — as well as the Nature Conservancy, the state Department of Energy and Environmental Protection (DEEP), Northeast Utilities, and South Norwalk Electric & Water (SNEW) gathered for a four-hour workshop in Wilton on Tuesday, Nov. 18. Also stopping in for a portion of the meeting was state Sen. Toni Boucher (R-26).

Robert Sachnin, a regional planner with WCCOG, said the focus of Tuesday's workshop was to "identify hazards and vulnerabilities" facing the towns and "how to mitigate and safeguard against those hazards."

Weston contingent
The Weston contingent con-

See Hazards on page 11A

Hazards

Continued from Page 1A

sisted of Tracy Kulikowski, the town's land use director; Tom Failla, chairman of the Planning and Zoning Commission and a former Conservation Commission chairman; Fire Marshal and Chief John Pokorny; resident and planning expert Margaret Wirtenberg; and Cynthia Fawc, director of the Nature Conservancy's Devil's Den Preserve in Weston.

Ms. Kulikowski said the workshop was very productive, and helped town leaders identify top priority hazards and how to mitigate them. Grouping the three similar towns together was also helpful, she said, because they often experience similar issues.

For Weston, Ms. Kulikowski said, those priorities included "anything that brings trees onto power lines," such as wind, flooding, and severe storms, and onto local roads and the Saugatuck Reservoir.

Ms. Kulikowski said the Weston representatives' strategies for dealing with these hazards included:

- **The need for a more robust generator** capable of powering the entire center of town, including town hall, the library, emergency services, at least some school facilities for use as an emergency shelter, and the commercial shopping center.
- **Maintaining existing and identifying locations for new dry hydrants** throughout town. Ms. Kulikowski said she believes the town needs to start thinking of these as "capital improvements" since the town is

obligated to maintain them, even if they are on private property.

- **Comprehensively looking at all town roads**, including the 305 or so that are privately maintained. Part of that effort is making sure CL&P continues roadside tree maintenance. Ms. Kulikowski said she believes the highway department could benefit from using GIS (geographic information system) technology currently being developed for the town.

- **Maintaining and expanding the volunteer Neighborhood Captain program**, where individuals sign up to be responsible for communication in small neighborhood areas throughout town. Ms. Kulikowski said it might be time for the town to offer IT and Web support. "The other towns were definitely impressed

with the amount of volunteer efforts in town," Ms. Kulikowski said.

She said her biggest realization was the importance of providing power to the town center. Not only do people need a place to gather socially and to charge electronic devices, as they have in the past at town hall, she said, but the commercial center provides groceries and a pharmacy and can meet other essential needs, she said.

Public input

Part of the effort to update the Hazard Mitigation Plan — which was last updated in 2011 — includes a Natural Hazard Survey that seeks public feedback regarding natural hazards of greatest concern to area residents, including vulnerable locations and potential mitigation opportunities.

Survey results will be used to help protect the region against the impacts of extreme

weather and climate change, providing emergency responders and key decision makers greater understanding of public perception of natural hazards, including vulnerabilities.

"It's all connected," Mr. Sachnin said of the workshop, survey, and other aspects of the plan. "The survey gives us the opportunity to cast a wider net, to learn things you can't get at public meetings."

"These are the people who are directly affected by disasters, and it's important that their voices are heard," he said. "The public's feedback concurrently assists emergency responders, so it's really a win/win for the community."

The survey will be available into January online at swrpa.org.

The current Hazard Mitigation Plan is also available at swrpa.org.

Ms. Kulikowski said Weston officials, includ-

ing those who attended the workshop and the first selectman, the town engineer, and the emergency management director, will meet together to review the Hazard Mitigation Plan and the new strategy suggestions. They will identify low, medium, and high priorities, long- and short-range goals, etc.

Each town is expected to have a draft plan to present to the whole group of former SWRPA members by February 2015.

In addition to Weston, Wilton, and New Canaan, the other municipalities involved in this plan are Darien, Greenwich, Norwalk, Stamford, and Westport.

A draft of the updated plan is expected to be completed next spring and submitted to FEMA in the summer of 2015. It will go into effect July 1, 2016.

Volunteer of the Year
A Weston man is recognized by the USTA. —Page 8A



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"Piglet noticed that even though he had a Very Small Heart, it could hold a rather large amount of Gratitude." —A.A. Milne, *Winnie-the-Pooh*

45TH YEAR, NO. 48

Wednesday, Nov. 26, 2014

Weston and area towns seek to identify natural hazards, responses

By [Jeannette Ross](#) on November 19, 2014 in [Latest News](#) · [0 Comments](#)

About author



Jeannette Ross



File photo, 2012 —Stephan Grozinger photo

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"It's all connected," Mr. Sachnin said of the workshop, survey, and other aspects of the plan. "The survey gives us the opportunity to cast a wider net, to learn things you can't get at public meetings.

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A draft of the updated plan is expected to be completed next spring.

Tags: [DEEP](#), [FEMA](#), [hazard mitigation](#), [natural hazard survey](#), [regional highlight](#), [regional planning](#), [SWRPA](#), [wccog](#), [weston](#)

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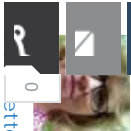
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Area towns seek to identify natural hazards, responses

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Area towns seek to identify natural hazards, responses



A tree knocked down by Superstorm Sandy damages a home.

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Robert Sachnin, a regional planner with the WCCOG, said the focus of

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Tags: [council of governments](#), [FEMA](#), [natural disasters](#), [swrpa](#), [WCCOG](#), [wilton](#)

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What are the region's worst natural hazards?

Western CT council wants public input on survey

By *Weston Forum* on November 15, 2014 in [Connecticut](#), [Latest News](#) - 0 Comments

About author



Weston Forum



A Natural Hazard Survey has been released to solicit public feedback regarding natural hazards in the state's southwestern planning region. The survey aims to identify the natural hazards of greatest public concern, including vulnerable locations and potential mitigation opportunities.

The Western Connecticut Council of Governments (WCCOG, formerly SWRPA) is issuing the survey in conjunction with its ongoing Hazard Mitigation Plan (HMP) efforts, a key planning document that keeps participating municipalities eligible for many types of Federal Emergency Management Agency (FEMA) funding.

The eight HMP municipalities include Darien, Greenwich, New Canaan, Norwalk, Stamford, Weston, Westport, and Wilton.

Southwestern Connecticut has experienced an array of extreme weather events in recent years. The resulting damage and financial impacts have spurred a sense of urgency to increase resilience to such natural hazards.

WCCOG, its municipalities, and key stakeholders have worked to better prepare the area, and seek public input to ensure adequate preparedness for



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future disasters.

Survey results will be used to help protect the region against the impacts of extreme weather and climate change, providing emergency responders and key decision makers greater understanding of public perception of natural hazards, including vulnerabilities.

This information is vital, and provides opportunities to more effectively target outreach and education efforts in local communities, while also confirming critical vulnerable areas suitable for mitigation measures. Such efforts increase overall public safety and reduce vulnerability of key assets and infrastructure, while also reducing human and financial impacts associated with natural disasters, consistent with HMP goals and objectives.

"A key component to natural hazard mitigation is getting the right people at the table. The Natural Hazard Mitigation Survey provides an unparalleled opportunity to cast a wider net and better involve the public," said Robert Sachnin, senior regional planner at WCCOG and HMP project manager. "These are the people who are directly affected by disasters, and it's important that their voices are heard. The public's feedback concurrently assists emergency responders, so it's really a win-win for the community."

The survey may be found online at WCCOG/SWRPA's website, swrpa.org.

Tags: [COG](#), [mitigation](#), [natural hazards](#), [regional highlight](#), [Sachnin](#), [survey](#), [wccog](#), [Western Connecticut Council of Governments](#)

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 Kate Stein — ya i think this is the freida hecht of circle of friends. she has an amazing range of programs already ...

Westonite's Le Rouge Chocolates and Cakes opens shop in

1 comment · 16 days ago ·

 Delicious cake — Very nice. Good Luck with the shop, it's looks delicious. The desserts look amazing and yummy, ...

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Football: Trojans roast Falcons

1 comment · 9 days ago ·

Victor Diaz — Congrats to the Trojans,

Appendix A-3.2

Hazard Mitigation Workshops

New Canaan, Wilton, Weston Hazard Mitigation Workshop
November 18, 2014



Incorporated 1787

Office of the First Selectman

October 21, 2014

Dear Weston Community Member,

Given recent storms like Sandy and Irene, we now find ourselves in a new era of more unpredictable and severe weather that can potentially cause more damage to our community.

In order to be as proactive as we can in preparing and protecting our community, I would like to invite you to join me at a free half-day hazards and community resilience workshop on *Tuesday, November 18, 2014*. The workshop will take place from 8:45 am to 1:30 pm in *Meeting Room 4, Wilton Town Hall, 238 Danbury Rd, Wilton, CT*. Coffee, a light breakfast, and lunch will be provided.

The Nature Conservancy is partnering with the South Western RPA / Western Connecticut COG to offer this timely workshop to bring together members of our community like you to work together to help identify and prioritize steps to reduce risk and improve resilience in our community. These workshops will assist all of us in better community planning and hazard mitigation efforts.

The *11/18/2014* Workshop Objectives are:

- Understand connections between ongoing community issues, hazard and local planning/mitigation processes.
- Evaluate strengths and vulnerabilities of residents, infrastructure and natural resources to hazards.
- Identify and map vulnerabilities and assets and develop infrastructure, societal and natural resource risk profiles.
- Develop and prioritize actions for the municipality, local organizations, businesses, private citizens, neighborhoods, and community groups.
- Identify opportunities to advance actions that further reduce the impact of hazards and increase resilience.

Please RSVP for the November 18, 2014 workshops as soon as possible to the Nature Conservancy's Adam Whelchel at 860-970-8442 or awhelchel@tnc.org.

I hope you or a designee can join me at these important workshops. Thank you for your consideration!

Sincerely,



*Gayle Weinstein
Town of Weston, First Selectman*

Hazards and Community Resilience Workshop

Name	Affiliation	Title	Phone	Email
Dennis K. Huntley	Wayne Care Network	Dir. Facility Operations	203.594.5210	dhuntley@wayne.org
Margaret Warden			203 544 9270	mwarden@wayne.org
Patricia Sesto	Town of Wilton	Dir. Env. Affairs	203 523-0180	Patricia.Sesto@wiltonct.org
Bl. Norma	"	Dir. Planning	513 2185	boh, norm@wiltonct.org
Dan Sesto	Chap	Asst. Exec	847-3646 763	sestod@wiltonct.org
WASZLOPAP	NC-P42	Chair	966-1542	pappard@aol.com
Mark Amethad	Wilton EMS + Dept. Firech.		863-839 6296	mark.amethad@wiltonct.org
Bill Amethad	T. of Wilton	Fire St.	203.563.0100	—
Tracy Kuli Kowski	Weston	Land Use Director	202.530	tkulikowski@westonct.gov
Mike Towle	WCCG	Regional Planner	SE	towle.mpegmail.com
Gail Lavelle	State Rep. 143rd	State Rep	203 762 9373	gail.lavelle@ga.ct.gov
Toni Bouchard	Wilton, N. and Canaan, Westchester, Pottersville, Ridgefield	State Senator	203-762-3232	Toni.Bouchard@ct.gov
Diane Ifkovic	CT DEEP	State DEEP Coordinator	860 424-3537	diane.ifkovic@ct.gov
Karen Michaels	CT DEEP	EO II Risk Mgt Coordinator	860-424-5779	karen.michaels@ct.gov
John DeJesus	Schoolhouse	Property Manager	(203) 972-0020	schoolhouse@ehm.org
Jack Majack	Wilton C&D			
Tom Condon	Wilton PD	Chief	202 834-6324	Thomas.Condon@wiltonct.org
TIGER TANI	New Canaan	Asst. San. Director	203 594 3056	TIGER.TANI@newcanaanct.gov

Hazards and Community Resilience Workshop

[illegible]

Mitigation Strategy:

~~REDUCE~~ ~~ENHANCE~~ ^{SERVICES TO} ~~AT-RISK~~ ~~POPULATION~~

Hazards Addressed:

ALL

Responsible Party:

EMD, HHS, GOVT. AGENCY

WCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				<input checked="" type="checkbox"/>
Technical	Will the strategy solve the problem?				<input checked="" type="checkbox"/>
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				<input checked="" type="checkbox"/>
Political	Is there public and political support for this strategy?				<input checked="" type="checkbox"/>
Legal	Is there state and legal authority to implement this strategy?				<input checked="" type="checkbox"/>
Economic	Is the strategy affordable, with readily/easily available financial support?			<input checked="" type="checkbox"/>	
Environmental	Are there primarily environmental benefits associated with the strategy?	<input checked="" type="checkbox"/>			

Potential Funding Source:

GRANTS, GEN. FUND/TOWN BUDGET

Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy:

IMPROVE EMERGENCY ACCESS/TRANSPORTATION

Hazards Addressed:

WIND, SNOW, ICE

Responsible Party:

DPW + CLP

WCCOG &



Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?				✓
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				✓
Political	Is there public and political support for this strategy?				✓
Legal	Is there state and legal authority to implement this strategy?		✓		
Economic	Is the strategy affordable, with readily/easily available financial support?				✓
Environmental	Are there primarily environmental benefits associated with the strategy?		✓		

Potential Funding Source:

FEMA, TOWN GEN FUND

Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy: ENHANCE RESILIENCY OF POWER GRID
 Hazards Addressed: POWER LOSS DUE TO SNOW ICE WIND
 Responsible Party: TOWN + CL+P + BOE

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?				✓
Administrative	Does your town have all the capabilities to implement/maintain the strategy?			✓	
Political	Is there public and political support for this strategy				✓
Legal	Is there state and legal authority to implement this strategy			✓	
Economic	Is the strategy affordable, with readily/easily available financial support?			✓	
Environmental	Are there primarily environmental benefits associated with the strategy?				✓

Potential Funding Source: GRANTS, RATEPAYERS, TAXPAYERS

Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Weston

Mitigation Strategy: Upgrade Critical Facilities (Public & Private)
 Hazards Addressed: Wind, Flooding, Severe Storms
 Responsible Party: BOS / Weston Shopping Center

WCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?				✓
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				✓
Political	Is there public and political support for this strategy?			✓	✓
Legal	Is there state and legal authority to implement this strategy?			✓	✓
Economic	Is the strategy affordable, with readily/easily available financial support?			✓	
Environmental	Are there primarily environmental benefits associated with the strategy?	✓			

Environmental	Are there primarily environmental benefits associated with the strategy?								
Potential Funding Source:	Capital Budget Private Grant Funding Safety Bond								
Aprox. Cost	> \$500k					\$5-25k	\$25-50k	\$100-	
Aprox. Time Line	3-5 years.					Annually	< 1 year	1-3 ye	
Strategy Type	Societal Infrastructure					Infrastr.	Societal	Ecosy	
* STAPLES Question adapted from FEMA									

* Please write in response in the empty space to the left.

Weston

Mitigation Strategy: Improve Emergency access + Safety on all roads + O.S.
 Hazards Addressed: All
 Responsible Party: Town / State / CLEP / Private

WCCOG &



Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits? <u>Public safety!</u>				✓
Technical	Will the strategy solve the problem? <u>Analysis likely</u>				✓
Administrative	Does your town have all the capabilities to implement/maintain the strategy? <u>(requires partners)</u>		✓	✓	
Political	Is there public and political support for this strategy <u>Analysis</u>			✓	✓
Legal	Is there state and legal authority to implement this strategy			✓	✓
Economic	Is the strategy affordable, with readily/easily available financial support?	✓		✓	
Environmental	Are there primarily environmental benefits associated with the strategy?	✓			

Potential Funding Source: <u>WCCOG Support?</u>				
Aprox. Cost		\$5-25k	\$25-50k	\$100-500k
Aprox. Time Line	<u>3-5 yrs</u>	Annually	< 1 year	1-3 years
Strategy Type	<u>Infrastructure</u>	Infrastr.	Societal	Ecosys.
				>500k*
				>3 years*
				Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy:

Improve Community Communication

Hazards Addressed:

All

Responsible Party:

Town: Downman Neighborhood Captains

WCCOG &

The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?				✓
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				✓
Political	Is there public and political support for this strategy?				✓
Legal	Is there state and legal authority to implement this strategy?				✓
Economic	Is the strategy affordable, with readily/easily available financial support?			✓	✓
Environmental	Are there primarily environmental benefits associated with the strategy?			✓	✓

Potential Funding Source:

IT NOVS | support Town operating | fund raising

Aprox. Cost	\$5-25k	\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line	1 year	Annually	< 1 year	1-3 years	>3 years*
Strategy Type	Societal	Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy: Development of Capital Imp Plan for Fire Ponds/Hydrants
 Hazards Addressed: Wind (trees); Floods; Severe Storms
 Responsible Party: Weston; FD; Town Eng; BOS; PW; Cons.

WCCOG &



Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?				✓
Administrative	Does your town have all the capabilities to implement/maintain the strategy?			✓	✓
Political	Is there public and political support for this strategy?			✓	✓
Legal	Is there state and legal authority to implement this strategy?				✓
Economic	Is the strategy affordable, with readily/easily available financial support?				✓
Environmental	Are there primarily environmental benefits associated with the strategy?				✓

Potential Funding Source:	Capital Budget				
Aprox. Cost	\$ 100-500k	\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line	over 5 years	Annually	< 1 year	1-3 years	>3 years*
Strategy Type	Infrastructure / Planning	Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Weston

Mitigation Strategy: Receive + review + recommendations for 7 Assisted LivingHazards Addressed: ALLResponsible Party: Emergency Management Director with UMDWCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Technical	Will the strategy solve the problem?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Administrative	Does your town have all the capabilities to implement/maintain the strategy?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Political	Is there public and political support for this strategy?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Legal	Is there state and legal authority to implement this strategy?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Economic	Is the strategy affordable, with readily/easily available financial support?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Environmental	Are there primarily environmental benefits associated with the strategy?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Potential Funding Source:	<u>FEMA, DEMHS, town</u>				
Aprox. Cost	<u>100,000k</u>	\$5-25k	\$25-50k	<u>\$100-500k</u>	>500k*
Aprox. Time Line	<u>1-3 annual reporting</u>	Annually	< 1-year	<u>1-3 years</u>	>3 years*
Strategy Type		Infrastr.	<u>Societal</u>	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy: Assess Overpass currently → Mitigate

Hazards Addressed: Flooding

Responsible Party: DOT

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				<input checked="" type="checkbox"/>
Technical	Will the strategy solve the problem?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
Administrative	Does your town have all the capabilities to implement/maintain the strategy?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Political	Is there public and political support for this strategy			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Legal	Is there state and legal authority to implement this strategy			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Economic	Is the strategy affordable, with readily/easily available financial support?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Environmental	Are there primarily environmental benefits associated with the strategy?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

← Funding source
Regional
make or
break

Potential Funding Source: FEMA FHW/ConDOT, Army Corps of Eng.

Aprox. Cost	<u>Assessment 500k → 10 m</u>	\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line	<u>5 or more</u>	Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mark on map

Wilton

Wilton

Mitigation Strategy: Merwyn Meadows Dam Dam Removal

Hazards Addressed: Flooding Dam Failure

Responsible Party: Town's Dam multiple department contractors



Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?				✓
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				✓
Political	Is there public and political support for this strategy			✓	✓
Legal	Is there state and legal authority to implement this strategy				✓
Economic	Is the strategy affordable, with readily/easily available financial support?	✓			✓
Environmental	Are there primarily environmental benefits associated with the strategy?				✓

= w/ Education

Potential Funding Source: State, Fed, Fish Wild life, EPA

Aprox. Cost	<u>2-3m</u>	\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line	<u>1-3 year</u>	Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	<u>Ecosys.</u>	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Darien, Norwalk, Westport Hazard Mitigation Workshop
November 24, 2014



TOWN OF DARIEN

OFFICE OF THE SELECTMAN

JAYME J. STEVENSON
FIRST SELECTMAN

CHRISTOPHER P. (KIP) HALL
SUSAN J. MARKS
GERALD A. NIELSEN, JR.
E. REILLY TIERNEY

KARL F. KILDUFF
TOWN ADMINISTRATOR

November 4, 2014

Dear Darien Community Member,

Given recent storms like Sandy and Irene, we now find ourselves in a new era of more unpredictable and severe weather that can potentially cause more damage to our community.

In order to be as proactive as we can in preparing and protecting our community, I would like to invite you to join me at a free half-day hazards and community resilience workshop on *Monday, November 24, 2014*. The workshop will take place from 8:45 am to 1:30 pm in *Room 128 Community Room, Norwalk City Hall, 125 East Avenue, Norwalk CT*. Coffee, a light breakfast, and lunch will be provided.

The Nature Conservancy is partnering with the South Western RPA / Western Connecticut COG to offer this timely workshop to bring together members of our community like you to work together to help identify and prioritize steps to reduce risk and improve resilience in our community. These workshops will assist all of us in better community planning and hazard mitigation efforts.


The *11/24/2014* Workshop Objectives are:

- Understand connections between ongoing community issues, hazard and local planning/mitigation processes.
- Evaluate strengths and vulnerabilities of residents, infrastructure and natural resources to hazards.
- Identify and map vulnerabilities and assets and develop infrastructure, societal and natural resource risk profiles.
- Develop and prioritize actions for the municipality, local organizations, businesses, private citizens, neighborhoods, and community groups.
- Identify opportunities to advance actions that further reduce the impact of hazards and increase resilience.

Please RSVP for the *November 24, 2014* workshops as soon as possible to the *Nature Conservancy's* Adam Whelchel at 860-970-8442 or awhelchel@nrc.org.

I hope you or a designee can join me at these important workshops. Thank you for your consideration!

Sincerely,


Jayme Stevenson
First Selectman

October 24, 2014

Dear Westport Community Member,

Given recent storms like Sandy and Irene, we now find ourselves in a new era of more unpredictable and severe weather that can potentially cause more damage to our community.

In order to be as proactive as we can in preparing and protecting our community, I would like to invite you to join me at a free half-day hazards and community resilience workshop on ***Monday, November 24, 2014***. The workshop will take place from 8:45 am to 1:30 pm in ***Room 128 Community Room, Norwalk City Hall, 125 East Avenue, Norwalk, CT***. Coffee, a light breakfast, and lunch will be provided.

The Nature Conservancy is partnering with the South Western RPA / Western Connecticut COG to offer this timely workshop to bring together members of our community like you to work together to help identify and prioritize steps to reduce risk and improve resilience in our community. These workshops will assist all of us in better community planning and hazard mitigation efforts.

The *11/24/2014* Workshop Objectives are:

- Understand connections between ongoing community issues, hazard and local planning/mitigation processes.
- Evaluate strengths and vulnerabilities of residents, infrastructure and natural resources to hazards.
- Identify and map vulnerabilities and assets and develop infrastructure, societal and natural resource risk profiles.
- Develop and prioritize actions for the municipality, local organizations, businesses, private citizens, neighborhoods, and community groups.
- Identify opportunities to advance actions that further reduce the impact of hazards and increase resilience.

Please RSVP for the November 24, 2014 workshops as soon as possible to the Nature Conservancy's Adam Whelchel at 860-970-8442 or awhelchel@tnc.org.

I hope you or a designee can join me at these important workshops. Thank you for your consideration!

Sincerely,

James S. Marpe
First Selectman

WELCOME to the Hazards and Community Resilience Workshop

Name	Affiliation	Title	Phone	Email
DAVID DEVER	Dever-Burdick	Asst. Comm	203-784-1173	DADEVER@PHL.
Hunter Anton	Norwalk Peder Agnew	Community Outreach Administrator	203 854 7810	hanton@norwalkct.org
Joe Schmelein	Maritime Aquarium		203-847873 cell	jschmelein@maritimeaquarium.org
Steve Edwards	Westport Open	Public Works Dir	203-341 1125	selwache@westportct.gov
Tom Mayne	Westport	First Selectman	203 341-1111	tommayne@westportct.gov
Dan Elard	Darien	Police	662 5300	DENNET@DARIEN.CT.GOV
Amos Muckewy	Westport	Fire/EMT	203 341-5000	AMMUCKEWY@WESTPORTCT.GOV
Larry Bradley	Westport	PD & Director	341-1078	LBradley@WESTPORTCT.GOV
Michael Yessolt	Norwalk	Senior Inspector	203 859-7844	MYESSOLT@NORWALKCT.GOV
Alicia Merzian	Town of Westport	Emergency Director	341-1170	amozian@westportct.gov
Rob Schmitt	Westport	Senior Reg. Mgr	203-316-5116	rschmitt@westportct.gov
Jayne Stevenson	Darien First Selectman	First Selectman	203-686-7386	JStevenson@darien-ct.gov
Mark Smith	Norwalk Open-EMT	ASST Public Works	203-854 7871	SMITH@NORWALKCT.GOV
Michael DeWara	Norwalk Fire	Deputy Chief	203 854 0038	mdeWara@norwalkct.gov
Lucia Zachowski	FDGP	VP	203 536 3947	lucia@zachowski.com
Jonathan Stork	CGA	State Rep	203-779 7477	jstork@stork.org
Gail Lovelle	State Rep			gail.lovell@ga.ct.gov
Melanie	Westport Planning Committee	Chair	203 827 2030	Melanie.Kane@westportct.gov
FILIP HUFFARD	Darien Commission and Economic Matters	Chair	203 655 8181	FHUFFARD@gmail.com

WELCOME to the Hazards and Community Resilience Workshop

Name	Affiliation	Title	Phone	Email
SWAN MCCARTHY	WESTPORT	DIN PANAGIOTIS	203 341-1500	SWEMCCARTHY@westport-ct.gov
GARY PAVIA	Darien	Captain PD	203 662-5313	gpavia@darien.ct.gov
DON WATSON	GBRC	Planner	203 459 0332	leheside@leacod.
PETER MANISCALDI	Darien Youth	FACILITY DIRECTOR OPERATIONS DIRECTOR	EXT 1312 203-855-8331 203-341-1149	pm@iscaldarienyouth.org p/maniscaldi@westport-ct.gov
DEWEY LOSEILLE	WESTPORT	DIRECTOR of Public Works	203-571-7791	halvord@naugatuck-ct.org
HAL HURD	Norwalk	Assistant P&Z	203 854 7953	MWR@naugatuck-ct.org
MICHAEL WIRMAN	Norwalk	Sr Engineer	203 854 1879	abernoldmaier@naugatuck-ct.org
DREW BERDMANIAN	Norwalk	FRIEDMAN'S BOATWORKS INC. Director of Tech Serv.	203-855-3443 203-866-4446	herve@naugatuck-ct.org
JOHN HURD	Darien	Engineer	203 722-1742	subittie@snw.org
SCOTT WHITTIER	SNEL	Engineer	203 866-4446	WATSON@naugatuck-ct.org
JANESSA WOODRIDGE	DNW-Westport	Engineer	203 722-1742	WATSON@naugatuck-ct.org
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BOBBI SWEENEY	DPW	Survival Eng.	203 524-3244	bsweeney@naugatuck-ct.org
SUSAN CAMERON	Darien P&Z	Chair	203 524-3244	scameron@gmail.com
TEREMY GINSBERG	Darien P&Z	Director	656-7357	jginsberg@darien.gov
DENIS MCCARTHY	Norwalk	EDD	203 667-1386	DENIS@naugatuck-ct.org
DREW IFFONIC	CTDEEP	STATEWIDE COORDINATOR	860 424-3537	drew.iffonic@ct.gov

Darien

Mitigation Strategy: Design Remedies for RT 1 underpass

Hazards Addressed: ~~the~~ flooding - ~~coastal~~ island

Responsible Party:

WCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?				✓
Administrative	Does your town have all the capabilities to implement/maintain the strategy?	✓			
Political	Is there public and political support for this strategy				✓
Legal	Is there state and legal authority to implement this strategy				✓
Economic	Is the strategy affordable, with readily/easily available financial support?		✓		
Environmental	Are there primarily environmental benefits associated with the strategy?				✓

Potential Funding Source: FEWA / Federal

Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Drion

Mitigation Strategy: Targeted outreach to vulnerable

Hazards Addressed: Coastal flooding + high winds

Responsible Party: Emergency Mgmt Director

WCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?			✓	
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				✓
Political	Is there public and political support for this strategy?				✓
Legal	Is there state and legal authority to implement this strategy?				✓
Economic	Is the strategy affordable, with readily/easily available financial support?				✓
Environmental	Are there primarily environmental benefits associated with the strategy?	✓			

Potential Funding Source: FEMA / town

Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy:

Outreach to FD for shelter-staffing

Hazards Addressed:

All

Responsible Party:

Town

WCCOG &

The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?			✓	
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				✓
Political	Is there public and political support for this strategy				✓
Legal	Is there state and legal authority to implement this strategy				✓
Economic	Is the strategy affordable, with readily/easily available financial support?				✓
Environmental	Are there primarily environmental benefits associated with the strategy?	✓			

Potential Funding Source:

FF Grant

Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy:

IMPROVE COORDINATION FOR Emerg. Response CLTP

Hazards Addressed:

SNOW/ICE TREE ISSUES/WIND

Responsible Party:

CLTP / TOWN

WCCOG &

The Nature
Conservancy

NORWALK

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?				✓
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				✓
Political	Is there public and political support for this strategy				✓
Legal	Is there state and legal authority to implement this strategy	✓			
Economic	Is the strategy affordable, with readily/easily available financial support?			✗	✓
Environmental	Are there primarily environmental benefits associated with the strategy?				✓

Potential Funding Source:

Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy:

HARBOR SHORE COMMUNICATION ~~PLAN~~ + RESILIENCE PLAN (IRP)

Hazards Addressed:

FLOODING

Responsible Party:

RESIDENTS/TOWN

WCCOG &

The Nature
Conservancy

NORWALK

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?			✓	
Administrative	Does your town have all the capabilities to implement/maintain the strategy?	✓			
Political	Is there public and political support for this strategy				✓
Legal	Is there state and legal authority to implement this strategy				✓
Economic	Is the strategy affordable, with readily/easily available financial support?	✓			
Environmental	Are there primarily environmental benefits associated with the strategy?				✓

Potential Funding Source:

Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy: IDENTIFY EVAC. LOCATION PUBLIC WORKS

Hazards Addressed: FLOODING

Responsible Party: PUBLIC WORKS



Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?			✓	
Administrative	Does your town have all the capabilities to implement/maintain the strategy?			✓	
Political	Is there public and political support for this strategy			✓	
Legal	Is there state and legal authority to implement this strategy				✓
Economic	Is the strategy affordable, with readily/easily available financial support?				✓
Environmental	Are there primarily environmental benefits associated with the strategy?	✓			

Potential Funding Source:

Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy: MITIGATE (Tree) HAZARDS PUBLIC+PRIVATE
Hazards Addressed: ICE/SNOW/WIND
Responsible Party: P.W. + POWER CL + P (SNOW + TTP)

WCCOG & The Nature Conservancy 

NORWALK

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?				✓
Administrative	Does your town have all the capabilities to implement/maintain the strategy?			✓	
Political	Is there public and political support for this strategy			✓	
Legal	Is there state and legal authority to implement this strategy			✓	
Economic	Is the strategy affordable, with readily/easily available financial support?	✓			
Environmental	Are there primarily environmental benefits associated with the strategy?				✓

- PUBLIC
NOT PRIVATE

Potential Funding Source:					
Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

NORWALK

Mitigation Strategy: WATER TREATMENT
RAISE AT-RISK PUMP STATIONS

Hazards Addressed: FLOOD

Responsible Party: TOWN - FEMA - WIP



Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?			✓	
Administrative	Does your town have all the capabilities to implement/maintain the strategy?	✓			
Political	Is there public and political support for this strategy			✓	
Legal	Is there state and legal authority to implement this strategy				✓
Economic	Is the strategy affordable, with readily/easily available financial support?	✓			
Environmental	Are there primarily environmental benefits associated with the strategy?				✓

✓
lesser
correct time

Potential Funding Source:					
Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Normal/Lt

Mitigation Strategy: Outreach/Education for Public Housing

Hazards Addressed: Flooding, Severe Winds/Storms, Severe Heat/Cold, Ice/Cold.

Responsible Party: Emergency Management Team

WCCOG &



Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				X
Technical	Will the strategy solve the problem?			X	
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				X
Political	Is there public and political support for this strategy?				X
Legal	Is there state and legal authority to implement this strategy?			X	X
Economic	Is the strategy affordable, with readily/easily available financial support?				X
Environmental	Are there primarily environmental benefits associated with the strategy?				X

Potential Funding Source:	Foundations/private/donors,				
Aprox. Cost	City Department Budget, not too much	\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line	Annually	Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Norwalk Blue

→ impacts social pricing 44%

Mitigation Strategy: Oyster Bed Resilience Dredging

Hazards Addressed: Flooding in case of sewage, sediment, chemical

Responsible Party: Private, City, State, Health Department oversee recreational and inspections

WCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?	✓	✓		
Technical	Will the strategy solve the problem?		✓		
Administrative	Does your town have all the capabilities to implement/maintain the strategy?		✓		
Political	Is there public and political support for this strategy	✓			
Legal	Is there state and legal authority to implement this strategy			✓	
Economic	Is the strategy affordable, with readily/easily available financial support?			Ⓟ	
Environmental	Are there primarily environmental benefits associated with the strategy?				Ⓟ

chemical
No

Potential Funding Source:

Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.


STAPLEE Question adapted from FEMA

Norwalk Blue

Mitigation Strategy: Exanding / Raising Levee near WTP

Hazards Addressed: Flooding

Responsible Party: City of Norwalk Public Works / WPCA permission from Army Corps

WCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				<input checked="" type="checkbox"/>
Technical	Will the strategy solve the problem?				<input checked="" type="checkbox"/>
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				<input checked="" type="checkbox"/>
Political	Is there public and political support for this strategy			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Legal	Is there state and legal authority to implement this strategy			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Economic	Is the strategy affordable, with readily/easily available financial support?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Environmental	Are there primarily environmental benefits associated with the strategy?				<input checked="" type="checkbox"/>

Funding or Match can be supplying

Potential Funding Source: FEMA, EPA, DEEP

Aprox. Cost	<u>2 million 3 million 4 million +</u>	\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line	<u>3-5 years</u>	Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy: Levee for King Chemical Screen or Protection

Barrier System

Hazards Addressed: Flooding

WCCOG &



Responsible Party: Private King Chemical. Town can't fund

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				<input checked="" type="checkbox"/>
Technical	Will the strategy solve the problem?			<input checked="" type="checkbox"/>	
Administrative	Does your town have all the capabilities to implement/maintain the strategy?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Political	Is there public and political support for this strategy			<input checked="" type="checkbox"/>	
Legal	Is there state and legal authority to implement this strategy			<input checked="" type="checkbox"/>	
Economic	Is the strategy affordable, with readily/easily available financial support?			<input checked="" type="checkbox"/>	
Environmental	Are there primarily environmental benefits associated with the strategy?				<input checked="" type="checkbox"/>

support
letters
at
support
Kdy protection

Potential Funding Source: EPA, DECD, Homeland Security, Private

Aprox. Cost	<u>3 million +</u>	\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line	<u>5 years</u>	Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.


STAPLEE Question adapted from FEMA

WESTPORT

Mitigation Strategy: *Continue successful efforts of identifying and communicating with isolated and vulnerable citizens*

Hazards Addressed: *All*

Responsible Party: *EM, P&Z, CC*

WCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				X
Technical	Will the strategy solve the problem?			X	X
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				X
Political	Is there public and political support for this strategy?				X
Legal	Is there state and legal authority to implement this strategy?				X
Economic	Is the strategy affordable, with readily/easily available financial support?			X	X
Environmental	Are there primarily environmental benefits associated with the strategy?				

Potential Funding Source: *FEMA, DEMHS, Town, CT DOT, HUD, DEEP, EPA, US DOT, OPM*

Aprox. Cost	\$5-25k	<u>\$25-50k</u>	\$100-500k	>500k*
Aprox. Time Line	Annually	<u>< 1 year</u>	1-3 years	>3 years*
Strategy Type	Infrastr.	<u>Societal</u>	Ecosys.	Other*


* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy: *Modify zoning regulations regarding improvements and requirements for mitigating flood risk*

Hazards Addressed: *Flood, Hurricane, Sea Level Rise, Severe storms*

Responsible Party: *P&Z*

WCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				X
Technical	Will the strategy solve the problem?				X
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				X
Political	Is there public and political support for this strategy?			X	X
Legal	Is there state and legal authority to implement this strategy?			X	X
Economic	Is the strategy affordable, with readily/easily available financial support?				X
Environmental	Are there primarily environmental benefits associated with the strategy?				X

Potential Funding Source: *Town*

Aprox. Cost	<u>\$5-25k</u>	\$25-50k	\$100-500k	>500k*
Aprox. Time Line	Annually	<u>< 1 year</u>	1-3 years	>3 years*
Strategy Type	Infrastr.	<u>Societal</u>	Ecosys.	<u>Other*</u>

* Please write in response in the empty space to the left.


STAPLEE Question adapted from FEMA

WESTPORT

Mitigation Strategy: Improve Coordination w/ CL&P and NW

Hazards Addressed: All

Responsible Party: Em, Police, Fire, DPW

WCCOG &  The Nature Conservancy

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				X
Technical	Will the strategy solve the problem?			X	
Administrative	Does your town have all the capabilities to implement/maintain the strategy?			X	
Political	Is there public and political support for this strategy				X
Legal	Is there state and legal authority to implement this strategy			X	
Economic	Is the strategy affordable, with readily/easily available financial support?				X
Environmental	Are there primarily environmental benefits associated with the strategy?				X

Potential Funding Source: FEMA, DEMHS, PURA, Town

Aprox. Cost		<u>\$5-25k</u>	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		<u>Annually</u>	< 1 year	1-3 years	>3 years*
Strategy Type		<u>Infrastr.</u>	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy: Identify Opportunities for Cooperation and Coordination w/ Private Road Associations

Hazards Addressed: All

Responsible Party: Em, DPW, Private

WCCOG &  The Nature Conservancy

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				X
Technical	Will the strategy solve the problem?			X	
Administrative	Does your town have all the capabilities to implement/maintain the strategy?			X	
Political	Is there public and political support for this strategy				X
Legal	Is there state and legal authority to implement this strategy			X	
Economic	Is the strategy affordable, with readily/easily available financial support?				X
Environmental	Are there primarily environmental benefits associated with the strategy?			X	

Potential Funding Source: Town, Private

Aprox. Cost		<u>\$5-25k</u>	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		<u>Annually</u>	< 1 year	1-3 years	>3 years*
Strategy Type		<u>Infrastr.</u>	<u>Societal</u>	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

WESTPORT

Mitigation Strategy: ^(bridge) Improve Access to Saugatuck Shores Community

Hazards Addressed: All

Responsible Party: Em, DPW, CC

WCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				X
Technical	Will the strategy solve the problem?				X
Administrative	Does your town have all the capabilities to implement/maintain the strategy?			X	
Political	Is there public and political support for this strategy				X
Legal	Is there state and legal authority to implement this strategy				X
Economic	Is the strategy affordable, with readily/easily available financial support?		X		
Environmental	Are there primarily environmental benefits associated with the strategy?			X	

Potential Funding Source: FEMA, DEMHS, US DOT, HUD

Aprox. Cost	Depends on construction/mitigation measure	\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

→ Phase 1

STAPLEE Question adapted from FEMA

* Please write in response in the empty space to the left.

Mitigation Strategy:

Hazards Addressed:

Responsible Party:

WCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				
Technical	Will the strategy solve the problem?				
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				
Political	Is there public and political support for this strategy				
Legal	Is there state and legal authority to implement this strategy				
Economic	Is the strategy affordable, with readily/easily available financial support?				
Environmental	Are there primarily environmental benefits associated with the strategy?				

Potential Funding Source:

Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

STAPLEE Question adapted from FEMA

* Please write in response in the empty space to the left.

Stanford Hazard Mitigation Workshop
December 1, 2014

Dear Stamford Community Member,

Given recent storms like Sandy and Irene, we now find ourselves in a new era of more unpredictable and severe weather that can potentially cause more damage to our community.

In order to be as proactive as we can in preparing and protecting our community, I would like to invite you to join me at a free half-day Hazards and Community Resilience Workshop on *Monday, December 1, 2014*. The workshop will take place from 8:45 am to 1:30 pm in the *Safety Training Room, sixth floor of the Stamford Government Center, 888 Washington Blvd, Stamford, CT*. Coffee, a light breakfast, and lunch will be provided.

The Nature Conservancy is partnering with the South Western RPA / Western Connecticut COG to offer this timely workshop to bring together members of our community like you to work together to help identify and prioritize steps to reduce risk and improve resilience in our community. These workshops will assist all of us in better community planning and hazard mitigation efforts.

The *12/1/2014* Workshop Objectives are:

- Understand connections between ongoing community issues, hazard and local planning/mitigation processes.
- Evaluate strengths and vulnerabilities of residents, infrastructure and natural resources to hazards.
- Identify and map vulnerabilities and assets and develop infrastructure, societal and natural resource risk profiles.
- Develop and prioritize actions for the municipality, local organizations, businesses, private citizens, neighborhoods, and community groups.
- Identify opportunities to advance actions that further reduce the impact of hazards and increase resilience.

Please RSVP for the *Monday, December 1, 2014* workshops as soon as possible to the Nature Conservancy's Adam Whelchel at 860-970-8442 or awhelchel@tnc.org.

I hope you or a designee can join me at this important workshop. Thank you for your consideration!

Respectfully,

Ted Jankowski
Director of Public Safety, Health and Welfare
City of Stamford

WELCOME to the Hazards and Community Resilience Workshop

Name	Affiliation	Title	Phone	Email
Carlo Leone	St of CT	Senator	860 240-0585	carlo.leone@ga.ct.gov
Clay Barber	City of Stamford	GIS Coordinator	203 347 7536	claybarber@stamford.ct.gov
Lydia Ruifier	P&R Comm	Commission		lange@stamford.ct.gov
Agustine Rodriguez	Stamford PD			
MICHAEL BATTINELLI	GLENN BROOK, NEWBROOK ASSOC	BOARD MEMBER	203 323 5883	MBATT6@AOL.COM
Kevin Murray	City of Stamford	Parks/Fac	203-347-4642	Kmurray@stamford.ct.gov
Thomas Lombardi	CITY of STAMFORD	Eng	203. 977-5300	Tom.Lombardi@stamford.ct.gov
RAY REMISS	HARPER COMM		203-327-6800	fredniss@stamford.ct.gov
WILLIAM MAHONEY	CELT		203-353-8811	williammahoney@celt.org
Robert J. Jelenko	Asst of Rep		203 348-3870	
TED JANKOWSKI	STAMFORD	DIRECTOR	203 977-4151	
DON WATSON			203 459.0332	
BOB FICKER	STAMFORD PD	Capt.	203-477-4430	bficker@stamford.ct.gov
Vicki de la Cruz	Board of Regs		203 977 8627	vickide@stamford.ct.gov
Tanya (art)	BCH		359-3220	
B. McBurney	SPD	Capt.		
Milton Payer	M.H. Rev	E.D.	347-432-4847	mltpayer@stamford.ct.gov
Chris Arles	CTDHHS			Chris.Arles@ct.gov

WELCOME to the Hazards and Community Resilience Workshop

Name	Affiliation	Title	Phone	Email
Ed Goldberg	Northeast District Mgr. - Bklyn		860-665-5422	edward.goldberg@ny.com
Ed Urbensky	CT DEMHS	EM Program Specialist		edward.urbensky@ct.gov
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Megan Saunders	Stanford 2030	Executive Director	203-469-6879	megan.saunders@2030district.org
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Trevor Roesch	Fire	Assoc. Chief	203-4672	troesch@stanford.gov
Barry Michelson	Zoning Bd		203-329-3300	bmichelson@stanford.ct.us
Bill Mulhro	Public Works	CITYMAN	1203-977-536	bmulhro@stanford.ct.us
Sue Pizzi	DESS	Sr. Trans. Coordinator	203-216-5191	Prossie@stanford.org
Donna Libera	CarT		860-353-8131	
Emily Powers	DSSD	Public Space		

Mitigation Strategy:

Coordinated Evacuation Plan

Hazards Addressed:

Flooding / Storms

Responsible Party:

City of Reno / Sonoma County FEMA

WCCOG &

The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				<input checked="" type="checkbox"/>
Technical	Will the strategy solve the problem?				<input checked="" type="checkbox"/>
Administrative	Does your town have all the capabilities to implement/maintain the strategy? <i>Importance sup</i>				<input checked="" type="checkbox"/>
Political	Is there public and political support for this strategy				<input checked="" type="checkbox"/>
Legal	Is there state and legal authority to implement this strategy				<input checked="" type="checkbox"/>
Economic	Is the strategy affordable, with readily/easily available financial support?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Environmental	Are there primarily environmental benefits associated with the strategy?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Potential Funding Source:

Grants

Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy:

Coordination + Community Networks/Educator

Hazards Addressed:

All

WCCOG & The Nature Conservancy 

Responsible Party:

City / Networkers

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?			✓	
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				✓
Political	Is there public and political support for this strategy				✓
Legal	Is there state and legal authority to implement this strategy				✓
Economic	Is the strategy affordable, with readily/easily available financial support?				✓
Environmental	Are there primarily environmental benefits associated with the strategy?		✓	✓	

Potential Funding Source:

General Budget

Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Stanford/Blue

Mitigation Strategy:

I&T Assessment

Hazards Addressed:

Hospital / WOP failure

Responsible Party:

City

WCCOG &



Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				<input checked="" type="checkbox"/>
Technical	Will the strategy solve the problem?				<input checked="" type="checkbox"/>
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				<input checked="" type="checkbox"/>
Political	Is there public and political support for this strategy?				<input checked="" type="checkbox"/>
Legal	Is there state and legal authority to implement this strategy?				<input checked="" type="checkbox"/>
Economic	Is the strategy affordable, with readily/easily available financial support?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
Environmental	Are there primarily environmental benefits associated with the strategy?				<input checked="" type="checkbox"/>

Potential Funding Source:

Budget + Grants

Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Stamford / Blue

Mitigation Strategy: Detailed Flood Assessment

Hazards Addressed: Infrastructure

Responsible Party: City/Regional

WCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?				✓
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				✓
Political	Is there public and political support for this strategy			✓	✓
Legal	Is there state and legal authority to implement this strategy				✓
Economic	Is the strategy affordable, with readily/easily available financial support?		✓		✓
Environmental	Are there primarily environmental benefits associated with the strategy?		✓		✓

Potential Funding Source: Grants / Green Bonds

Aprox. Cost		\$5-25k	\$25-50k	<u>\$100-500k</u>	>500k*
Aprox. Time Line		<u>Annually</u>	< 1 year	<u>1-3 years</u>	>3 years*
Strategy Type		<u>Infrastr.</u>	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy: Sanitary sewer & storm drain insp. program

Hazards Addressed: flooding - water quality

Responsible Party: City of Stanford / WMA

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem? <u>- identify issues to be addressed</u>			✓	
Administrative	Does your town have all the capabilities to implement/maintain the strategy?		✓		
Political	Is there public and political support for this strategy?				✓
Legal	Is there state and legal authority to implement this strategy?				✓
Economic	Is the strategy affordable, with readily/easily available financial support?		✓		
Environmental	Are there primarily environmental benefits associated with the strategy?				✓

Potential Funding Source: Stormwater Auth. / Grants / General Fund expenditure

Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Stanford green

Stanford green

Mitigation Strategy: Mitig. of Hurricane barrier
 Hazards Addressed: Coastal Flooding & SLR
 Responsible Party: US ACOE -

WCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				<input checked="" type="checkbox"/>
Technical	Will the strategy solve the problem?				<input checked="" type="checkbox"/>
Administrative	Does your town have all the capabilities to implement/maintain the strategy? <u>N/A ACOE</u>				<input checked="" type="checkbox"/>
Political	Is there public and political support for this strategy				<input checked="" type="checkbox"/>
Legal	Is there state and legal authority to implement this strategy			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Economic	Is the strategy affordable, with readily/easily available financial support? <u>(uncertain)</u>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Environmental	Are there primarily environmental benefits associated with the strategy?	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>

Potential Funding Source: <i>federal</i>					
Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy: *Regional Communications*
 Hazards Addressed: *Emergency - flooding, storm, wind.*
 Responsible Party: *Public Health Safety & Welfare - CEOs*

WCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?			✓	
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				✓
Political	Is there public and political support for this strategy?				✓
Legal	Is there state and legal authority to implement this strategy <i>not necessary</i>				✓
Economic	Is the strategy affordable, with readily/easily available financial support?				✓
Environmental	Are there primarily environmental benefits associated with the strategy?		✓		

Potential Funding Source:	<i>city / donors</i>				
Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	≤ 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Stamford Red

Mitigation Strategy: tree inventory study

Hazards Addressed: High Winds Snow

Responsible Party: Land Use Bureau

WCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?			<input checked="" type="checkbox"/>	
Technical	Will the strategy solve the problem?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Administrative	Does your town have all the capabilities to implement/maintain the strategy?			<input checked="" type="checkbox"/>	
Political	Is there public and political support for this strategy		<input checked="" type="checkbox"/>		
Legal	Is there state and legal authority to implement this strategy				<input checked="" type="checkbox"/>
Economic	Is the strategy affordable, with readily/easily available financial support?			<input checked="" type="checkbox"/>	
Environmental	Are there primarily environmental benefits associated with the strategy?				<input checked="" type="checkbox"/>

Potential Funding Source: CITY, UTILITY

Aprox. Cost		\$5-25k	\$25-50k	<u>\$100-500k</u>	>500k*
Aprox. Time Line		Annually	<u>< 1 year</u>	<u>1-3 years</u>	>3 years*
Strategy Type		<u>Infrastr.</u>	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy: Coastal Risk Assessment

Hazards Addressed: Coastal Flooding / Flash Flooding / Riverine

Responsible Party: City Department Army Corps Engineer Land use Planning Harbor Management



Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				<input checked="" type="radio"/>
Technical	Will the strategy solve the problem?				<input checked="" type="radio"/>
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				<input checked="" type="radio"/>
Political	Is there public and political support for this strategy?				<input checked="" type="radio"/>
Legal	Is there state and legal authority to implement this strategy?				<input checked="" type="radio"/>
Economic	Is the strategy affordable, with readily/easily available financial support?		<input checked="" type="radio"/>		
Environmental	Are there primarily environmental benefits associated with the strategy?				<input checked="" type="radio"/>

Potential Funding Source: NFWF, Federal, OPM regional performance F, FEMA (HMP only), HUD, city

Aprox. Cost	<u>450,000 + 500k + stanford only</u>	\$5-25k	\$25-50k	<u>\$100-500k</u>	>500k*
Aprox. Time Line		Annually	<u>< 1 year</u>	<u>1-3 years</u>	>3 years*
Strategy Type		<u>Infrastr.</u>	<u>Societal</u>	<u>Ecosys.</u>	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Stanford Red

Mitigation Strategy: Evacuation Plan Updated every 5 years, 1 year on southern end

Hazards Addressed: ~~Coastal Flood~~ All Hazards

Responsible Party: Health & Safety, WCCOG if regional DEMHS



Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				<input checked="" type="checkbox"/>
Technical	Will the strategy solve the problem?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				<input checked="" type="checkbox"/>
Political	Is there public and political support for this strategy				<input checked="" type="checkbox"/>
Legal	Is there state and legal authority to implement this strategy				<input checked="" type="checkbox"/>
Economic	Is the strategy affordable, with readily/easily available financial support?			<input checked="" type="checkbox"/> <u>Regional</u>	<input checked="" type="checkbox"/>
Environmental	Are there primarily environmental benefits associated with the strategy?				<input checked="" type="checkbox"/>

→ Reg Estate
→ City
→ State
N/A

Potential Funding Source: City funds, PRM, DEMHS, FEMA, HUD

Aprox. Cost		\$5-25k	\$25-50k	<u>Regional</u> <u>\$100-500k</u>	>500k*
Aprox. Time Line	<u>1</u>	Annually	< 1 year	<u>1-3 years</u>	>3 years*
Strategy Type		Infrastr.	<u>Societal</u>	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy: Education/Outreach to Vulnerable Communities

Hazards Addressed: All hazards

Responsible Party: City - EOC

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?			✓	
Administrative	Does your town have all the capabilities to implement/maintain the strategy?			✓	
Political	Is there public and political support for this strategy				✓
Legal	Is there state and legal authority to implement this strategy			✓	
Economic	Is the strategy affordable, with readily/easily available financial support?	✓			
Environmental	Are there primarily environmental benefits associated with the strategy?				✓

Potential Funding Source:	<u>Grants</u>				
Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k* ^{\$} 1.5 Million
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy: additional Resources for Emergency Preparedness Processes

Hazards Addressed: All

WCCOG &

The Nature Conservancy 

Responsible Party: City

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?			✓	
Administrative	Does your town have all the capabilities to implement/maintain the strategy?			✓	
Political	Is there public and political support for this strategy				✓
Legal	Is there state and legal authority to implement this strategy			✓	
Economic	Is the strategy affordable, with readily/easily available financial support?	✓			
Environmental	Are there primarily environmental benefits associated with the strategy?			✓	

Potential Funding Source: Operating expense

Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k* <u>\$3 million</u>
Aprox. Time Line		Annually	< 1 year	<u>1-3 years</u>	>3 years*
Strategy Type		<u>infrastr.</u>	<u>societal</u>	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Stamford/Yellow

Mitigation Strategy: Shoreline Assessment for natural resources
 Hazards Addressed: Coastal flooding, wind
 Responsible Party: City → hire consultant

WCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?			✓	
Administrative	Does your town have all the capabilities to implement/maintain the strategy?			✓	
Political	Is there public and political support for this strategy?				✓
Legal	Is there state and legal authority to implement this strategy?				✓
Economic	Is the strategy affordable, with readily/easily available financial support?	✓			
Environmental	Are there primarily environmental benefits associated with the strategy?				✓

Potential Funding Source: <u>Capital + Grants</u>					
Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	<u>\$500k</u> ^{\$4 million}
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	<u>Ecosys.</u>	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Greenwich Hazard Mitigation Workshop
December 18, 2014



TOWN OF GREENWICH

Office of First Selectman (203) 622-7710 Fax (203) 622-3793
Town Hall- 101 Field Point Road - Greenwich, CT 06830
E-Mail: plisei@greenwichct.org
www.twitter.com/GreenwichFirst

Peter J. Tesel
First Selectman

November 4, 2014

Dear Preparedness Stakeholder,

The Town of Greenwich, in coordination with the Southwest Regional Planning Agency/Western Connecticut COG, is in the process of updating the Town's Natural Hazard Mitigation Plan. Recent storm events, including Sandy and Irene, have been a stark reminder of the vulnerability of communities like ours during severe storm events and the need for preparedness planning.

You have been identified as a key stakeholder that would provide valuable input to this planning process. As such, I would like to invite you to attend a hazards and community resilience workshop on *Thursday, December 18, 2014*. The workshop will take place from 8:45 am to 1:30 pm at the *Town Hall Meeting Room, Greenwich Town Hall, 101 Field Point Road, Greenwich, CT*. Coffee, a light breakfast, and lunch will be provided.

The South Western RPA / Western Connecticut COG, is partnering with The Nature Conservancy, to offer this workshop to bring together emergency responders, land use planners, town officials, and community stakeholders to help identify and prioritize steps to reduce risk and improve resilience in our community. The workshops will assist all of us in better community planning and hazard mitigation efforts.

The *12/18/2014* Workshop Objectives are:

- Understand connections between ongoing community issues, hazard and local planning/mitigation processes.
- Evaluate strengths and vulnerabilities of residents, infrastructure and natural resources to hazards.
- Identify and map vulnerabilities and assets and develop infrastructure, societal and natural resource risk profiles.
- Develop and prioritize actions for the municipality, local organizations, businesses, private citizens, neighborhoods, and community groups.
- Identify opportunities to advance actions that further reduce the impact of hazards and increase resilience.

Please RSVP for the December 18, 2014 workshop, as soon as possible, to Denise Savageau, Conservation Director, 203-622-6461 or denise.savageau@greenwichct.org.

I hope you or a designee can join me at this important workshop.

Sincerely,

Peter J. Tesel,
First Selectman

WELCOME to the Greenwich Hazards and Community Resilience Workshop

December 18th, 2014

Name	Affiliation	Title	Phone	Email
Bob Sechin	WCCOG Subarea	Sub Regional Planner		
Tim Syrotiak	Greenwich EMS	Deputy Director	203-637-3505	TSyrotiak@Greenwichems.org
Joseph Williams	Greenwich Library	Dep. Director		jwilliams@greenwichlibrary.org
Nike Tode	WCCOG	Regional Planner		tode@swppa.org
Jim Heagy	Police	Police Chief	203-622-8010	JHeagy@greenwichct.org
Jim Michel	Greenwich DRW	Chief Eng.	203-622-7813	Jmichel@greenwichct.org
Joe Roberto	Hwy/DDPW	Super Hwy	632-7763	
Sam Klein	IT	Director	622-6448	Klein@greenwichct.org
Don Sullivan	Fire Station 400 Seav.	Director	622-7854	jsullivan@greenwichct.org
Fori Lyndine	Community Agency	Director	862-6711	fori@greenwichct.org
George O'Connell	GRIS	Director	622-3802	goconnell@greenwichct.org
Roger Berry	POLICE	CAPTAIN	622-3235	RBerry@greenwichct.org
Kathy Greig	Police	LT	677-3620	Kgreig@greenwichct.org
Tom Brew	PAE	ASST DIR	612-6488	TBrew@greenwichct.org
Chris Williams	PAE	ASST MANAGER	496-0430	clwilliams@greenwichct.org
Anthony Parnalek	Fleet	Director	869-0330	aparnalek@greenwichct.org
Joe Sincich	Fine	Chief	622-3951	jsincich@greenwichct.org
Peter Berg	Open Land Use	Chair	661-3830	PeterEBerg@greenwichct.org
Bob Kenny	DEMHAS	REG EM	203-696-2440	robkenny@greenwichct.org

WELCOME to the Greenwich Hazards and Community Resilience Workshop

December 18th, 2014

Name	Affiliation	Title	Phone	Email
John Wetmore	LFW	Special Counsel	(203) 622-3824	johnwetmore@londonwithct.org
Ron Matta	Boe	Director Facilities	203 625-7137	RON.MATTE@GREENWICH.K12.CT.US
Christina Hudson	Turner	Director of WEIUMPS	X-7736	christina.hudson@turner.org
Jeff Freidig	Leidos for NASA	Dept. Mgr	202 841 8415	christina.e.hudson@leidos.com
Bob Seal	P+R	Supintendent	203 849-6116	seal@freidig-greenwich.org
Nancy Gray	P+2	Dep. Director	622-6364	RSeal@greenwich.ct.gov
Jim O'Sullivan	R1H4	Bt Member	203 625 4732	ngraymra@gmail.com
Katie DeLuca	CCA	Treasurer	865-4101	obrienj2309@gmail.com
Amy Siebert	P+2 (TOG)	Director, P+2	203-622-7894	kdeluca@greenwich.org
Dan Waracha	DOW	Comm. DPW	203 622-7740	asiebert@greenwich.org
Frank Muzzza	OE m	Chief	203 612-2222	dmw@greenwich.org
Mike Boechlin	State Representative	State Rep	203-561-9899	mike.boechlin@connecticut.gov
Sarah Crosby	Brown U	Grad. Student	203-961-6364	sarah_crosby@brown.edu

WELCOME to the Greenwich Hazards and Community Resilience Workshop

December 18th, 2014

[illegible]

Greenwich - Blue

Implementation & Maintenance.

Mitigation Strategy: Interactive GIS software coordination w/ town departments

Hazards Addressed: All

Responsible Party: All town departments West Con COG

WCCOG &



Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?				✓
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				✓
Political	Is there public and political support for this strategy?				✓
Legal	Is there state and legal authority to implement this strategy?				✓
Economic	Is the strategy affordable, with readily/easily available financial support?				✓
Environmental	Are there primarily environmental benefits associated with the strategy?			✓	

Potential Funding Source: FEMA/DEHHS, Town, OPM, USDOT/CTDOT

Aprox. Cost	<u>100-300k + ongoing</u>	\$5-25k	\$25-50k	<u>100-300k + annual</u> \$100-500k	>500k*
Aprox. Time Line	<u>1-3 years annual</u>	Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy: Cos Cob & Fire House & US 1

relocate Fire house, Green Infrastructure flood mitigation

Hazards Addressed: Flood Hazard → riverine

Responsible Party: DPW, Engineering

WCCOG &



Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?				✓
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				✓
Political	Is there public and political support for this strategy?				✓
Legal	Is there state and legal authority to implement this strategy?				✓
Economic	Is the strategy affordable, with readily/easily available financial support?				
Environmental	Are there primarily environmental benefits associated with the strategy?				

Potential Funding Source: FEMA, USDOT, CTDOT, DEEP, EPA, WCCOG

Aprox. Cost	<u>1m - 23m we want 25m depending on construction activity</u>	\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line	<u>Phase 1 3 years</u>	Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Greenwich - Blue

Greenwich - Blue

Mitigation Strategy: Access to Isolated areas - Education outreach communication improvements.

Hazards Addressed: All hazards, Drought

Responsible Party: Emergency Management, Neighborhood Associations, Conservation

WCCOG &



Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?				✓
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				✓
Political	Is there public and political support for this strategy?				✓
Legal	Is there state and legal authority to implement this strategy?				✓
Economic	Is the strategy affordable, with readily/easily available financial support?				✓
Environmental	Are there primarily environmental benefits associated with the strategy?			✓	

Potential Funding Source: Town, HUD, CDBG, FEMA DEMHS, BE Urban support no 3

Aprox. Cost	<u>200k</u>	\$5-25k	\$25-50k	<u>\$100-500k</u>	>500k*
Aprox. Time Line		Annually	< 1 year	<u>1-3 years</u>	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy: Sewer Treatment Plant Relocation / Raising / Barm?

Hazards Addressed: Flooding

Responsible Party: DPW

WCCOG &



Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?				✓
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				✓
Political	Is there public and political support for this strategy?				✓
Legal	Is there state and legal authority to implement this strategy?				✓
Economic	Is the strategy affordable, with readily/easily available financial support?				✓
Environmental	Are there primarily environmental benefits associated with the strategy?				✓

Potential Funding Source: DEEP, FEMA/DEMHS, EPA, FISHWILDLIFE

Aprox. Cost	<u>\$30+ million</u>	\$5-25k	\$25-50k	\$100-500k	<u>>500k*</u>
Aprox. Time Line	<u>3-8 years</u>	Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Greenwich - Blue.

Mitigation Strategy:

WMT + PUMP STATION REVERTED

Hazards Addressed:

FLOODING TOWN

Responsible Party:

Question

Criteria	Question	NOI	unlikely	likely	YES!
Social	Are there social benefits?				X
Technical	Will the strategy solve the problem?				X
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				X
Political	Is there public and political support for this strategy?				X
Legal	Is there state and legal authority to implement this strategy?				X
Economic	Is the strategy affordable, with readily/easily available financial support?			X	
Environmental	Are there primarily environmental benefits associated with the strategy?				X

Potential Funding Source:

Approx. Cost	Approx. Time Line	Strategy Type
>500k*	>3 years*	Other*
\$5-25k	\$25-50k	\$100-500k
Annually	< 1 year	1-3 years
Infrastr.	Societal	Ecosys.

STAPLEE Question adapted from FEMA

* Please write in response in the empty space to the left.

Mitigation Strategy:

IMPROVE + ENLARGE STORAGE OF FUEL TANKS

Hazards Addressed:

ALL HAZARDS

Responsible Party:

Question

Criteria	Question	NOI	unlikely	likely	YES!
Social	Are there social benefits?				X
Technical	Will the strategy solve the problem?				X
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				X
Political	Is there public and political support for this strategy?				X
Legal	Is there state and legal authority to implement this strategy?				X
Economic	Is the strategy affordable, with readily/easily available financial support?			X	
Environmental	Are there primarily environmental benefits associated with the strategy?				X

Potential Funding Source:

Approx. Cost	Approx. Time Line	Strategy Type
>500k*	>3 years*	Other*
\$5-25k	\$25-50k	\$100-500k
Annually	< 1 year	1-3 years
Infrastr.	Societal	Ecosys.

STAPLEE Question adapted from FEMA

* Please write in response in the empty space to the left.



WCCOG &

Mitigation Strategy: Coordination + Cooper. w/ Police gen. related partners
 Hazards Addressed: 100% on wind / storm events
 Responsible Party: (ct/ny) municipality + utility providers

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				
Technical	Will the strategy solve the problem?				✓
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				✓
Political	Is there public and political support for this strategy	✓			
Legal	Is there state and legal authority to implement this strategy				✓
Economic	Is the strategy affordable, with readily/easily available financial support?	✓			✓
Environmental	Are there primarily environmental benefits associated with the strategy?				✓

Potential Funding Source: state of ct / Federal

Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy: IMPROVE POWER GRID RESILIENCY

Hazards Addressed: ALL

Responsible Party: CL+P

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				X
Technical	Will the strategy solve the problem?			X	
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				
Political	Is there public and political support for this strategy				X
Legal	Is there state and legal authority to implement this strategy				X
Economic	Is the strategy affordable, with readily/easily available financial support?			X	
Environmental	Are there primarily environmental benefits associated with the strategy?	X			

Potential Funding Source:

Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Hazards Addressed: Flooding concerns.

Responsible Party: Town

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?				✓
Administrative	Does your town have all the capabilities to implement/maintain the strategy? <i>(need coop. w/ state)</i>		✓		
Political	Is there public and political support for this strategy				✓
Legal	Is there state and legal authority to implement this strategy				✓
Economic	Is the strategy affordable, with readily/easily available financial support?	✓			
Environmental	Are there primarily environmental benefits associated with the strategy?				✓

Potential Funding Source:	<u>FEMA</u>	\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Cost		Annually	< 1 year	1-3 years	>3 years*
Aprox. Time Line		Infrastr.	Societal	Ecosys.	Other*
Strategy Type					

STAPLEE Question adapted from FEMA

* Please write in response in the empty space to the left.

Mitigation Strategy: IMPROVE I.T. FOR LIVE UPDATES

Hazards Addressed: ALL

Responsible Party: TOWN

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?			✓	
Administrative	Does your town have all the capabilities to implement/maintain the strategy?			✓	
Political	Is there public and political support for this strategy				✓
Legal	Is there state and legal authority to implement this strategy				✓
Economic	Is the strategy affordable, with readily/easily available financial support?				✓
Environmental	Are there primarily environmental benefits associated with the strategy?	✓			

Potential Funding Source:		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Cost		Annually	< 1 year	1-3 years	>3 years*
Aprox. Time Line		Infrastr.	Societal	Ecosys.	Other*
Strategy Type					

STAPLEE Question adapted from FEMA

* Please write in response in the empty space to the left.



Hazards Addressed: Wind / Winter Storms
 Responsible Party: P&P - CREP

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				<input checked="" type="checkbox"/>
Technical	Will the strategy solve the problem?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Administrative	Does your town have all the capabilities to implement/maintain the strategy?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Political	Is there public and political support for this strategy				<input checked="" type="checkbox"/>
Legal	Is there state and legal authority to implement this strategy				<input checked="" type="checkbox"/>
Economic	Is the strategy affordable, with readily/easily available financial support?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Environmental	Are there primarily environmental benefits associated with the strategy?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Potential Funding Source:	<u>Town / CREP</u>				
Aprox. Cost	<u>\$1 - 2 M plus</u>	\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line	<u>ongoing</u>	Annually	< 1 year	1-3 years	>3 years*
Strategy Type	<u>Ecosystem</u>	Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy: Improve Communication channel for residents
 Hazards Addressed: disasters
 Responsible Party: Emergency Preparedness Dept - Town depts - IT, police etc

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				<input checked="" type="checkbox"/>
Technical	Will the strategy solve the problem?				<input checked="" type="checkbox"/>
Administrative	Does your town have all the capabilities to implement/maintain the strategy?				<input checked="" type="checkbox"/>
Political	Is there public and political support for this strategy				<input checked="" type="checkbox"/>
Legal	Is there state and legal authority to implement this strategy				<input checked="" type="checkbox"/>
Economic	Is the strategy affordable, with readily/easily available financial support?				<input checked="" type="checkbox"/>
Environmental	Are there primarily environmental benefits associated with the strategy?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Potential Funding Source:	<u>Town funding, FEMA, STATE of CT</u>				
Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.


STAPLEE Question adapted from FEMA

Mitigation Strategy:

Develop Communication Education for at Risk Populations & Disaster Preparedness

Hazards Addressed:

Responsible Party:

WCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				
Technical	Will the strategy solve the problem?				
Administrative	Does your town have all the capabilities to implement/maintain the strategy?			X	
Political	Is there public and political support for this strategy				
Legal	Is there state and legal authority to implement this strategy				
Economic	Is the strategy affordable, with readily/easily available financial support?				
Environmental	Are there primarily environmental benefits associated with the strategy?		X	X	

Potential Funding Source:

Aprox. Cost	<i>50 - 100K</i>	\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line	<i>1 yr</i>	Annually	< 1 year	1-3 years	>3 years*
Strategy Type	<i>Social</i>	Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy:

Town-wide Tree Management Program

Hazards Addressed:

Coastal & Inland Flooding, Ice/Snow, Wind

Responsible Party:

Town, Multi-department, Private Homeowners, Utilities

WCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				✓
Technical	Will the strategy solve the problem?			✓	✓
Administrative	Does your town have all the capabilities to implement/maintain the strategy?			✓	✓
Political	Is there public and political support for this strategy			✓	
Legal	Is there state and legal authority to implement this strategy			✓	
Economic	Is the strategy affordable, with readily/easily available financial support?				✓
Environmental	Are there primarily environmental benefits associated with the strategy?		✓		

Potential Funding Source:

Local & Private

Aprox. Cost		\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

1.5M
25 yrs

Mitigation Strategy: *Vulnerability Assessment of Town owned Infrastructure*
 Hazards Addressed:

WCCOG & The Nature Conservancy 

Responsible Party:

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				<input checked="" type="checkbox"/>
Technical	Will the strategy solve the problem?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Administrative	Does your town have all the capabilities to implement/maintain the strategy?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Political	Is there public and political support for this strategy			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Legal	Is there state and legal authority to implement this strategy			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Economic	Is the strategy affordable, with readily/easily available financial support?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Environmental	Are there primarily environmental benefits associated with the strategy?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Potential Funding Source:

Aprox. Cost	<i>\$100 - 500R</i>	\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line	<i>1-2 years</i>	Annually	< 1 year	1-3 years	>3 years*
Strategy Type	<i>Infrastructure</i>	Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA

Mitigation Strategy: *Upgrade & Harden Waste Water Treatment System*
 Hazards Addressed: *Coastal & Inland Flooding*
 Responsible Party: *TOWN'S DPW*

WCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				<input checked="" type="checkbox"/>
Technical	Will the strategy solve the problem?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Administrative	Does your town have all the capabilities to implement/maintain the strategy?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Political	Is there public and political support for this strategy			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Legal	Is there state and legal authority to implement this strategy			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Economic	Is the strategy affordable, with readily/easily available financial support?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Environmental	Are there primarily environmental benefits associated with the strategy?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Potential Funding Source:

Aprox. Cost	<i>Federal, State & Local</i>	\$5-25k	\$25-50k	\$100-500k	>500k*
Aprox. Time Line		Annually	< 1 year	1-3 years	>3 years*
Strategy Type		Infrastr.	Societal	Ecosys.	Other*

* Please write in response in the empty space to the left.

STAPLEE Question adapted from FEMA



10M+
2-10 years

Mitigation Strategy: Upgrade & maintain storm drain system
 Hazards Addressed: Coastal & Inland Flooding
 Responsible Party: Town & private associations, Public Works

WCCOG & The Nature Conservancy 

Criteria	Question	NO!	unlikely	likely	YES!
Social	Are there social benefits?				
Technical	Will the strategy solve the problem?				✓
Administrative	Does your town have all the capabilities to implement/maintain the strategy?			✓	
Political	Is there public and political support for this strategy?				✓
Legal	Is there state and legal authority to implement this strategy?				✓
Economic	Is the strategy affordable, with readily/easily available financial support?				✓
Environmental	Are there primarily environmental benefits associated with the strategy?			✓	

Potential Funding Source: State, Local, Federal
 Aprox. Cost
 Aprox. Time Line
 Strategy Type

\$5-25k	\$25-50k	\$100-500k	>500k*
Annually	< 1 year	1-3 years	>3 years*
Infrastr.	Societal	Ecosys.	Other*

> \$40M
15 yrs

* Please write in response in the empty space to the left.

Appendix A-3.3

Hazard Mitigation Public Survey



 Request edit access

Natural Hazard Mitigation Survey

1. What town/city do you live in?

- ☒ Darien
- ☒ Greenwich
- ☒ New Canaan
- ☒ Norwalk
- ☒ Stamford
- ☒ Weston
- ☒ Westport
- ☒ Wilton
- ☒ Other (enter below)

2. Have any of the following increased your awareness of natural hazards in the region? (check all that apply)

- ☒ Winter Storm Nemo, February 2013
- ☒ Superstorm Sandy, October 2012
- ☒ Winter Storm Alfred, October 2011
- ☒ Hurricane/Tropical Storm Irene, August 2011
- ☒ Mid-Atlantic Earthquake, August 2011
- ☒ Other (enter below)

3. What are your greatest hazards of concern? (check all that apply)

- ☒ Flooding
- ☒ Hurricane and Tropical Storms
- ☒ Tornadoes
- ☒ Severe Thunderstorms (including hail and/or downburst)
- ☒ Winter Storms (includes ice storms) and Blizzards
- ☒ Earthquakes
- ☒ Sea Level Rise
- ☒ Coastal and Inland Erosion
- ☒ Dam Failure

☒ Other (enter below)

4. Have any of the hazards below personally impacted your home and/or business? (check all that apply)

☒ Flooding

☒ Hurricane and Tropical Storms

☒ Tornadoes

☒ Severe Thunderstorms (including hail and/or downburst)

☒ Winter Storms (includes ice storms) and Blizzards

☒ Earthquakes

☒ Sea Level Rise

☒ Coastal and Inland Erosion

☒ Dam Failure

☒ Other (enter below)

5. Are there any specific areas in your town/city vulnerable to natural hazards? If so, please specify the town/city, location and vulnerability to what hazard(s). For example, "Road A, near Lake B"

6. What are some helpful measures that can be taken to reduce your city/town's vulnerability to natural hazards (natural hazard mitigation strategies)? (check all that apply)

☒ Identify future threats and impacts from natural hazards

☒ Outreach/Education to residents, businesses, and other community entities to help understand area risks and vulnerabilities

☒ Technical assistance to residents, businesses and other community entities to aid in the reduction of damage/losses from natural hazards and disasters

☒ Specific, targeting project efforts that will mitigation hazards and make the community more resilient. Examples such as drainage, erosion, and flood control projects

☒ Improve warning and response systems with respect to natural hazards and disasters

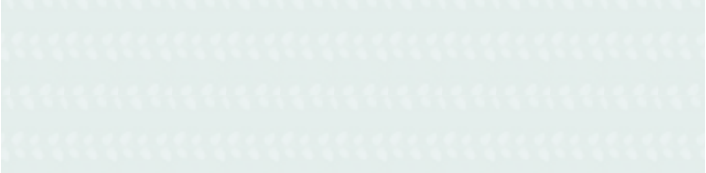
☒ Develop and enforce regulations, codes, and ordinances. Examples include zoning regulations and building codes that reduce development in hazard-prone areas

☒ Other (enter below)

Optional: please feel free to leave your name and e-mail address, so we can keep you posted of any new information and upcoming events

Submit

Never submit passwords through Google Forms.



Location of Publicly-accessible Hazard Mitigation Survey on Website

Hazard Mitigation Planning

For easters, hurricanes, blizzards/severe winter storms/ice storms, drought, sea level rise, earthquakes, and dam failure. Each of these risks was evaluated for its likelihood of occurrence and potential for loss of life and property. To try to minimize these losses, the plan established mitigation measures, objectives and strategies that minimize the negative consequences of natural disasters before they occur.

and it's municipalities are currently working on an update to the 2011 plan, more details on the LUMP/PDM Update, the current 2011 plan, and previous iterations can be found below.

News

2016 Plan Update

★ Take the SWR Natural Hazard Mitigation Survey

📎 Scope of Work (229.10 KB)

📎 Project Schedule (25.49 KB)

Hazard Mitigation Workshops (*NEW!*)

SWRPA has partnered with The Nature Conservancy (TNC) to conduct Hazard Mitigation Workshops for the region and each municipality. Workshop objectives seek to:

- Understand connections between ongoing community issues, hazard and local planning/mitigation processes.

• Evaluate structural and nonstructural infrastructure and natural resources

Appendix A-3.4

Sub-Regional Public Meetings



7:54°



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Governments Council Releases Draft Of Hazard Mitigation Plan For Wilton

by [Alesha Hanson](#) Politics 02/10/15

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Western Connecticut Council of Governments has released its draft 2016-2021 Natural Hazard Mitigation Plan. Photo Credit: www.swrpa.org

WILTON, Conn. -- The Western Connecticut Council of Governments (WCCOG) has released its draft 2016-21 Natural Hazard Mitigation Plan (HMP) for Darien, Greenwich, New Canaan, Norwalk, Stamford, Weston, Westport and Wilton.

The plan, which is the product of extensive technical analysis, is designed to provide residents, businesses, and emergency responders with information on storms and other extreme weather events, vulnerable locations, and methods to mitigate damage and limit disruption.

An approved HMP is a prerequisite for municipalities to be eligible for many types of Federal Emergency Management Agency (FEMA) funding.

Public review and comment on the Draft HMP will extend through March 6.

The Draft HMP can be found here: <http://www.swrpa.org/default.aspx?Regional=268>.

WCCOG will hold four public information (PI) sessions where technical experts will be on

hand to answer any project related questions. During the sessions, members of the community can also review the Draft HMP and provide comments, if desired.

“We encourage the public to attend the sessions and talk to the experts” said Robert Sachnin, Senior Regional Planner at WCCOG and HMP project manager, “information is our greatest asset; the more informed our communities are, the better they can prepare for natural hazards”

Details regarding the information sessions are below:

Tuesday, Feb. 10 from 5 p.m. to 6:30 p.m.; Wilton Town Hall Annex, Meeting Room A or
Snow date: Wednesday, Feb. 11 from 2:30 p.m. to 4 p.m/

Thursday, Feb. 12, from 5 p.m. to 6:30 p.m.; Darien Town Hall, Room 206 or snow date:
Wednesday, Feb. 18: 5 p.m/ to 6:30 p.m.; Westport Town Hall, Auditorium

Thursday, Feb. 19, from 5 p.m. to 6:30 p.m.; WCCOG (Stamford Government Center, 3rd Floor) or snow date: Tuesday, Feb. 24, from 5 p.m. to 6:30 p.m.

Thursday, Feb. 19, from 7:30 p.m. to 9 p.m.; Greenwich Town Hall, Town Hall Meeting Room or snow date: Monday, Feb. 23 from 5 p.m. to 6:30 p.m.

To arrange for special accommodations or translation services contact WCCOG at least five days prior to the meeting at (203) 316-5190 (voice only).

Any information sessions cancelled due to inclement weather will be posted in advance on the WCCOG/SWRPA website: www.swrpa.org.

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- 2 Wild Coyote Attacks Three Large Dogs In North Stamford, Police Warn
- 3 Freezing Rain, Hazardous Travel Possible For Morning Commute In Wilton

Council Releases Natural Hazard Mitigation Plan For Westport

by [Cassandra Huerta](#) Politics 02/12/15

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The Western Connecticut Council of Governments has released a draft for Southwestern Connecticut municipalities and will hold public information sessions this month. Photo Credit: <http://www.swrpa.org/>

FAIRFIELD COUNTY, Conn. -- The Western Connecticut Council of Governments has released its draft 2016-21 Natural Hazard Mitigation Plan for the municipalities of Darien, Greenwich, New Canaan, Norwalk, Stamford, Weston, Westport and Wilton.

The plan, which is the product of extensive technical analysis, is designed to provide residents, businesses, and emergency responders with information on storms and other

extreme weather events, vulnerable locations, and methods to mitigate damage and limit disruption. An approved plan is a pre-requisite for municipalities to be eligible for many types of Federal Emergency Management Agency aid. Public review and comment on the plan will extend be until March 6. The plan can be found online [here](#).

WCCOG will host three public information sessions, where technical experts will be on hand to answer any project-related questions. During the sessions, members of the community also can review the plan and provide comments, if desired. The sessions are:

- Friday from 5-6:30 p.m. at Darien Town Hall, Room 206. The snow date will be Feb. 18 from 5-6:30 p.m. in the Westport Town Hall, Auditorium.
- Feb. 19 from 5-6:30 p.m. at the WCCOG (Stamford Government Center, third floor). The snow date will be Feb. 24 from 5-6:30 p.m.
- Feb. 19 from 7:30-9 p.m. at Greenwich Town Hall, Town Hall Meeting Room. The snow date will be Feb. 23 from 5-6:30 p.m.

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1 Snow Caused Westport Deck Collapse, Severed Propane Tank Line

2 Driver Backs Up Over Gate After Car Gets Stuck At Chappaqua Train Crossing

3 Wild Coyote Attacks Three Large Dogs In North Stamford, Police Warn

[Freezing Rain, Hazardous Travel Possible For Morning Commute In Westport](#)



WCCOG hazard mitigation plan: What natural hazards should we worry about?

By [Christopher Burns](#) on March 3, 2015 in [Clubs & Organizations](#), [Lead News](#) · 0 Comments

About author



Christopher Burns

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The next time a Superstorm Sandy-style emergency affects lower Fairfield County, emergency responders will have much more empirical information at their disposal, thanks to an updated Natural Hazard Mitigation Plan recently published by the Western Connecticut Council of Governments (WCCOG).

The plan, which was organized around the guidelines of the Federal Emergency Management Administration and Connecticut's Department of Emergency Management, seeks to reduce the negative impact from natural hazards, the council's regional planner, Robert Sachnin, said Monday, Feb. 23.

"The impact [of serious natural hazards] includes the loss of human life and property, as well as economic disruption. When local businesses are down, those impacts reverberate across the community through the businesses and into the residents themselves," he said.

Of the varied risks posed to several towns in the council of governments — Darien, Greenwich, New Canaan, Norwalk, Stamford, Weston, Westport, and Wilton — Mr. Sachnin said, a few came up time and time again.

"Our main goal was to identify the hazards of concern. This isn't a complete

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listing, but they include coastal and riverished flooding, hurricanes and severe storms like nor'easters and low pressure systems, drought, extreme heat and cold, wind damage and downed power lines, and dam failure," he said.

The council's head planner said the organization gleaned these results from various sources, including previous publications, and input from municipal officials and public surveys.

"Now that we had a lay of the land with natural hazards, the next step was to conduct an impact assessment to determine the extent of a natural hazard's impact, the probability of an impact, and its magnitude," he said.

"From that, we developed mitigation strategies, which is just a fancy term for identifying techniques and opportunities to better safeguard against some of these impacts."

An example of a mitigation strategy, the planner said, was the construction of a seawall in a coastal community.

In Wilton specifically, a number of objectives from a 2011 mitigation plan have been met, while the new plan has added additional preparation ideas.

Of the "high priority" objectives from 2011, Wilton has completed 16. Six additional objectives are perpetual.

For example, one of the perpetual objectives is to "ensure that Fire Station Two continues to serve western Wilton." The second is to analyze options for meeting the expansion needs of Fire Station Two, also known as the Marhofer station, on Route 33.

On Wilton's natural hazard mitigation challenges, the new report says a big risk in town is that Popes Pond and South Norwalk Reservoir dams lack "dependable protocols to contact property owners in the event of a dam emergency."

It also points to regular flooding of the Silvermine River and Comstock Brook and tree debris resulting in street closures as some of the largest problems in town.

To read the full report on Wilton, and its surrounding towns, visit swrpa.org and click on Regional Planning. Members of the public are invited to comment on the plan up until March 6.

Tags: [connecticut](#), [Natural Disaster Mitigation Plan](#), [WCCOG](#), [Western Connecticut Council of Governments](#), [wilton](#)

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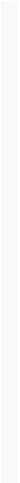
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WCCOG hazard mitigation plan: What natural hazards should Weston worry about?

By [Christopher Burns](#) on March 3, 2015 in [Connecticut](#), [Land Use](#), [Latest News](#), [Town Government](#), [Transportation](#)
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About author



Christopher Burns



The National Guard clears a tree on Briar Oak Drive after Superstorm Sandy. —Gayle Weinstein photo

The next time a Superstorm Sandy-style emergency affects lower Fairfield County, emergency responders will have much more empirical information at their disposal thanks to an updated Natural Hazard Mitigation Plan recently published by the Western Connecticut Council of Governments (WCCOG).

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"Our main goal was to identify the hazards of concern. This isn't a complete listing, but they include coastal and riverished flooding, hurricanes and severe storms like nor'easters and low pressure systems, drought, extreme heat and cold, wind damage and downed power lines, and dam failure," he said.

The council's head planner said the organization gleaned these results from various sources, including previous publications, and input from municipal officials and public surveys.

"Now that we had a lay of the land with natural hazards, the next step was to conduct an impact assessment. To determine the extent of a natural hazard's impact. The probability of an impact, and its magnitude," he said.

"From that, we developed mitigation strategies, which is just a fancy term for identifying techniques and opportunities to better safeguard against some of these impacts."

An example of a mitigation strategy, Mr. Sachnin said, was the construction of a seawall in a coastal community.

In Weston

Weston has identified one of its challenges as keeping the town the kind of community where volunteerism thrives. It's all-volunteer fire and emergency services departments are strained by heavy traffic and weather-related problems on state roads such as Route 57 (Weston Road) and Route 53 (Georgetown Road).

Westonites may not be fully aware of the hazards the town faces. "The town is working to increase awareness of the community's vulnerability to natural disasters," the report states.

In Weston, several mitigation strategies have been identified as "high priority." These include:

- Maintain the federal flood insurance program while encouraging development outside flood-prone areas
- Publish all ordinances on the town website
- Institute water volume monitoring and exploring regulations requiring engineered storm water management systems in new subdivisions
- Develop a capital plan for fire ponds and hydrants and maintaining existing ones
- Investigate ways to improve emergency communications
- Maintain and explore options for emergency back-up power, such as a micro grid or fuel cell.

To read the full report on Weston and its surrounding towns, visit [swrpa.org](http://www.swrpa.org) and click on Regional Planning. Members of the public are invited to comment on the plan up until March 6.

Weston Forum Editor Kimberly Donnelly contributed to this story.

Tags: [fairfield county](#), [flood](#), [hazard mitigation](#), [hurricane](#), [natural disasters](#), [regional highlight](#), [SWRPA](#), [wccog](#), [weather](#), [Western Connecticut Council of Governments](#)



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Appendix A-4

Public Information Comments

No comments received for Draft HMP

2016-2021 Draft Natural Hazard Mitigation Plan (HMP): Public Information Session

Date: February 10, 2015

Western Connecticut Council of Governments (WCCOG)

Location: Wilton Town Hall - (municipalities of New Canaan, Wilton, and Weston)

Name:	Organization:	Phone:	E-mail:
Rob Sachnin	WCCOG	203-316-5190	rsachnin@westernctcog.org

2016-2021 Draft Natural Hazard Mitigation Plan (HMP): Public Information Session

Date: February 12, 2015

Western Connecticut Council of Governments (WCCOG)

Location: Darien Town Hall (Darien, Norwalk, Westport) 5-6:30pm

Name:	Organization:	Phone:	E-mail:
Rob Sachnin	WCCOG	203-316-5190	rsachnin@westernctcog.org

2016-2021 Draft Natural Hazard Mitigation Plan (HMP): Public Information Session

Date: February 19, 2015

Western Connecticut Council of Governments (WCCOG)

Location: Stanford, WCCOG Offices, Stamford Government Center

Name:	Organization:	Phone:	E-mail:
Rob Sachnin	WCCOG	203-316-5190	rsachnin@westernctcog.org
THOMAS LOMBARDO	EMD	203-977-5900	TLOMBARDO@STAMFORD.CT.GOV

2016-2021 Draft Natural Hazard Mitigation Plan (HMP): Public Information Session

Date: February 19, 2015

Western Connecticut Council of Governments (WCCOG)

Location: Greenwich Town Hall, Town Hall meeting Room

Name:	Organization:	Phone:	E-mail:
Rob Sachnin	WCCOG	203-316-5190	rsachnin@westernctcog.org
Denise Savageau	TOG	203-422-6461	denise.savageau@greenwichct.org
DRW WARZOKA	TOG	203-622-2222	emoc@greenwichct.org
Lisette Henrey	Conservation Committee Greenwich		Lisetteh@juno.com

Appendix A-5

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Chapter 1

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Chapter 2

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- I. Chapter 2 Cover Image: Photo created by WCCOG

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- I. Chapter 3 Cover Image: Photo by k88rock on FLICKR. Tags "Stamford CT" "Snow"

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2. United States Federal Emergency Management Agency (FEMA). (1996). Guide for All-Hazard Emergency Operations Planning. Retrieved 2/13/14 from <http://www.fema.gov/pdf/plan/slg101.pdf>

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- II. 4.1-1 Acres of State Conservation Land, Actual, Projected and Goal Track. Connecticut Council on Environmental Quality's (CEQ) 2013 report.
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Chapter 5

Image References

- I. Chapter 5 Cover Image: <http://www.smartfile.com/blog/wp-content/uploads/2012/07/blueprints.jpg>
- II. Figure 5.0-1: Core Steps in Hazard Mitigation Planning Process: <http://www.fema.gov/hazard-mitigation-planning-overview>

Appendix A-6

Local Plans of Conservation and Development

Local Plans of Conservation and Development

Review for Incorporation of Hazard Mitigation Goals and Actions

Darien

The current Darien PoCD is dated 2006 and therefore pre-dates the 2011 hazard mitigation plan. A new PoCD is being developed for adoption in 2016. Draft components of the PoCD are available as booklets #1-7. Booklet #3 (Planning Issues) includes discussions relative to flooding, the lack of low impact development regulations, the impact of the Goodwives River floodplain on development potential, and enhancing fire protection throughout the town.

Booklet #4 (Conservation Strategies) includes a goal to “Promote Resiliency” with the following suggested policies:

- Continue to regularly review and improve emergency preparedness and response.
- Continue to regularly review and improve hazard mitigation plans for recurring events, such as flooding.
- Over the long term, begin to consider and discuss strategic options and responses to predicted sea level rise.

Suggested initial tasks include:

- Assess the vulnerability of infrastructure (e.g., utilities, transportation, structures) to climate change and increased frequency of extreme storms and develop strategies.
- Consider increasing the “freeboard” requirement in areas subject to flooding especially as storm frequency and severity is projected to increase in the future (i.e. – FEMA +1, FEMA@500, etc.).
- Consider evaluating how building height is regulated in coastal areas.

Finally, Booklet #6 (Infrastructure) includes discussion of roadway flooding.

Therefore, the 2016 update of the Darien PoCD is considered to have incorporated the hazard mitigation goals and actions.

Greenwich

The 2009 Town of Greenwich PoCD includes the following actions:

- 1.1 The First Selectman and the Flood & Erosion Control Board should coordinate all Town agencies' efforts to develop plans addressing flooding in various parts the Town.
- 1.2 Per NPDES requirements develop comprehensive stormwater management plans, policies and solutions to address flooding in the six watershed areas.
- 1.3 Work with the Army Corps of Engineers to address flood-prone areas such as the Route 1 Bridge, Byram River and Pembervick.
- 1.4 To reduce and manage runoff, establish regulations to limit impervious lot coverage and reduce site hydrology for all new construction on residential properties.
- 1.5 Update flood regulations to ensure redevelopment in flood and coastal zones meets Federal Emergency Management Agency (FEMA) standards without variances.
- 1.6 Evaluate whether the Town should participate in the Community Rating System program.
- 1.7 Evaluate stormwater funding options to pay for needed stormwater improvements.
- 1.8 Continue to acquire open space where appropriate to protect water resource areas in order to assure continued supply of surface and ground water.
- 1.11 Continue to update the Drought Management Plan and Ordinance to reflect current conditions in accordance with State statutes.
- 1.13 Continue rigorous separation of development activities from regulated wetlands and watercourses.
- 1.44 Review land-use regulations to consider allowing dedication of off-site open space as part of any development.
- 1.45 Review and revise regulations to encourage residential conservation zoning to increase open space.
- 4.9 Review the existing floodways and flooding conditions along Strickland Brook to see what improvements can be done on a cost benefit basis.
- 4.15 The Flood and Erosion Control Board should address flooding issues in Old Greenwich.
- 4.16 When redevelopment of residences occurs in the flood and coastal zones they should be required to meet all Federal Emergency Management Agency (FEMA) flood standards without obtaining a variance.
- 6.1 Complete the Public Safety Complex and improve emergency communications.

Therefore, the Greenwich PoCD is considered consistent with the current goals and actions of the hazard mitigation plan. The next update to the PoCD (scheduled for 2019, during the life of the current hazard mitigation plan) will continue to incorporate the elements of the hazard mitigation plan.

New Canaan

The 2014 Town of New Canaan PoCD includes the following actions:

- Seek to acquire open space as opportunities arise.

- Improve public safety communications (police, fire, ambulance, etc.).
- Strive to find the right balance between landscaped roads and tree trimming to enhance electrical reliability.
- Encourage electric system improvements to improve service and reliability.
- Continue to seek ways that wired utilities can be placed underground over the long term to enhance utility reliability.
- Consider establishing one or more microgrids for key municipal facilities and some of the key private businesses in the downtown area.
- Continue to seek opportunities to mitigate flooding (such as that recommended in the Five Mile River Watershed Based Plan).
- Encourage water conservation especially since many areas of the community rely on groundwater for domestic use.
- Identify ways to involve the community in implementing water conservation practices.
- Continue to review and improve hazard mitigation plans for recurring events, such as flooding.
- Continue to review and improve emergency preparedness plans (single events) in order to be able to respond to these events in the future.
- Explore opportunities to expand the water supply service area.

Therefore, the New Canaan PoCD is considered consistent with the current goals and actions of the hazard mitigation plan. The next update to the PoCD (scheduled for 2024, after the life of the current hazard mitigation plan) will be able to incorporate the elements of the hazard mitigation plan that is effective at that time.

Norwalk

The 2008 City of Norwalk PoCD includes the following actions:

- B.1.2.1 Develop, maintain, and evaluate a Natural Resources Inventory including an update to the inland and tidal wetland maps, indicating areas with severe or considerable natural constraints to development (steep slopes, excessively poorly drained or excessively well-drained soils, 100-year floodway areas)
- B.3.1 Prevent flooding and the threat to health welfare and property
- B.3.1.1 Continue to encourage best management practices, including innovative Low-Impact Development (LID) practices, for managing stormwater runoff
- B.3.1.2 Adopt new regulations of DEP on stormwater retention including the use of rain gardens
- B.3.1.3 Continue to provide capital budget funds for drainage projects to solve drainage problems
- B.3.1.4 Prevent industrial wastes and effluent generated from septic and sanitary systems from going into the city's storm drainage system
- B.3.1.5 Use and maintain natural drainage and wetland areas in lieu of structures to the greatest extent possible; protect natural flood storage areas; utilize Department of Environmental Protection "Primary Treatment Practices"
- B.3.1.6 Require use of dry wells, slotted pipes, and innovative technologies for all new construction as a means of groundwater recharge, and encourage roadway and parking design that minimizes the use of impervious surfaces wherever possible
- B.3.1.7 Encourage acquisition of wetlands beneficial to the City
- B.3.1.8 Maintain the Federal Flood Insurance Program which provides insurance for property owners in flood hazard areas, but encourage development (especially higher density) to be located outside flood-prone areas wherever possible, including increased setbacks to account for sea level rise
- B.3.1.9 Continue to support the Federal Emergency Management Agency's policy of restricting development within floodways
- C.2.1.3 Encourage the preservation of undeveloped lands within the 100-year flood zone with the use of Open Space purchase, donation or conservation easement
- D.1.1 Prepare for emergencies and natural disasters with an Emergency Operations Plan
- D.1.1.1 Update the City's Emergency Operations Plan to ensure that the City's Plan is consistent with that adopted by the State of Connecticut Department of Emergency Management and Homeland Security
- D.1.1.2 Coordinate emergency response activities with neighboring municipalities
- D.1.1.3 Protect the public's health, safety, and property by providing police and fire stations in strategic locations throughout Norwalk
- D.4.1 Ensure rapid emergency service deployment for all areas of Norwalk
- D.4.1.1 Assess current fire stations and identify code and operational issues; Conduct a long-term maintenance plan to plan for modernization and improved maintenance
- D.4.1.2 Assess the current fire stations and ensure rapid resource deployment for all areas of Norwalk

D.4.1.3 Assess times and coverage, to determine if any areas are at risk of becoming underserved

D.4.1.4 Study and recommend a new fire station in the northern section of Norwalk adjacent to Route 7

D.4.1.5 Adopt the recommendations of the Fire Study Committee regarding the Volk Station

D.4.1.6 Address the lack of hydrants in Cranbury and West Norwalk

Therefore, the Norwalk PoCD is considered consistent with the current goals and actions of the hazard mitigation plan. The next update to the PoCD (scheduled for 2018, during the life of the current hazard mitigation plan) will continue to incorporate the elements of the hazard mitigation plan.

Stamford

The 2015 City of Stamford PoCD (entitled “Stamford Master Plan”) includes the following actions:

Policy 7N: Protect Coastal Lands. Implementation Strategies:

7N.1: Protect natural flood barriers. Protect coastal land forms that act as natural barriers to flooding. These include wetlands, waterfront natural grasslands. As an example, protection should be provided for the high, unmodified bluffs on the eastern side of the Shippan Peninsula from any development that accelerates natural erosion processes.

Policy 7P: Prepare Flood Mitigation Strategy. Implementation Strategies:

7P.1: Identify vulnerabilities. In order to prepare for future events, the City may prepare a list of vulnerable areas, and identify at-risk facilities including critical infrastructure, based on FEMA maps.

7P.2: Develop catalogue of strategies. The City may develop a catalogue of various flood mitigation strategies similar to New York City’s A Stronger, More Resilient New York report of 2013. These strategies may include additional flood barriers, expansion of flood plain areas, vegetated barriers, further restrictions on development in flood plains, erosion control and augmentation of natural barriers. Green infrastructure may assist in drainage of flood waters. A Mitigation Plan will match strategies to vulnerable areas.

7P.3: Adapting building regulations. Adapting to potential increases in flooding along rivers and shoreline will require adjustments to how development can occur. Adjustments may be required for buildings that are already located in low-lying areas, and to the design standards of new buildings near the water. Zoning of affected areas may require revisions that allow for minor adjustments in building heights, raising existing buildings to higher elevations, and entrance locations in required yards in order to accommodate higher flood elevations.

7P.4: Future planning. When planning future projects, the City may review the location of a project and determine if it lies within the list of vulnerable areas. The most current climate science should be considered to assess future intensity and frequency of storms. The information should be included when designing and developing the projects and

infrastructure. The City's land use boards should carefully review any development proposal outside of the hurricane barrier. The effect of climate change on sea level rise and more damaging storm surges raises serious concerns about the need to protect critical infrastructure and to mitigate impacts on public safety, property and emergency services along the coast and adjacent rivers. Development in unprotected areas on the shoreline and other flood-prone properties poses a particular challenge to emergency services and should be carefully reviewed and must meet CAM and FEMA regulations.

7P.5: Preparedness and response. Prepare, test and update plans and programs for emergency operations and response, including procedures for issuing forecasts and warnings to the public and otherwise providing public information. Provide facilities, equipment and training needed for effective emergency response; maintain coordination among all agencies with emergency responsibilities and further develop the emergency evacuation plan.

7P.6: Natural protective features. Recognize the natural protective features of coastal resources, including beaches, dunes, and wetlands, and utilize those features, to the extent practical and feasible, to provide effective shore protection; encourage restoration of degraded coastal resources in accordance with detailed plans. Protect the high, unmodified bluffs on the eastern side of the Shippan Peninsula from any development that accelerates natural erosion processes.

7P.7 Education. Provide educational programs to increase public awareness and education concerning coastal hazards.

7P.8 Continue the City's maintenance of the Hurricane Barrier in cooperation with the Army Corps of Engineers.

Policy 7U: Create Green Infrastructure to Address Area Drainage Issues and Water Quality.
Implementation Strategies:

7U.1: Stormwater runoff ordinance. In order to reduce the quality of stormwater that is directed into streams, regulations should be adopted that require the volume of stormwater running off of properties post-development be made to approximate predevelopment conditions. This will reduce erosion in streams and local flooding.

7U.2: Stormwater manual. Adopt a stormwater management manual that uses green infrastructure strategies in order to provide guidance to property owners on how to manage stormwater on their properties. These would be supplemental to the State's Stormwater Management Manual. The Town of Greenwich adopted such a manual in 2012 to address similar issues. The manual includes description of Low Impact Development (LID) and green infrastructure strategies.

7U.3: Catch basin enhancement. Enhance catch basin and storm sewer maintenance by increasing frequency of cleaning. Identify and eliminate illicit discharges into the storm system. Ensure that all maintenance is well documented, up-to-date, and available to regulatory agencies.

7U.4: Green infrastructure plan and low impact development (LID). Sustainable stormwater management is a critical component of green infrastructure. Stormwater can be cleaned using natural plant filter systems called "bio-filters" or rain gardens. Bio-filters can also help alleviate a portion of the flooding issues in the City. Their use also can help maintain natural

water table levels and can limit salt water intrusion into the aquifer from the Long Island Sound. The City can create a Green Infrastructure Plan for a network of green infrastructure elements that augment conventional drainage systems. Installation locations may include public spaces as well as the edges of City streets. This infrastructure network may be expanded by private property owners through incentives that link with the City's broader infrastructure program.

Therefore, the Stamford PoCD is considered consistent with the current goals and actions of the hazard mitigation plan. The next update to the PoCD (scheduled for 2025, after the life of the current hazard mitigation plan) will be able to incorporate the elements of the hazard mitigation plan that is effective at that time.

Weston

The 2010 Town of Weston PoCD includes the following actions:

- The Planning and Zoning Commission, in conjunction with the Weston Volunteer Fire Department, should study ways to ensure that Weston's fire suppression infrastructure can accommodate large homes and subdivisions.
- Town Government should continue to support the efforts of the Weston Volunteer Fire Department to systematically and strategically locate cisterns and fire ponds.
- The Conservation Commission should explore LID methodology and, together with the Planning and Zoning Commission, promulgate regulations for Weston that embrace that approach, including revisiting and strengthening regulations controlling changes in rates and direction of runoff from roadways and lots; encouraging retention of existing forests, outcrops, ridges and stone walls; urging selective rather than clear cutting of trees; and updating the Weston Environmental Resources Manual.

Therefore, the Weston PoCD is considered somewhat consistent with the current goals and actions of the hazard mitigation plan, although it does not directly address several of the hazards such as floods. The next update to the PoCD (scheduled for 2020, during the life of the current hazard mitigation plan) shall incorporate additional elements of this hazard mitigation plan.

Westport

The 2007 Town of Westport PoCD includes the following actions:

- Identify and publicize regulations that will preserve and protect watercourses, waterbodies, wetlands, steep slopes, and floodplains, and those that will conserve floodplain fringe areas, wellhead areas, areas of high groundwater availability, and unique/special habitat areas.
- Further control building in floodplain areas.

- Continue Westport's participation in the Community Rating System (CRS) flood insurance program. When new floodplain regulations are recommended by state or federal agencies, consider:
 - a. Adopting a separate set of "Floodplain Regulations" that consolidates existing programs into one overall program.
 - b. Designating one organization/agency to administer floodplain regulations.
- Prohibit intensification or expansion of the high density areas at Saugatuck Shore, Compo Beach, Sherwood Mill Pond and Compo
- Cove since these areas are not consistent with current environmental standards or coastal area flood safety standards.
- Minimize the amount and intensity of development in coastal "V" flood zones:
 - a. Eliminate new non-water dependent development from FEMA-designated coastal high hazard "V" flood zones.
 - b. For structures in the "V" flood zones destroyed by storms, only allow new structures that meet current "V" zone construction standards.
- Identify and address storm drainage and flooding issues on private property and in the streets.
- Continue to monitor information on global sea level rise.
- Evaluate how to best prepare for the implications of global sea level rise to best balance public health, safety, and welfare.
- Change the floodplain regulations to require at least one foot of freeboard for new or substantially improved homes.
- Evaluate the overall configuration of fire stations and determine the optimal outcome (consolidation / relocation / renovation) to best meet present and future community needs.
- Promote an adequate supply of public water to serve the domestic, commercial and fire protection requirements of Westport.
- Support the extension of public water service and fire hydrants throughout Westport.
- Seek opportunities to place wired utilities underground.
- Take whatever action possible to require utility companies to retain, replant, preserve and protect the trees affected by their projects and require growth-appropriate trees for locations under utility wires.

Therefore, the Westport PoCD is considered consistent with the current goals and actions of the hazard mitigation plan. The next update to the PoCD (scheduled for 2017, during the life of the current hazard mitigation plan) will continue to incorporate the elements of the hazard mitigation plan.

Wilton

The 2010 Town of Wilton PoCD includes the following actions:

- Analyze options for meeting expansion needs of Fire Station 2 on-site, on other sites, or by sharing services with neighboring communities.

- Continue to require the provision of fire water cisterns when development cannot be served by public water.
- Consider requiring Low Impact Development (LID) techniques for all new development, including Town projects and road projects.
- Ensure that redevelopment incorporates measures to improve storm water quality and quantity.
- Ensure expert engineering review of projects with potential storm water impacts.
- Require drainage review for all projects that exceed a certain threshold of land clearing or a certain percentage of impervious surface.
- Ensure that redevelopment reduces runoff from current conditions.
- Explore the need for a drought ordinance.

Therefore, the Wilton PoCD is considered somewhat consistent with the current goals and actions of the hazard mitigation plan, although it does not directly address several of the hazards such as floods. The next update to the PoCD (scheduled for 2020, during the life of the current hazard mitigation plan) shall incorporate additional elements of this hazard mitigation plan.

Appendix B

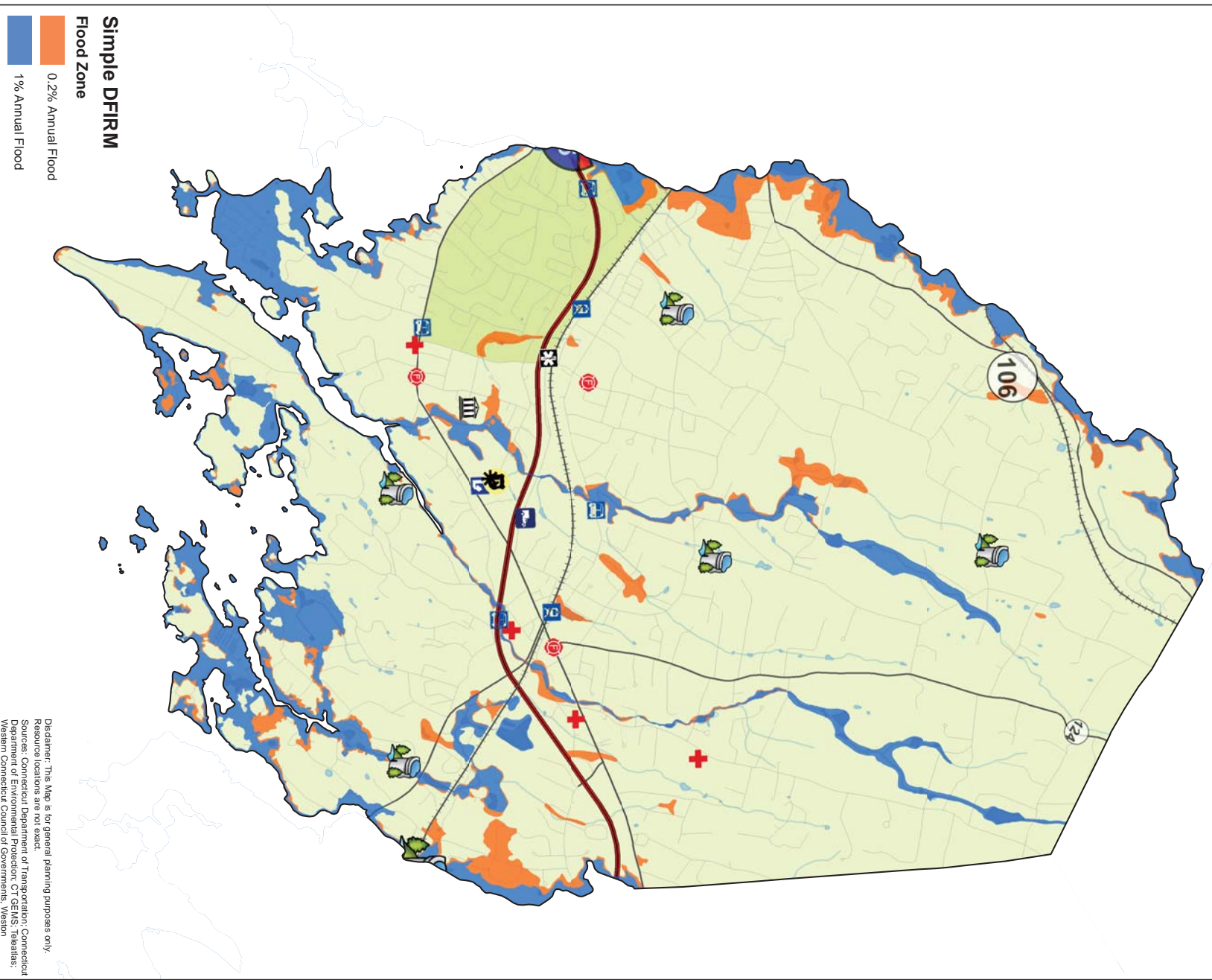
Municipal Flood Maps, Climate Change Analysis Methods &
Results, HAZUS-MH Methods & Reports,
Repetitive Loss Properties

Appendix B-1

Municipal Flood Maps

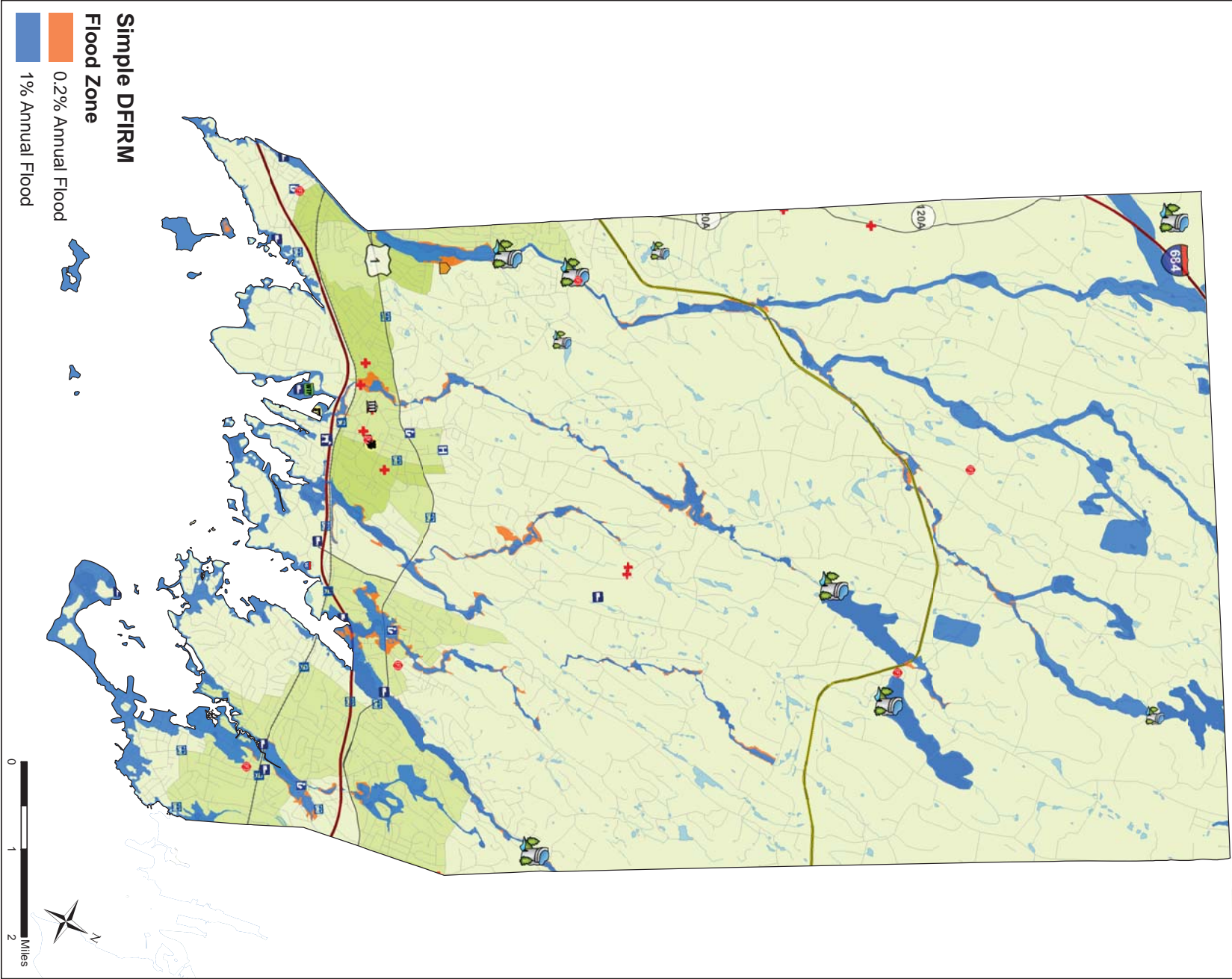
Darien - FloodInsurance Rate Map and Municipal Resources

WCCOG



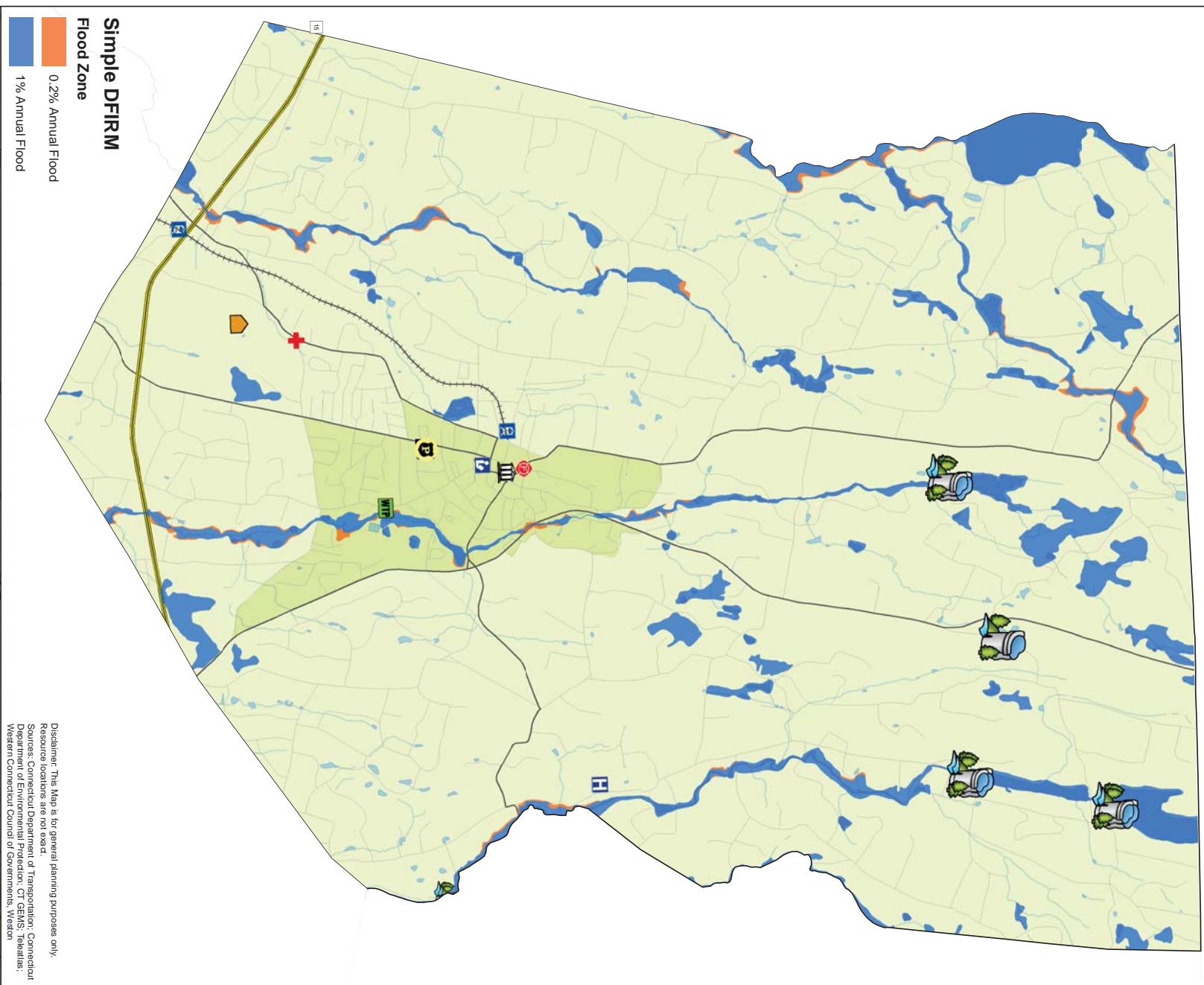
Greenwich - Digital Flood Insurance
Rate Map (DFIRM) and Municipal Resources

WCCOG



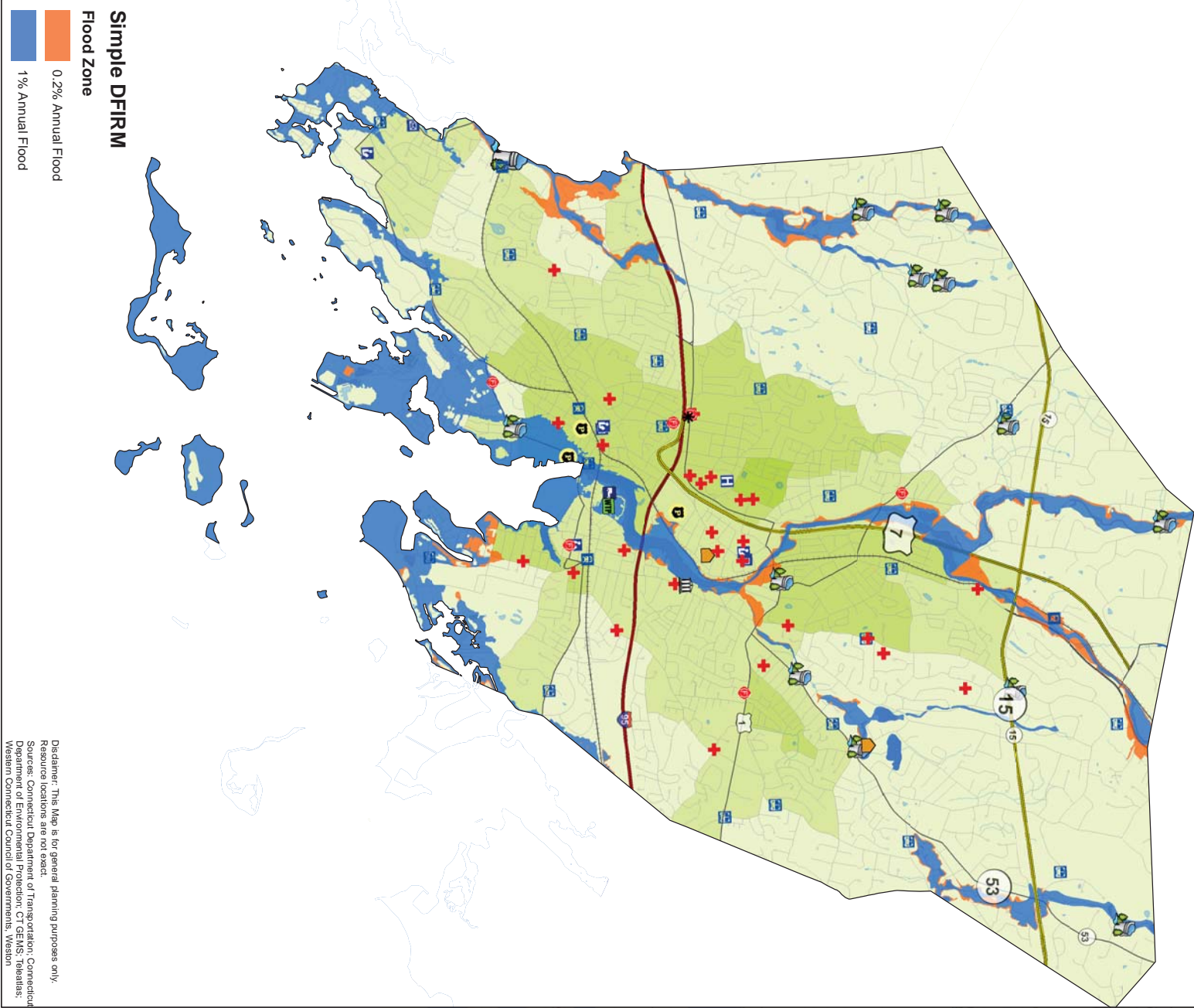
New Canaan - Digital Flood Insurance Rate Map (DFIRM) and Municipal Resources

WCCOG



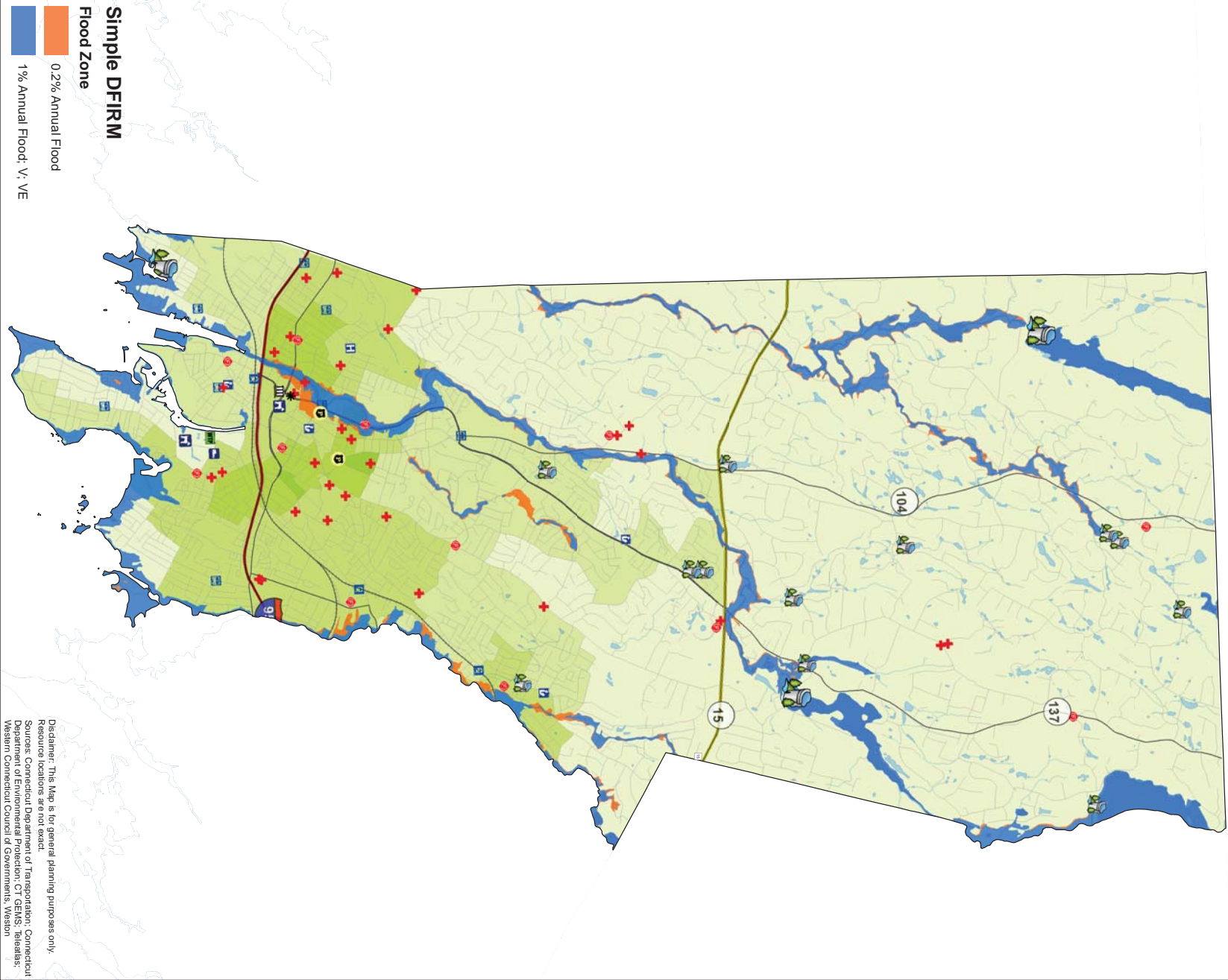
Norwalk - Digital Flood Insurance
Rate Map (DFIRM) and Municipal Resources

WCCOG



Stamford - Digital Flood Insurance
Rate Map (DFIRM) and Municipal Resources

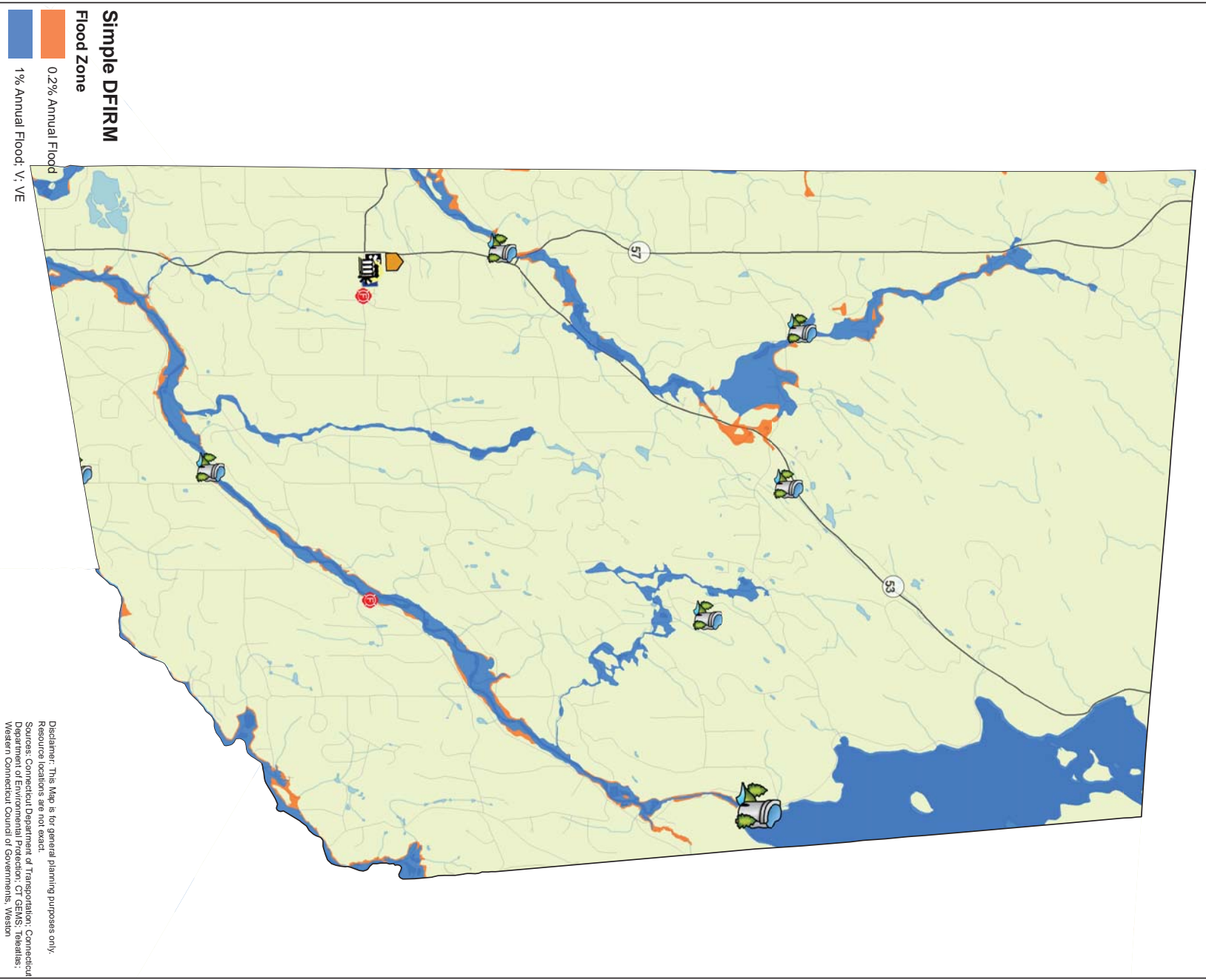
WCCOG



Municipal Resources

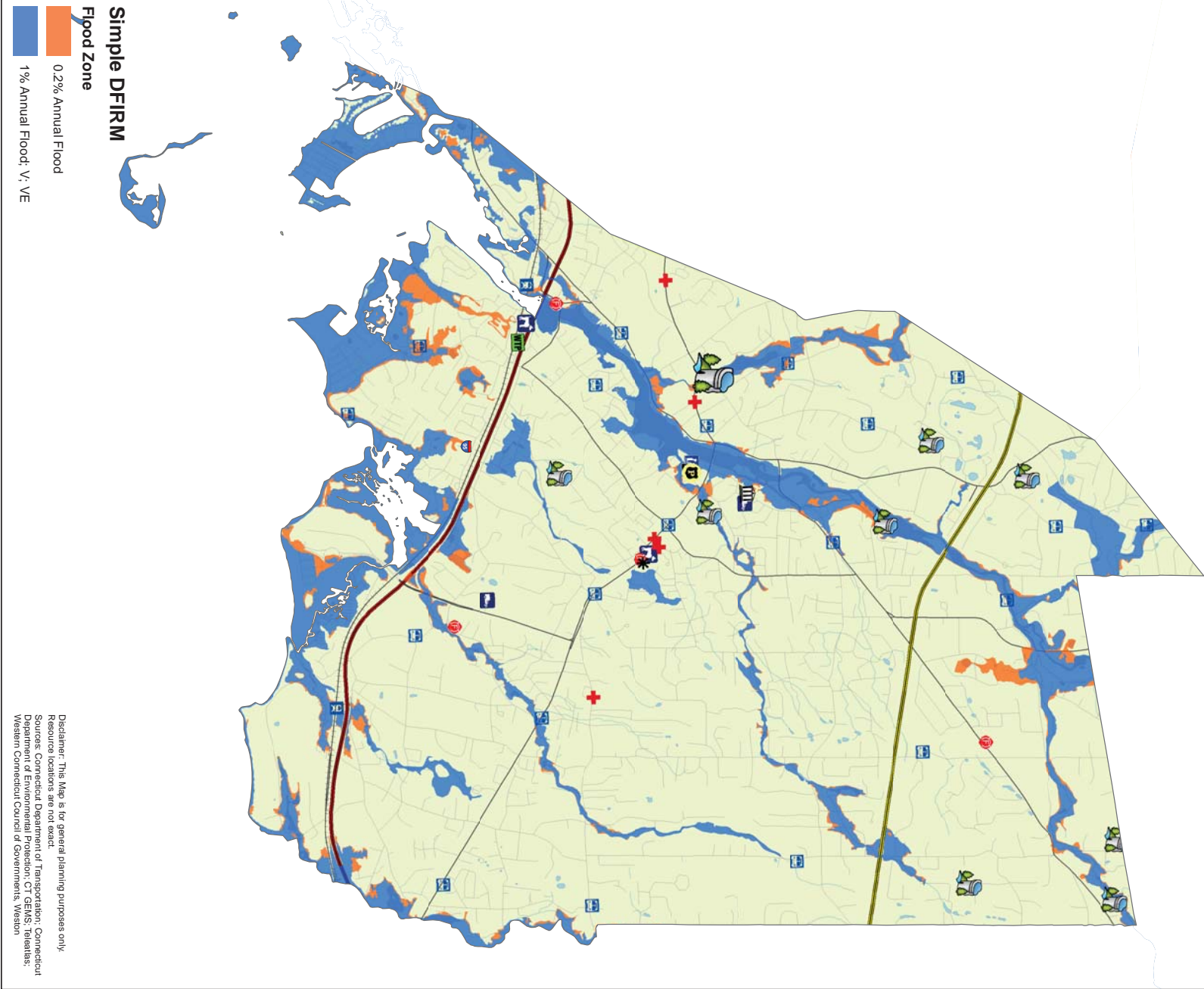
Population Density

Weston - Digital Flood Insurance Rate Map (DFIRM) and Municipal Resources



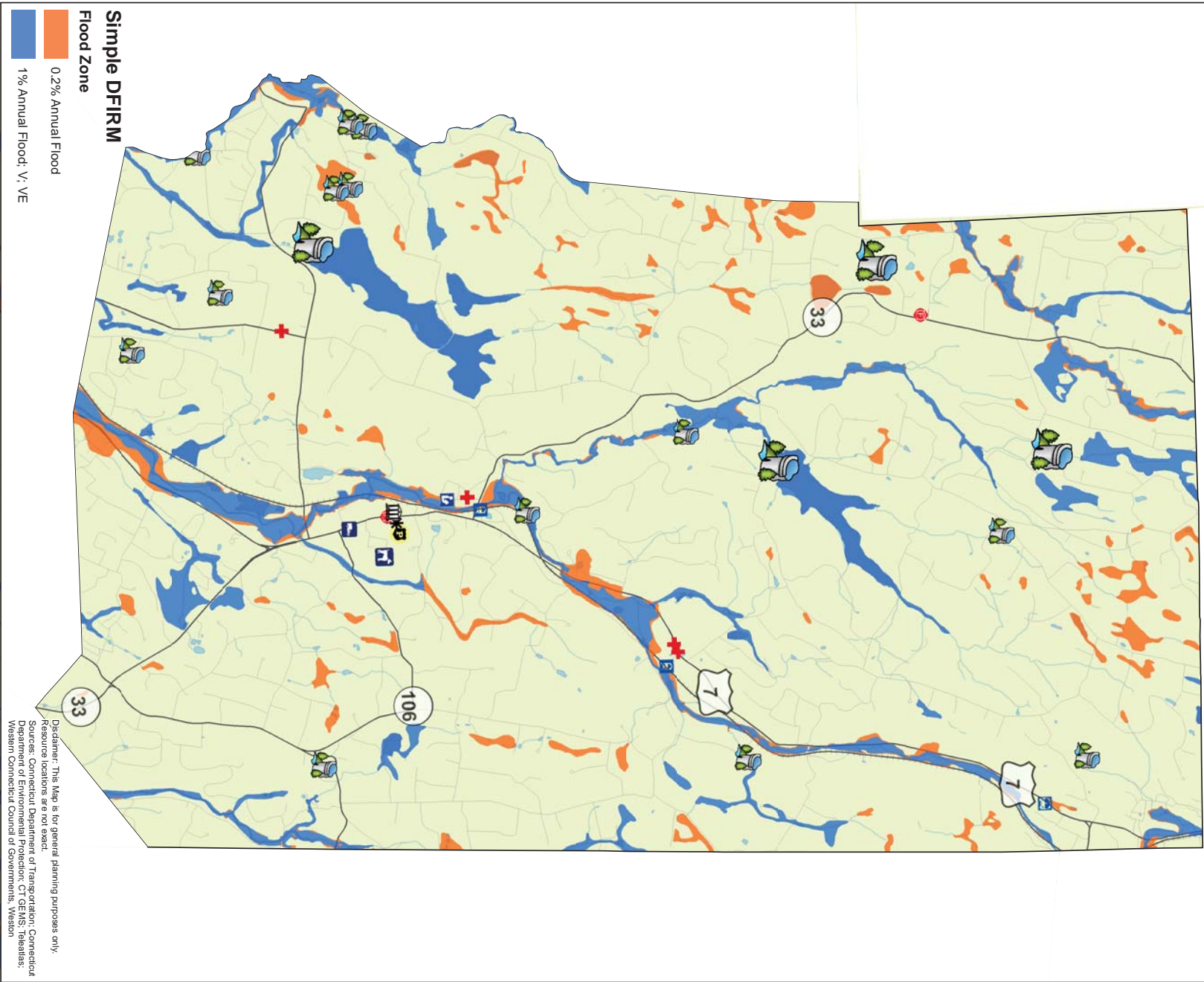
Westport - Digital Flood Insurance
Rate Map (DFIRM) and Municipal Resources

WCCOG



Wilton - Digital Flood Insurance Rate Map WCCOG

and Municipal Resources



Appendix B-2

Climate Change Analysis Methods & Results

Geospatial Modeling Approaches

To assess and understand the impacts of climate change via sea level rise and extreme precipitation events in the SWRPA region geospatial modeling and spatial analyses are utilized within a Geographic Information System (GIS) package. The advantages of using GIS for environmental modeling are the following:

- Data from multiple scales can be analyzed
- A GIS can handle diverse data sets (e.g. environmental, demographics, and land use) in a single geographic context
- A GIS is scalable for manipulation analysis of very large data sets
- Results can be analyzed, aggregated, and summarized at multiple scales

For this analysis, two types of geospatial analyses widely incorporated into environmental and change analysis modeling are utilized. To model Sea Level Rise impacts, an Overlay Analysis is conducted with vector data. The Overlay Analysis allows for the identification of areas impacted by sea level rise based on specific criteria—typically a specific subset based on a rule set.

A Vulnerability Analysis with raster data creates a rank-order score for each and every spot within the entire region based on modeling criteria such as topography, slope shape, land use, and soil drainage to better understand the relative risk from extreme precipitation events. A Vulnerability Analysis is well suited for evaluating conflicting multivariate criteria. For both models very fine scale environmental data will allow for the identification parcels and street level impacts or vulnerabilities.

Modeling Sea Level Rise Impacts

To model the independent variable (variables that changes) sea level rise estimates were acquired from the Nature Conservancy for the SWRPA region. The spatial data they created has three scenarios (i.e. conservative, average, and aggressive) for three different time periods (i.e. 2020, 2050, and 2080 per time period which represent the horizontal extent that sea water comes inland for the four coastal towns: Greenwich, Stamford, Norwalk, Weston. Four sets of high resolution, dependent variables were evaluated for impacts (i.e. parcels, assets, bus stops, and major roads) using an Overlay Analysis that determine which features are seaward of the predicted sea level rise line. The primary physical assumption in this analysis is that if the sea level rise horizontal extent intersects and an important physical feature, that feature is vulnerable. Local elevation of each individual asset is not accounted for in this analysis.

Modeling Vulnerability to Extreme Precipitation Event

As discussed early, another important climate change impact is the increase in the number of extreme precipitation events and general change of the hydrologic regime to a warmer, wetter climate, which is an already documented change, and one that is expected to continue increase through the rest of the 21st century. Unlike sea level rise whose impacts are limited to coastal area and is a relatively simple impact process, the process of evaluating vulnerability to climate change is much more complicated because of the influence and interaction of topographic, insipient condition, land use factors.

Topographic factors, for instance, influences how surface water is concentrated and the resulting flow network. The inherent soil conditions such as drainage influence the infiltration and permeability of a particular location. The land use greatly impacts infiltration. For instance, forested lands have a high capacity for infiltration whereas paved or impervious cover areas have no infiltration.

Instead of the discrete and direct impacts discussed in the sea level change model, this environmental geospatial model approach is focused on finding locations that are more likely to be impacted by

changing extreme precipitation patterns. This Vulnerability Model uses an additive coding scheme on a per pixel basis where scores from each variable are recorded so that factors that promote wetness and runoff are ranked higher than those that promote infiltration. For example, the land cover category called deciduous forest is coded as a “1” while the developed, High Intensity category is coded as a “4”. See Table X for more information. Critical to this analysis is the use of raster data that allows the application of the model across the entire site, at each and every location.

To facilitate the modeling process, all vector and raster data of interest were recorded and reprojected into 10’ raster cells using the Connecticut State Plane projection. Some locations were excluded from the analysis such as roads, existing state waters, Connecticut wetlands, and FEMA floodplain zones that are already wet, regulated, or controlled by a governmental entity. Topographic variables such as curvature, slope and flow accumulation were derived from resampled 10’ digital elevation model (DEM). The variable curvature evaluates whether a location is concave, convex or flat. The variable slope determines the ratio between vertical and horizontal change. The variable flow accumulation is calculated by a process that fills in isolated holes called sinks, determines which way pixels flow and then counts the number of cells that come to a single point. Soils data were used to evaluate infiltration capacity and the presence of wetland soils in Connecticut (i.e. poorly drained, very poorly drained, and alluvial and floodplain soils. Land cover data was extracted from 30m NLCD raster data from 2012. To evaluate the influence of impervious cover on the broader watershed scale, a ratio between pervious and impervious cover was developed. Finally, all coded variables were added using the Raster Calculator and then analyzed using Boolean thresholds. See Table 1 and 2 for more information regarding geoprocessing and data sources.

Table 1: Geoprocessing of Spatial Data

Group	Variable	Processing	Processing	Processing	Processing
	<i>Data</i>	<i>Step 1</i>	<i>Step 2</i>	<i>Step 3</i>	<i>Step 4</i>
	CT Soil Drainage Class	Clip to SWRPA Boundary	Vector to Raster Conversion	Reclassify	Combine in Weighted Sum Overlay Model
	CT Soils Hydric	Clip to SWRPA Boundary	Vector to Raster Conversion	Reclassify	Combine in Weighted Sum Overlay Model
	Slopes	Mosaic DEMs	Convert DEM to Slope Raster	Convert to Categorical Data using Raster Calculator	Combine in Weighted Sum Overlay Model
	Land Cover per Pixel	Clip US 2012 NLCD Land Cover to SWRPA Boundary	Reclassify		Combine in Weighted Sum Overlay Model
	Curvature	Convert DEM to Curvature Raster	Convert to Categorical Data using Reclassify		Combine in Weighted Sum Overlay Model
	Flow Accumulation	Convert DEM to Flow Direction Raster	Convert Flow Direction Raster to Flow Accumulation Raster	Reclassify	Combine in Weighted Sum Overlay Model
	Land Cover per WS	Clip US 2012 NLCD Land Cover to SWRPA Boundary	Reclassify to Categorical Data	Aggregate to Local Basins	Combine in Weighted Sum Overlay Model
	Adjacent to Hydrography	Clip USGS Hydrography data to SWRPA Boundary	Rasterize distances from Hydrography with Euclidean Distance	Reclassify to Convert to Categorical Data	Combine in Weighted Sum Overlay Model
Exclusion	Exclude Roads	Clip to SWRPA boundary	Vector to Raster Conversion	Reclassify to NoData	Combine using Times
	Exclude Hydro	Clip to SWRPA boundary	Vector to Raster Conversion	Reclassify to NoData	Combine using Times
	Exclude FEMA	Clip to SWRPA boundary	Vector to Raster Conversion	Reclassify to NoData	Combine using Times
	Exclude Storm Surge	Clip to SWRPA boundary	Vector to Raster Conversion	Reclassify to NoData	Combine using Times
	Exclude High and Medium Intensity Urban	Reclassify to NoData			

Table 2 Variable Coding

Variable	Data Type	String	Original Coding	Model Coding	Notes	Data source
Soil Drainage Class	Categorical				High values are wet and low values are dry Caveat for heavily developed areas	NRCS Web Soil Survey
		Water	1	4		
		Well drained	2	2		
		Very poorly drained	3	3		
		Mod well drained	4	2		
		Somewhat ex drained	5	1		
		Poorly drained	6	3		
		Exdrained	7	1		
		Not Rated	8	0		
Soils Hydric	Categorical				NRCS Web Soil Survey	
	Water	1	4			
	Other	2	1			
		Poorly Drained and Very Poorly Drained Soils	3	4		
		Alluvial and Floodplain Soils	4	3	These soils are often dry but are protected under the inland wetlands act	
Slopes	Continuous		0 to 3%	3		
			3 to 8%	2		
			8%<	1		
Land Cover per Pixel	Categorical	Unclassified	0	0	Use TR 45 model for reference	NLCD 2012 Land Cover data
		Open Water	11	4		
		Perennial Snow/Ice	12	0		
		Developed, Open Space	21	2		
		Developed, Low Intensity	22	3		

		Developed, Medium Intensity	23	4		
		Developed, High Intensity	24	4		
		Barren Land	31	3		
		Deciduous Forest	41	1		
		Evergreen Forest	42	1		
		Mixed Forest	43	1		
		Shrub/scrub	52	2		
		Herbaceous	71	3		
		Hay/pasture	81	2		
		Cultivated Crops	82	3		
		Woody Wetlands	90	4		
		Emergent Herbaceous Wetlands	95	4		
Curvature	Continuous		less than -1	3	Range of values from 31 to -31. Typically most values are between 1 and -1	SWRPA 2013 DEM data
			zero to -1	2		
			zero to 31	1		
Flow Accumulation	Continuous		less than 20	1	Minimum value is 100 cells which is approximate size of a residential lot	SWRPA 2013 DEM data
			20 to 50	2		
			50 to 100	3		
			100 to 200	4		
			200 or greater	5		
Per NN or WS Variable						
Land Cover per WS	Categorical	Unclassified	0	0	Rule set is <10% Developed and or >50%	NLCD 2012 Land Cover data
		Open Water	11	0		

		Perennial Snow/Ice	12	0		
		Developed, Open Space	21	4	Combined <10% Developed	
		Developed, Low Intensity	22	4	>10% combined	
		Developed, Medium Intensity	23	4		
		Developed, High Intensity	24	4		
		Barren Land	31	4		
		Deciduous Forest	41	1	combine forest categories >50% forest	
		Evergreen Forest	42	1		
		Mixed Forest	43	1		
		Shrub/scrub	52	1		
		Herbaceous	71	0		
		Hay/pasture	81	0		
		Cultivated Crops	82	0		
		Woody Wetlands	90	0		
		Emergent Herbaceous Wetlands	95	0		
Adjacency						
Hydro				4	within 100'	CT DEEP
				0	beyond 100'	
Exclusion						
Exclude Roads					Apply 25' buffer to centerline	Teleatlas
Exclude Hydro						CT DEEP
Exclude FEMA						100-year FEMA
		100 year		4		
		500 year		3		
Exclude Storm Surge					Not utilized in initial analysis	Nature Conservancy

Appendix B-3

HAZUS-MH Methods & Reports

B-2 HAZUS Methodology

Potential impacts from flooding, hurricane and earthquake events were evaluated using HAZUS-MH loss estimation program developed by FEMA. HAZUS-MH can be performed at three levels of analysis each with an increasing level of detail but at the cost of user effort and data sophistication. The scope of this analysis is a level 2 analysis which uses the default HAZUS-MH data along with ancillary data prepared by WCCOG. A description of the data and methodology for each hazard type our outlined below.

Data

HAZUS Inventory Data:

HAZUS provides its own suite of out of the box data developed for simulating hazards known as the HAZUS Inventory Data. It includes generalized information on the counts of buildings, building types, building materials, day time and night time automobiles, building interior values, 2000 census population data, hospitals, fire departments, police departments, schools, and utility infrastructure to name some of the features. This data is described in detail in the HAZUS-MH technical manuals which can be downloaded from FEMA's website.

Essential Facilities:

Fire, Police, Hospitals, care facilities, shelters, schools, and emergency operations centers was provided through DEMHS. Local assets were identified for each municipality through meetings and workshops with relevant municipal staff.

Elevation Data

A 10m digital elevation model (DEM) from the USGS was used to calculate streams, flood depth grids, and potential flood zones for flood simulations.

Flood Simulation Methodology

Four regional flood scenarios were simulated to cover coastal and riverine flooding during 1%, and 0.2% annual flood events. The results from these regional simulations were sorted into the municipal level.

To initiate the riverine flood simulation a stream network was delineated with a defined stream drainage area of 0.25 square miles, the highest scale of calculating streams allowed by HAZUS (See HAZUS Flood Technical Manual for more details on stream drainage area.). The stream layer underwent a hydrologic analysis to solve for peak flood discharges and the frequencies in which they occur. Then the model calculates the flood plain boundary as a polygon file and a flood depth grid as a raster file.

The flood depth grid was an input for within the user data and is used to calculate flood impacts. HAZUS displays the results as output tables witch can be viewed through the HAZUS software. The technical process used in this study is listed below. The simulation was performed assuming there was no advance warning, with equal flooding occurring within the entire riverine system simultaneously.

In coastal flooding scenarios, HAZUS provided coastal shoreline data which was updated to include high tide elevation data found within FEMA flood manuals for the region. The HAZUS software then computes a flood boundary and a flood depth grid for all the flood scenarios. The flood data is then used

to calculate estimated impacts for a coastal flood event which occurs without warning throughout the entire region simultaneously.

Hurricane Simulation Methodology

Hurricane simulations were performed for probabilistic for 5%, 1%, 0.02% and 0.001% as well as for Super Storm Sandy. The results from these hurricane scenarios only account for damage caused by wind. The scenario utilized default model settings, but did account for WCCOG's updated asset data. Storm surge and flooding which are often tied to hurricanes are not accounted in the damage estimates. These scenarios were performed as a regional analysis, the data from which was further distilled to the municipal level. Regional summary reports can be found in Appendix B-3. More information on technical methods for the hurricane model can be found in the HAZUS-MH technical manual.

Earthquake Simulation Methodology

Earthquake simulations were performed on a regional scale representing scenarios where a magnitude 5 earthquake were to have its epicenter in the center of the region, the center of each town, and 25km, 50km, 75 and 100km due north from the center of the region. All default settings were chosen for the various earthquake scenarios. These scenarios were performed as a regional analysis, the data from which was further distilled to the municipal level. Regional summary reports can be found in Appendix B-3. More information on technical methods for the earthquake model can be found in the HAZUS-MH technical manual.

Hazus-MH: Flood Event Report

Region Name: HMP2016_SWR_FI

Flood Scenario: Coastal

Print Date: Thursday, November 06, 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 210 square miles and contains 4,297 census blocks. The region contains over 134 thousand households and has a total population of 353,556 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 119,285 buildings in the region with a total building replacement value (excluding contents) of 40,025 million dollars (2006 dollars). Approximately 87.95% of the buildings (and 68.49% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

Hazus estimates that there are 119,285 buildings in the region which have an aggregate total replacement value of 40,025 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	27,414,335	68.5%
Commercial	9,458,590	23.6%
Industrial	1,772,337	4.4%
Agricultural	143,166	0.4%
Religion	601,863	1.5%
Government	194,592	0.5%
Education	439,744	1.1%
Total	40,024,627	100.00%

Table 2
Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure (\$1000)	Percent of Total
Residential	4,291,272	62.4%
Commercial	2,095,775	30.5%
Industrial	307,555	4.5%
Agricultural	27,017	0.4%
Religion	98,476	1.4%
Government	12,397	0.2%
Education	48,264	0.7%
Total	6,880,756	100.00%

Essential Facility Inventory

For essential facilities, there are 4 hospitals in the region with a total bed capacity of 812 beds. There are 1,824 schools, 38 fire stations, 12 police stations and 8 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:	HMP2016_SWR_FI
Scenario Name:	Coastal
Return Period Analyzed:	100
Analysis Options Analyzed:	No What-Ifs

Building Damage

General Building Stock Damage

Hazus estimates that about 1,796 buildings will be at least moderately damaged. This is over 61% of the total number of buildings in the scenario. There are an estimated 105 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

Occupancy	1-10		11-20		21-30		31-40		41-50		Substantially	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	1	2.86	30	85.71	2	5.71	2	5.71	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	1	100.00	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	189	10.73	534	30.32	422	23.96	511	29.02	105	5.96
Total	1		220		536		424		511		105	

Table 4: Expected Building Damage by Building Type

Building Type	1-10		11-20		21-30		31-40		41-50		Substantially	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00
ManuufHousing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Masonry	0	0.00	9	15.52	20	34.48	7	12.07	22	37.93	0	0.00
Steel	1	6.67	12	80.00	1	6.67	1	6.67	0	0.00	0	0.00
Wood	0	0.00	191	11.21	511	29.99	415	24.35	482	28.29	105	6.16

Essential Facility Damage

Before the flood analyzed in this scenario, the region had 812 hospital beds available for use. On the day of the scenario flood event, the model estimates that 812 hospital beds are available in the region.

Table 5: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate	At Least Substantial	Loss of Use
Fire Stations	38	2	0	2
Hospitals	4	0	0	0
Police Stations	12	2	0	2
Schools	1,824	2	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 98,613 tons of debris will be generated. Of the total amount, Finishes comprises 41% of the total, Structure comprises 36% of the total. If the debris tonnage is converted into an estimated number of truckloads, it will require 3,945 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 5,997 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 15,291 people (out of a total population of 353,556) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the flood is 1,113.26 million dollars, which represents 16.18 % 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 1,107.95 million dollars. 0% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 43.99% 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
<u>Building Loss</u>						
	Building	297.82	143.25	29.58	6.81	477.45
	Content	191.50	323.41	65.14	34.36	614.40
	Inventory	0.00	5.94	9.19	0.97	16.10
	Subtotal	489.32	472.59	103.90	42.14	1,107.95
<u>Business Interruption</u>						
	Income	0.02	1.94	0.00	0.04	2.00
	Relocation	0.28	0.44	0.00	0.01	0.73
	Rental Income	0.09	0.30	0.00	0.00	0.39
	Wage	0.05	1.56	0.00	0.57	2.18
	Subtotal	0.43	4.24	0.01	0.62	5.30
<u>ALL</u>	Total	489.75	476.84	103.91	42.76	1,113.26

Appendix A: County Listing for the Region

Connecticut
- Fairfield

Appendix B: Regional Population and Building Value Data

Building Value (thousands of dollars)				
	Population	Residential	Non-Residential	Total
<div>Connecticut</div>				
Fairfield	353,556	27,414,335	12,610,292	40,024,627
Total	353,556	27,414,335	12,610,292	40,024,627
Total Study Region	353,556	27,414,335	12,610,292	40,024,627

Hazus-MH: Flood Event Report

Region Name: HMP2016_SWR_FI

Flood Scenario: Coastal

Print Date: Thursday, November 06, 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 210 square miles and contains 4,297 census blocks. The region contains over 134 thousand households and has a total population of 353,556 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 119,285 buildings in the region with a total building replacement value (excluding contents) of 40,025 million dollars (2006 dollars). Approximately 87.95% of the buildings (and 68.49% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

Hazus estimates that there are 119,285 buildings in the region which have an aggregate total replacement value of 40,025 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	27,414,335	68.5%
Commercial	9,458,590	23.6%
Industrial	1,772,337	4.4%
Agricultural	143,166	0.4%
Religion	601,863	1.5%
Government	194,592	0.5%
Education	439,744	1.1%
Total	40,024,627	100.00%

Table 2
Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure (\$1000)	Percent of Total
Residential	4,291,272	62.4%
Commercial	2,095,775	30.5%
Industrial	307,555	4.5%
Agricultural	27,017	0.4%
Religion	98,476	1.4%
Government	12,397	0.2%
Education	48,264	0.7%
Total	6,880,756	100.00%

Essential Facility Inventory

For essential facilities, there are 4 hospitals in the region with a total bed capacity of 812 beds. There are 1,824 schools, 38 fire stations, 12 police stations and 8 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:	HMP2016_SWR_FI
Scenario Name:	Coastal
Return Period Analyzed:	500
Analysis Options Analyzed:	No What-Ifs

Building Damage

General Building Stock Damage

Hazus estimates that about 2,994 buildings will be at least moderately damaged. This is over 80% of the total number of buildings in the scenario. There are an estimated 316 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

Occupancy	1-10		11-20		21-30		31-40		41-50		Substantially	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	2	3.77	37	69.81	12	22.64	1	1.89	1	1.89	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	1	50.00	1	50.00	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	83	2.82	747	25.40	787	26.76	1,008	34.27	316	10.74
Total	2		121		760		788		1,009		316	

Table 4: Expected Building Damage by Building Type

Building Type	1-10		11-20		21-30		31-40		41-50		Substantially	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	0	0.00	1	50.00	0	0.00	0	0.00	1	50.00	0	0.00
Manuf/Housing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Masonry	0	0.00	6	5.50	24	22.02	25	22.94	42	38.53	12	11.01
Steel	1	3.45	22	75.86	6	20.69	0	0.00	0	0.00	0	0.00
Wood	0	0.00	88	3.11	725	25.61	759	26.81	959	33.87	300	10.60

Essential Facility Damage

Before the flood analyzed in this scenario, the region had 812 hospital beds available for use. On the day of the scenario flood event, the model estimates that 812 hospital beds are available in the region.

Table 5: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate	At Least Substantial	Loss of Use
Fire Stations	38	3	0	3
Hospitals	4	0	0	0
Police Stations	12	2	0	2
Schools	1,824	4	0	3

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 207,587 tons of debris will be generated. Of the total amount, Finishes comprises 34% of the total, Structure comprises 41% of the total. If the debris tonnage is converted into an estimated number of truckloads, it will require 8,303 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 7,425 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 19,357 people (out of a total population of 353,556) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the flood is 1,812.99 million dollars, which represents 26.35 % 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 1,805.47 million dollars. 0% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 46.24% 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
<u>Building Loss</u>						
	Building	512.99	234.42	45.81	11.69	804.90
	Content	324.60	499.15	98.82	54.16	976.73
	Inventory	0.00	9.11	13.32	1.40	23.83
	Subtotal	837.59	742.69	157.96	67.24	1,805.47
<u>Business Interruption</u>						
	Income	0.03	2.75	0.00	0.07	2.84
	Relocation	0.42	0.64	0.01	0.02	1.08
	Rental Income	0.14	0.43	0.00	0.00	0.57
	Wage	0.08	2.18	0.00	0.77	3.03
	Subtotal	0.67	5.99	0.01	0.86	7.52
ALL	Total	838.26	748.67	157.96	68.10	1,812.99

Appendix A: County Listing for the Region

- Connecticut
- Fairfield

Appendix B: Regional Population and Building Value Data

	Building Value (thousands of dollars)			
	Population	Residential	Non-Residential	Total
Connecticut				
Fairfield	353,556	27,414,335	12,610,292	40,024,627
Total	353,556	27,414,335	12,610,292	40,024,627
Total Study Region	353,556	27,414,335	12,610,292	40,024,627

Hazus-MH: Flood Event Report

Region Name: 214r06HMP_SMTW

Flood Scenario: SuReHFe_FW

Print Date: Thursday, November 06b

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

2st gfy uf y sy hel wFsWz gWInststr y Wff y ef Nz snbFy z or eW/MSN - sf y reReWmer y vdy Mney Ter ebsW/ pz eh ef d. 1 sFsl ez eFNIEI ef dy cTp 1 EA sFr yMey (snbFsWJf Mngtby oQl gUWFI yP wF ef y d j) PAg y . ney wnz strdy wghwof ey oQ. 2st gfy yd yMbywbrRu eysyz ebnor oWdysFr yf oQn strayswwwsIndFyNbr eReWwyz gWInststr yWff ef ysnSyhel wFsWf sWf . nef ey Wff y ef Nz sWf y - ogWVveygf er ywnz shWdy vdy W sWf fNsNbsFr yhel wFsWb W sWf yNbywWf sFr yf Nz gWbeyeWnN) Mbyr g eyd kf yDaz yz gWInst str f y sFr yWb ywbshe yWhe z eh ef dyhef woFf eysFr yje oRehB

. ney Wbr yWff y ef Nz sWf ywbrRu er yJf yMuf y hawoN - eleyvsfer y oFysyhel wFyMSNuf Wf er y6y ogFNdaf Ay Woz y Mte Wff uFI y fNsWd A

i xOFFe N gN

(oN: EweFr uqE y oFfNs uFf ysy oz wWbN yWfNFI yoQ Mney ogFNe f y oFfNs uFer yJf yMeyhel wFB

. neyI eol hswmsWf u ey oQ Mneyhel wFyuf ym6y f9gstheyz Wff y sFr y oFfNs uFf y bant3y ef f gfy vW kf By . neyhel wFy oFfNs uFf ; oRehy 65by y Mhogf sFr y nogf enoWf y sFr y nsf y sy WbNs WwongWbWf y oQ 56588Hy weowWb y oT00y x ef f gfy l ghesgyr sNsAg . ne r u f Nbw gNbFyoQwongWbWf y dyP fNsNbsFr yx ogFNd yWhe y Mbyr dyhel wFyuf ywbrRu er yJf EweFr uqy By

. neyhsheysFy ef Nz sWf y 667 ant8y vguWFI f yJf y Mneyhel wFy - Wb y sy WbNs WwongWFI y hewW ez eFNyRsWey aeq Wf uFI y oFfNs uFf ; oQb0aDn8yz WbWf y r oWbWf y oT00Hy r oWbWf Ag y Ewwb oqz sNby %aB8G y oQ Mney vguWFI f y sFr y H+W7G y oQ Mney vguWFI y RsWef sheysffo uNer y Wb y ef u eFNb Wb hogf uFI B

Building Inventory

General Building Stock

2 st gf yef Nt shtf yntstYntetystreY667 ar08yvgtUMFI fytFynteYtel wFy- nurnysReysFysl l hel steyntstYntetwM ez eFYRsYteyoG b0a0n8yz UMFIyart00Hyr oUMFI /RyY. svM6ysFrY. svMymwtef eFYnteYtelUMFIeYr d ntugnbFyoGnteYRsYteY- UMytef we YntYnteY l eFetRsWo gwsF wfyvdy PntR dySel wFysFrY P eFshoytef we NReMBy EwweFr wyl YwbrR efy syl eFetRsWrt ntugnbFyoG ntewgtUMFI jRsYteYwqPntststFrYx ogFntBY

Table 1
Building Exposure by Occupancy Type for the Study Region

Occupancy	Exposure (\$1000)	Percent of Total
SeUeFNbW	Yr8a6ba558	YH%BBG
Xoz z eh usW	Y7a8%a870	Yr5BHG
JFr gf NtsW	Y6a3rta553	YbBG
El hugMtsW	Y6b5a6lH	Y0BG
SeWwof	YH06a4r5	Y6BG
' oReFz eFN	Y67ba87m	Y0BG
prg sNbF	Yb57a8bb	Y6BG
Total	40,024,627	100.00%

Table 2
Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure (\$1000)	Percent of Total
SeUeFNbW	Y7a88%a87m	YHB%G
Xoz z eh usW	Y5a8mra7b6	Yr8BHG
JFr gf NtsW	Y655a6%a	Y8BG
El hugMtsW	YH0a0H0	Y0BG
SeWwof	Yr65a868	Y6BG
' oReFz eFN	Y%8ar53	Y0BHG
prg sNbF	Y680ar66	Y6BG
Total	14,523,940	100.00%

Essential Facility Inventory

Tohef f eFNbYts UMFIeYnteYstetajpnoF wntstWwFjnteYtel wFy- UMtsYntstWterY sws UMtyoG6mwerfBy . netystrey6a8rtyf nooWta5%QwYf tsNbF agmYwotweY tsNbFysFrY%gez eht eF dJowetRsNbFy eFNtFrBy

Flood Scenario Parameters

2 st gf ygf er yMeY@Ww- uF yf eNyoQJFQbz sNbFYNbyr eQFeyMeY@Xor ywsIsz eNtf yQhyMeY@Xor yWf f yef Nz sNeywRr er yUFj
Muf yfwoHMy

Study Region Name:	2 1 4r06HMP_ SMTW
Scenario Name:	SfRehFe, FW
Return Period Analyzed:	600yy
Analysis Options Analyzed:	(oy_ nsN)G

Building Damage

General Building Stock Damage

2 st g y ef Nt sNt y NsNy svogly b5by vguMFI fy - Wwvey sly WsF Ny z ore lts Nt W r sz sl er By . nuf y fy oFely n8Gy oQ Mney NsI Fgz velyoQvguMFI fyUFy Mneyf eFshoBy . nelys tystF y ef Nt sNt y %4y vguMFI fy MstNy - Wwvey oz wNtely r ef Mder By . ne reQFmBfy oQ y Mney r sz sl ey f Nt Nt y fy wbrRer y fy Co yz ey 6.yx nswtely 8By oQ Mney 2 st g y T Wbr y . e nFus W1 sFgs W . sv W y vely Wt y f g z z sht ef y Mneyeqwe Nt y r sz sl ey vdy l eFels Wlo gwsF dy Qhy Mney vguMFI fyUFy Mney tel wFBy . sv W y b f g z z sht ef Mneyeqwe Nt y r sz sl ey vdy eFels W WguMFI y Wtely

Table 3: Expected Building Damage by Occupancy

Occupancy	1-10		11-20		21-30		31-40		41-50		Substantially	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
El hu g y t e	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
X oz z eh W	0	0.000	yr t y600.000	0	0.000	0	0.000	0	0.000	0	0.000	0
pr g shbF	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
' oRe f z eFN	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
)Fr gf MstW	0	0.000	7 y68.000	0	0.000	0	0.000	yr y60.000	0	0.000	0	0.000
SeWwof	0	0.000	0 y600.000	0	0.000	0	0.000	0	0.000	0	0.000	0
Se t u eFNstW	0	0.000	7 yr t5	0	0.000	0	0.000	y657 y68.7r	0	0.000	y655 y6b.53	0
Total	0		45		28		141		134		86	

Table 4: Expected Building Damage by Building Type

Building Type	1-10		11-20		21-30		31-40		41-50		Substantially	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
xoF telt	0	0.000	0 y68.000	0	0.000	0	0.000	0	0.000	0	0.000	0
1 sFg2ogf uFI	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
1 sf ofFd	0	0.000	7 y t0.000	0	0.000	0 y t.3	0	0.000	0 yr t.3	0	0.000	0
PtWew	0	0.000	0 y6 y8r.000	0	0.000	0 yr0.000	0	0.000	0 y6 yb.000	0	0.000	0
_oor	0	0.000	0 b y6Btm	0	0.000	0 y6.3	0 y65 y68Bt t	0	0.000	0 y6r7 y65.5	0 y6 ymBtr	0

Essential Facility Damage

I eQhryNey000r ysFs Vt er yUyNt yf eFshuqNheytl wFynsr y%0nynof wds Wwer f ysRsUwWYQhgyf eBy. FyNeyr sdyoQNhey f eFshw000r yeFeFNhNeyz or eweF Nt sNt yNtsN/%0nynof wds Wwer f ysrsjs RsUwWYUyFjNeytl wFB

Table 5: Expected Damage to Essential Facilities

Classification	#YTs UNef		
	ENestN 1 or eFstN	ENestN PgvtNFNbW	Loff yOQufe
1ThePNbFF	y5%	ym	y0
2of wdsW	y0	y0	y0
40WePNbFF	y0m	y0	y0
P nooW	y0a0tb	y%	y0

Y0Nt yewoNt y twdsF js Ww eiof y0Nt w sFkAN owof tw UNef y sFteqNdsFNtB
06M ofeY0Q0QhN5 UNef y eFey000r er B nty sFyey ne ker wdyz swuFN yNeyFeFNhNt sNsoFNhey ewNty tu B
0mM nejsFs Wt y sFy0NtFBy nty sFyeyNtNt ydy ne kFN yNeyjFy0Q0FyNeyFs Wt y eFgysFr y eefi y0syz eFf sley
v0Qsf kF y0QyNeywds eyNeyequt Nt yef gWtB

Induced Flood Damage

Debris Generation

2 st gfyef Nc shtf yNheysz ogFNyoGr evnfyNstN - uWweyl eFehsther yvdyNhey Ddor By. neyz or elW/hsKfYr evnfyFNhJ Nhtrey l eFehsW/ shtl ohef y 6A Tufufnefy o rdy - sWdy uf gshNDFay enBdy mdy PNHg NhtsWc- oor ay vhu kay enBdy sFr y 5/ TogFr snhFfy c of hethy fshay of hethy vld kay hvshty enBdy. nufy rufNF NdhFyuf yz sr ey ve sgf ey oG Nhey r DcheFN Nhtef yoGz shtsWhtsFr WFl yesguwz eFNheguter yNstFr WdyNhey evnfy By

. neyz or elWweF Nc shtf yNstNsyNhtsWhtsWc mshdshyNdhFyoGr evnfy - uWweyl eFehsther By, GNheyNhtsWhts ogFNdy Tufufnef oz whuf y8HGyoG NheyNhtsWcPmNg Nhtrey oz whuf ymHGyoG NheyNhtsWdyGNheyrevnfyNdhFsl eyufy oFRehter yFhtsFr ef Nc shter y Fgz vely oG Nhg kshsrf ay Nt - uWweyegutey 6ad65y Nhg kshsrf y q@mshy NdhF/Nhg kay Ndy hsz ofRey Nhey revnfy l eFehsther yvdyNheyDdor B

Social Impact

Shelter Requirements

2 st gfyef Nc shtf yNheyFgz velyoGnogf enoWf yNstNshyeqwe Nhter yNdyveyr uf wsh er yDdz yNheuynoz ef yr geynNdyNhey Ddor y sFr y Nhey sffo ushter wshFNshWheRs gshNDFBy y 2 st gfy sNhoY ef Nc shtf y Nhof ey ruf wsh er y weowshy NstN - uW hegutey s oz z or snhFfy uf y Nhz wshrdy wgvWdy fnehter By y. neyz or elWweF Nc shtf y bsd50y nogf enoWf y - uWwe ruf wsh er y rgey NdyNhey Ddor By Duf wsh ez eFNy uf Wt ef y nogf enoWf yeRs gshter y Ddz y - uhtFy ohy Rehty Feshy Ndy Nhey ufGr shter ysthsBy, GNhtef eay 3adad6y yweowshy woglyNoGsyNhtsWhtsWcWghNdhFyoG 585ad8Hdy - uWweF eekyNhz wshrdy fnehter yF wgvWdy fnehter B

Economic Loss

. ney wNs wle oFoz uy Wff y ef Ns sNery Ghy Nney Wkor y uf y 3b8B3y z WwFy rowWf ay - nu ny hewf ef N y 8B5y Gy oG Nney wNs l hawW ez eFNs yGeyo Nneyf efs hwy gUwMf f B

Building-Related Losses

. ney vguMf y Wff ef y shay v bke Fy FNy N oy sNl ohef .yr the Ny vguMf y Wff ef y sFr y vgf Ueff y FNhty wN Fy Wff ef y . ne r the Ny vguMf y Wff ef y shay Nney ef Ns sNery of Ny Ny haws l y ohy hawW ey Nney r sz sl ey sger y Ny Nney vguMf y sFr y Wl oFN FN B y . ney vgf Ueff y FNhty wN Fy Wff ef y shay Nney Wff ef y sff o sNery - Wly UFs y Wlly Ny oweN Nney sy vgf Ueff y ve sgf ey oG Nney r sz sl ey f gNs Ufer yr ghUf y Nney Wkor By l gf Ueff y FNhty wN Fy Wff ef y sNoy Uf yG ey Nney Ns z wotrhy WRF l y eqwe Ff ef y Ghy wof ey weowW y f wW er y Gz y Nney noz ef y we sgf ey oG Nney Wkor B

. ney wNs Wv guMf i hewNery Wff ef y - etey 3b6B by z WwFy rowWf By OG y oG Nney ef Ns sNery Wff ef y - etey hewNery Ny Nne vgf Ueff y FNhty wN Fy oG Nney r al wF By . ney hewF u eFNs Ww gwsF ef y z sr ey gwy n7B5 Gy oG Nney wNs WwF By . s vWly Hy ve Wk w hewF ef y f g z z s r b oG Nney Wff ef y sff o sNery - Wly Nney vguMf y sz sl eB

Table 6: Building-Related Economic Loss Estimates
cl WwFf y oG oWwF A

Category	Area	Residential	Commercial	Industrial	Others	Total
L gUwMf y Wff						
L gUwMf y Wff FNhty wN F	I gUwMf	y6b5B%	y73B3	y5HBM	yHB%	yr76B8
	x oFN FN	y3%BM	yr60Bb	y78Bb	y5nB8	y6GHB8
	yFReFNht	y0B0	y5Bb	y63B6	y0B7	yr6Bb
Subtotal		222.20	330.74	149.87	38.83	741.64
L gf Ueff y FNhty wN F						
yF oz e	SelW shW F	y0B0	y6Bm	y0B6	y0B5	y6B3
	SeFNs Wf oz e	y0B3	y0B8	y0Bm	y0B6	y0B3
	_ sl e	y0Bm	y0B3	y0B0	y0B7	y0B7
Subtotal		y0B6	y6B8	y0Bm	y0Bm	y6B0
Subtotal		0.10	2.81	0.05	0.57	3.53
Total		222.30	333.56	149.92	39.40	745.17
ELL						

Appendix A: County Listing for the Region

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Appendix B: Regional Population and Building Value Data

Building Value (thousands of dollars)				
	Population	Residential	Non-Residential	Total
Connecticut				
TsultDeW	y585a88H	yr8db6baf58	y6ntf60arr7m	y0a0mbd4tr8
Total	353,556	27,414,335	12,610,292	40,024,627
Total Study Region	353,556	27,414,335	12,610,292	40,024,627

Hazus-MH: Flood Event Report

Region Name: 214r06HMP_SMTW

Flood Scenario: SuReHFe_FW

Print Date: Thursday, November 06b

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

2st gfy uf y sy hel wFsWz gWInst str y Wf fy ef Nz snbFy z or eW/MSN - sf y reReWmer y vdy Mney Ter ebsW/ pz eh ef d. 1 sFsl ez eFNIEI ef dy cTp 1 EA sFr yMey (snbFsWJf Mngt ey oQI gUWFI yP wF ef y d j) PAg y . ney wnz strdy wghwof ey oQ. 2st gfy yd yMwywbrRu eysyz eMbor oWdysFr yf oQn strayswwwsIndFyNbr eReWwyz gWInst str yWf ef ysnSyhel wFsWf sWfE . nef ey Wf f yef Nz sWf y - ogWVveygf er ywHz shWdy vdy W sWg f NsNesFr yhel wFsWb W sWg yNwyWwFysFr yf Nz gWt ey eWnM) Mxer g eyd kf yDaz yz gWInst str f ysFr yWjwMwshe yWhez eh ef dyhef woFf eysFr yje oRehdB

. ney Wobor yWf f yef Nz sWf ywbrRu er yJFy Muf y hawoN - eleyvsfer y oFysyhel wFy MsnYUf Wt er y6y ogFNdaf Ay Woz y Mte WwE uFI y NsWd A

i xOFFe Mgn

(oN: EweFr uqEY oF NsUFf ysyz oz wMNe yWNI y oQ Mney ogFNe f y oF NsUFer yJFy Mneyhel wFB

. neyI eol hswmsWf t ey oQ Mneyhel wFy d ym60yf 9gstheyz Wf y sFr y oF NsUFf y bant3y ef f gfy vW kf By . neyhel wFy oF NsUFf ; oRehy y65byy Mhogf sFr y nogf enoWf y sFr ynsf y syWb NsWmogwWbFy oQ 56588H y weowWdy oT000y x ef f gfyI ghesgyr sNf Ag . ne r d MNgWbFy oQ wogWbWbFy d yP NsNesFr yx ogFNd yW Mney f Ntr dyhel wFy d ywbrRu er yJFf EweFr uqy By

. neyhsheysFy ef Nz sWf y667 ant8y vguWFI f yJFy Mneyhel wFy - Wb ysyWb NsWmogwWFI y hewW ez eFNyRsWey aeq Wt uFI y oF NsUFf ; oQ b0a0n8yz WwFy r oWwMf y oT00H y r oWwMf Ag y Ewwb oqz sNf W y %aB8G y oQ Mney vguWFI f y sFr yHf W7G y oQ Mney vguWFI y RsWef sheysffo sWf y - Wb yhef u ef NsW hogf uFI B

Building Inventory

General Building Stock

2 st gf yef Nt shtf yntstYntetystreY667 arðbyvgUMFI fytFynteYtel wFy- nurnysReysFysl l hel steyntstYntewM ez eFYRsYteyoð b0aðnr8yz UMFIYarD0Hyr oUMFI /RyY. svMdySFrY. svMymwtef eFYnteYteMFIReYr d ntugnbFyoQnteYRsYteY- UMytef we YntYnteY l eFetRsWlo gwsF wfyvdy PntR dySel wFysFrY P eFshoytef we NReMdy EwweFr wyl YwbrR efy syl eFetRsWtr d ntugnbFyoQ ntewgUMFI jRsYteYwqPntststFrYx ogFntdy

Table 1
Building Exposure by Occupancy Type for the Study Region

Occupancy	Exposure (\$1000)	Percent of Total
SeF ueFNbW	yr8að6ba558	yH%ðBG
x oz z eh usW	y7að8%ð70	yr5BHG
JFr gf NtsW	yð83rnt553	yðBG
El hugMtsW	yð55aðIH	yðBG
SeWwF	yH06aðr5	yðBG
' oReFz eFN	yð7bað7m	yðBG
pr g snbF	yð57aðbb	yðBG
Total	40,024,627	100.00%

Table 2
Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure (\$1000)	Percent of Total
SeF ueFNbW	y7að8%ð7m	yH%B/G
x oz z eh usW	yð8mtrb6	yr8BH/G
JFr gf NtsW	yð55að%ð	yðBG
El hugMtsW	yH0aðHD	yðBG
SeWwF	yr65að68	yðBG
' oReFz eFN	y%ðar53	yðBH/G
pr g snbF	yð80ar66	yðBG
Total	14,523,940	100.00%

Essential Facility Inventory

Tohef f eFNbWst UMFIeYnteYstetajpnoF wntstWwFjnteYtel wFy- ntststWwery sws UMtyoQ/6mwerfBy . netystreyð&ðrbyf nooWt5%QwYf stntbF agmYwWteY stntbFysFrY%gez eht eF dJowetstntbFy eFNtefBy

Flood Scenario Parameters

2 st gf ygf er yMeY@Ww- uF yf eNyoQJFQbz sNbFYNbyr eQFeyMeY@Xor ywsIsz eNtf yQhyMeY@Xor yWf f yef Nz sNeywRr er yUFj
Muf yfwoHBy

- Study Region Name:2 1 4r06HMP_ SMTW
- Scenario Name:SlRehFe, FW
- Return Period Analyzed:800yy
- Analysis Options Analyzed:(oy_ nsN)E

Building Damage

General Building Stock Damage

2 st g y ef N e s N e y N s N s v o g N 3 % d y v g u M F I f y . W W v e y s N W s f N z o r e l s N e W r s z s l e r B y . n d y d y o F e l y 5 H G y o Q M e y W s l F g z v e h y o Q v g u M F I f y U F y M e y f e F s h o B y . n e l y s l a y s F y e f N e s l e r y r 6 v v g u M F I f y N s N . W W v e y o z w a n e W r e f M o d e r B y . n e r e Q U M F y o Q y M e y ' r s z s l e y f N e N e y d y w b R u e r y U F y O o l g z e y 6 . y x n s w e l y 8 B y o Q M e y 2 s t g f y T W o r y . e n F u s W 1 s F g s W . s v W y 5 y v e W e y f g z z s h e f y M e y e q w e N e r y r s z s l e y v d l e F e l s W o g w e F d y M e y v g u M F I f y U F y M e y r e l w F B y . s v W y b f g z z s h e f M e y e q w e N e r y r s z s l e y v d l e F e l s W g u M F I y W e y

Table 3: Expected Building Damage by Occupancy

Occupancy	1-10		11-20		21-30		31-40		41-50		Substantially	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
El hu g W e	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
X o z z e h W	0	0.000	0 7	0.000	0 5	0.000	0	0.000	0	0.000	0	0.000
p r g s h e F	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
' o r e f z e F N	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
) F r g N s W	0	0.000	0%	0.000	0%	0.000	0 r	0.000	0 6	0.000	0	0.000
S e W e F	0	0.000	0 6	0.000	0	0.000	0	0.000	0	0.000	0	0.000
S e t u e F N e W	0	0.000	0 6 0	0.000	0 5 0	0.000	0 m 8	0.000	0 b 8	0.000	0 6 6	0.000
Total	0		58		45		229		246		211	

Table 4: Expected Building Damage by Building Type

Building Type	1-10		11-20		21-30		31-40		41-50		Substantially	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
x o F h e l e	0	0.000	0 5	0.000	0 6	0.000	0	0.000	0	0.000	0	0.000
1 s F g 2 o g f U F I	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
1 s f o F d	0	0.000	0 6 6	0.000	0 r	0.000	0	0.000	0 r	0.000	0 6	0.000
P l e W	0	0.000	0 b	0.000	0	0.000	0 6	0.000	0 6	0.000	0	0.000
_ o o r	0	0.000	0 6 3	0.000	0 5 8	0.000	0 m 0	0.000	0 b 5	0.000	0 6 0	0.000

Essential Facility Damage

I eQhryNey000or ysFs Vt er yUyNt yf eFshuqNheyrel wFynsr y%6nynof wltb Wwer f ysRsUwWdyQhygf eBy. FyNleyr sdyoQNhey f eFshw000or yeFeFNjNeyz or eweF Nt sNt yNtsN/%6nynof wltb Wwer f ystajs RsUwWdyFjNeyrel wFB

Table 5: Expected Damage to Essential Facilities

#YTs UNtEf					
Classification	. oltb W/	ENtestNy 1 or eFstNt	ENtestNy PgvtNtFNtW	Loff yOQJfe	
	TureP1tNtFF	y5%	y5	y0	y5
	2 of wltb W/	y0	y0	y0	y0
	40WeP1tNtFF	y6m	y0	y0	y0
	P nooW/	y6ltb	y60	y0	y7

Y0Nt yvwoNt y t wltbF ys Ww eiof y0Nt w ystFkan owoof t w UNtEf y sFtequWtFyNtB
60M ofeJoQdQdQhG UNtEf y eFte000or er Bt nty sFyvey ne ker wdyz swuFt yNeyFeFNjNt y sNtoFyNt eywNty tu B
omM neyFs Wt t y sFyOjNGFBy. nty sFyeyNtNer ydy ne kFt yNeyJFyooQoFyNt eyFs Wt t yf eFgysFt y eefi y0syz eFf sley
voqsf kF ydogNt ywWt eyNeyequt Nt yef gWtB

Induced Flood Damage

Debris Generation

2 st gfyef Nc shtf yNheysz ogFNyoQr evnfyNstN - uWwveyl eFehsther yvdyNhey OObor By. neyz or eWwtskfy r evnfy FNh Nhtrey l eFehstW shtl ohef y 6A Tufnefy or hdy - sWw uf gshNofay enBby mdy PNH NhtbWc- oor ay vhu kay enBby sFr y 5/ TogFr shNofy c of hethy fshay of hethy vWd kay hesthay enBby. nuf y tuf Nc Nbfy uf yz sre y ve sgf ey oQ Nhey r OheFN Nhtef yoQz shtshstFr WFl yesguwz eFNheguter yNstFr WdyNhey evnfy By

. neyz or eWwef Nc shtf yNstNsyNhtbshWbOQ 8htb%8dy Nbfy oQr evnfy - uWwveyl eFehsther By, QNheyNhtbshstz ogFNdy Tufnef oz whuf yb3GyoQNheyNhtbshWbPm Nhtrey oz whuf y56GyoQNheyNhtbshWb)QNheyr evnfyNhtFsl eyufy oFRehter yFNhtysFr ef Nc shter y Fgz vely oQ Nhg khtsr f ay W - uWwheguter mto%8dy Nhg khtsr fy qomby NhtF/Nhg kay Ndy hez ofRey Nhey r evnfy l eFehsther yvdyNheyOObor B

Social Impact

Shelter Requirements

2 st gfyef Nc shtf yNheyFgz velyoQnogf enoWf yNstNshyeqwe Nhter yNdyveyr t wWd er y Ooz yNhtuynoz ef yr ge yNdyNhey OObor y sFr y Nhey sffo ushter wotshFhtbWheRs gshNofBy y 2 st gfy shtoy ef Nc shtf y Nhtof ey r t wWd er y weowWdy NstN - Ww heguter y s oz z or shNofy uf y Ntz wotshdy wgvWdy fnehter By y. neyz or eWwef Nc shtf y 8atbmy nogf enoWf y - uWwve r t wWd er y r ge y NdyNhey OObor By Duf wWd ez eFNy uf Wt ef y nogf enoWf yeRs gshter y Ooz y - Whtufy ohy Rehty Feshy Ndy Nhey ufGr shter ystasBy, QNhtef eay60d t DhtyweowWdy coqly oQsyNhtbshWwovgshNofy oQ 585d88Hdy - uWw eekyNtz wotshdyf nehter yF wgvWdyf nehter B

Economic Loss

. ney wls wle ofoz u y w f y e f n e s t e r y o h y n e y o o r y d y 66b8Bb y z u w w f y r o w w f t a y - n u n y h e w f e f n y 3B d y G y o g n e y w l s l h e w d e z e f n s y e y o g n e y f e f s h o y g u l m f f b

Building-Related Losses

. ney v g u l m f y w f f e f y s t a y v b k e f y f n o y n o y s n e l o h e f . y r t h e n y v g u l m f y w f f e f y s f r y v g f f e f f y f n e t g w b f y w f f e f f y . n e r t h e n y v g u l m f y w f f e f y s t a y n e y e f n e s t e r y o f n y l o y h e w s l y o h y h e w d e y n e y r s z s l e y s g f e r y l o y n e y v g u l m f y s f r y u n y o f n e f n B y . n e y v g f f e f f y f n e t g w b f y w f f e f y s t a y n e y w f f e f y s f f o s n e r y - u n y f e s y u n d y l o y o w e t n e y s y v g f f e f f y v e s g f e y o g n e y r s z s l e y f g f n s f e r y r g h e l y n e y o o r B y l g f f e f f y f n e t g w b f y w f f e f y s l o y f y l t e y n e y n e z w o t s t d y u r f l y e q w e f f e f y o h n o f e y w e o w d y r d w d e r y d o z y n e l y n o z e f y e s g f e y o g n e y o o r B

. ney n l s w v g u l m f i h e l a n e r y w f f e f y - e t a y 6657Bb y z u w w f y r o w w f t B y 6G y o g n e y e f n e s t e r y w f f e f y - e t a y h e l a n e r y l o y n e v g f f e f f y f n e t g w b f y o g n e y r e l w f B y . n e y h e f u e f n s w o g w s f e f y z s r e y g w y 50Bb G y o g n e y w l s w w f t B y . s v l o y H y e w l w o R u e f s a f g z z s t r o g n e y w f f e f y s f f o s n e r y - u n y n e y g u l m f y s z s l e B

Table 6: Building-Related Economic Loss Estimates
c l u w w f y o g o w w f t A

Category	Area	Residential	Commercial	Industrial	Others	Total
L g u l m f y l o f f						
L g f f e f f y f n e t g w b f	I g u l m f x o f n e f n j f e f n e t	y n r 3 B 3 y 6 n 5 B 0 y 6 B 0	y 6 H B 0 y 6 3 7 B 5 y H 7	y 6 B 5 B y 6 6 b B 8 y n 0 B 8	y 7 B 7 y 7 B 8 y 0 B %	y 6 B 8 B 6 y H B 8 y n 8 B m
	Subtotal	350.67	548.61	180.55	59.84	1,139.67
J f o z e S e l d s h o f S e f n s w f o z e _ s l e		y 0 B 6 y 0 B 5 y 0 B 5	y n B b y 0 B 3 y 0 B 6	y 0 B 6 y 0 B m y 0 B 6	y 0 B H y 0 B 5 y 0 B 0	y n B m y 0 B 8 y 0 B 8
	Subtotal	0.19	4.71	0.06	0.98	5.94
	Total	350.87	553.32	180.61	60.81	1,145.61

Appendix A: County Listing for the Region

Office
Tolson

Appendix B: Regional Population and Building Value Data

Building Value (thousands of dollars)				
	Population	Residential	Non-Residential	Total
Connecticut				
TsultW	y585a8H	yr8db6b558	y6ntF0arrm	y0a0mbdtr8
Total	353,556	27,414,335	12,610,292	40,024,627
Total Study Region	353,556	27,414,335	12,610,292	40,024,627

Hazus-MH: Hurricane Event Report

Region Name: HMP2016_SWR_Hu

Hurricane Scenario: SANDY_2012_stm_2107PM

Print Date: Thursday, November 06, 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 and economic losses following a specific Hurricane. These results can be improved by using enhanced inventory data.

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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 and the National Institute of Building Sciences. 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 hurricane loss estimates provided in this report are based on a region that includes 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 213.78 square miles and contains 84 census tracts. There are over 133 thousand households in the region and has a total population of 353,556 people (2000 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 119 thousand buildings in the region with a total building replacement value (excluding contents) of 40,025 million dollars (2006 dollars). Approximately 88% of the buildings (and 68% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

Hazus estimates that there are 119,285 buildings in the region which have an aggregate total replacement value of 40,025 million (2006 dollars). Table 1 presents the relative distribution of the value with respect to the general occupancies. Appendix B provides a general distribution of the building value by State and County.

Table 1: Building Exposure by Occupancy Type

Occupancy	Exposure (\$1000)	Percent of Tot
Residential	27,414,335	68.5%
Commercial	9,458,590	23.6%
Industrial	1,772,337	4.4%
Agricultural	143,166	0.4%
Religious	601,863	1.5%
Government	194,592	0.5%
Education	439,744	1.1%
Total	40,024,627	100.0%

Essential Facility Inventory

For essential facilities, there are 4 hospitals in the region with a total bed capacity of 812 beds. There are 152 schools, 38 fire stations, 12 police stations and 8 emergency operation facilities.

Hurricane Scenario

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

Scenario Name:	SANDY_2012_stm_2107PM
Type:	Forecast/Advisory
Maximum Peak Gust in Study Region:	81 mph
Storm Information:	HURREVAC Storm Advisory Download; FILE PATH: ftp://ftp.hurrevac2.com/s_2012.stm

User Defined Storm Track Input Data

Point	Latitude	Longitude	Time Step (hour)	Translation Speed (mph)	Radius To		Sustained Wind Speed (mph @ 10m)	Central Pressure (mBar)	Profile Parameter	Radius to Hurricane Force Winds	
					Max Winds (miles)	Max Winds (mph @ 10m)				Winds (miles)	Winds (miles)
1	12.50	-78.50	6.00	-	-	-	40.00	999.00	-	-	0.00
2	12.70	-78.70	9.00	-	-	-	40.37	998.00	-	-	0.00
3	12.70	-78.60	12.00	-	-	-	41.40	998.00	-	-	0.00
4	12.90	-78.70	15.00	-	-	-	40.37	998.00	-	-	0.00
5	13.30	-78.60	18.00	-	-	-	41.40	998.00	-	-	0.00
6	13.40	-77.90	21.00	-	-	-	40.37	997.00	-	-	0.00
7	13.80	-77.80	24.00	-	-	-	46.58	993.00	-	-	0.00
8	14.10	-77.60	27.00	-	-	-	44.51	993.00	-	-	0.00
9	14.30	-77.60	30.00	-	-	-	46.58	993.00	-	-	0.00
10	14.80	-77.50	33.00	-	-	-	44.51	993.00	-	-	0.00
11	15.20	-77.20	36.00	-	-	-	51.75	989.00	-	-	0.00
12	15.70	-77.10	39.00	-	-	-	57.96	988.00	-	-	0.00
13	16.30	-77.00	42.00	-	-	-	62.10	986.00	-	-	0.00
14	16.60	-76.90	45.00	-	-	-	63.14	983.00	-	-	0.00
15	17.10	-76.70	48.00	-	-	-	72.45	973.00	-	-	0.00
16	17.60	-76.80	51.00	-	-	-	72.45	973.00	-	-	0.00
17	18.30	-76.60	54.00	-	-	-	72.45	970.00	-	-	0.00
18	18.70	-76.40	57.00	-	-	-	76.59	968.00	-	-	21.56
19	19.40	-76.30	60.00	-	-	-	82.80	954.00	-	-	21.56
20	20.10	-75.90	63.00	-	-	-	99.36	957.00	-	-	21.56
21	20.90	-75.80	66.00	-	-	-	93.15	960.00	-	-	17.71
22	21.60	-75.50	69.00	-	-	-	94.19	967.00	-	-	17.71
23	22.40	-75.50	72.00	-	-	-	93.15	964.00	-	-	21.56
24	23.50	-75.40	75.00	-	-	-	94.19	963.00	-	-	21.56

B.70									
25	24.50	-75.60	78.00	-	-	93.15	963.00	-	26.18
26	24.80	-75.80	81.00	-	-	90.05	965.00	-	26.18
27	25.30	-76.10	84.00	-	-	82.80	968.00	-	26.18
28	25.80	-76.50	87.00	-	-	76.59	968.00	-	26.18
29	26.30	-76.90	90.00	-	-	72.45	968.00	-	0.00
30	26.40	-76.90	93.00	-	-	72.45	970.00	-	0.00
31	26.70	-76.90	96.00	-	-	72.45	970.00	-	0.00
32	27.10	-77.10	99.00	-	-	67.28	971.00	-	0.00
33	27.30	-77.10	102.00	-	-	67.28	971.00	-	0.00
34	27.50	-77.20	105.00	-	-	67.28	970.00	-	0.00
35	27.70	-77.10	108.00	-	-	67.28	969.00	-	0.00
36	28.10	-76.90	111.00	-	-	67.28	969.00	-	0.00
37	28.60	-76.70	114.00	-	-	62.10	969.00	-	0.00
38	28.80	-76.80	117.00	-	-	67.28	960.00	-	0.00
39	29.00	-76.00	120.00	-	-	67.28	958.00	-	0.00
40	29.70	-75.60	123.00	-	-	67.28	961.00	-	0.00
41	30.20	-75.20	126.00	-	-	67.28	961.00	-	0.00
42	30.50	-74.70	129.00	-	-	67.28	961.00	-	0.00
43	30.90	-74.30	132.00	-	-	67.28	960.00	-	0.00
44	31.50	-73.70	135.00	-	-	67.28	960.00	-	0.00
45	31.90	-73.30	138.00	-	-	67.28	960.00	-	0.00
46	32.10	-73.10	141.00	-	-	67.28	951.00	-	0.00
47	32.50	-72.60	144.00	-	-	67.28	951.00	-	0.00
48	32.80	-71.90	147.00	-	-	67.28	951.00	-	0.00
49	33.40	-71.30	150.00	-	-	67.28	952.00	-	0.00
50	34.00	-70.90	153.00	-	-	67.28	950.00	-	0.00
51	34.50	-70.50	156.00	-	-	67.28	950.00	-	0.00
52	35.20	-70.50	159.00	-	-	67.28	950.00	-	0.00
53	35.90	-70.50	162.00	-	-	77.63	946.00	-	132.44
54	36.80	-71.10	165.00	-	-	76.59	946.00	-	132.44
55	37.50	-71.50	168.00	-	-	82.80	943.00	-	132.44
56	38.30	-73.10	171.00	-	-	80.73	940.00	-	132.44
57	38.80	-74.40	174.00	-	-	82.80	940.00	-	132.44
58	39.80	-75.40	180.00	-	-	77.37	952.00	-	0.00
59	40.50	-77.00	186.00	-	-	66.65	960.00	-	0.00
60	40.20	-78.40	192.00	-	-	46.42	983.00	-	0.00
61	40.80	-79.20	198.00	-	-	46.42	988.00	-	0.00
62	41.30	-79.40	204.00	-	-	40.00	992.00	-	0.00
63	42.30	-79.50	213.00	-	-	40.00	992.00	-	0.00
64	46.20	-77.70	225.00	-	-	40.00	992.00	-	0.00
65	46.20	-77.70	237.00	-	-	40.00	992.00	-	0.00
66	46.20	-77.70	249.00	-	-	40.00	992.00	-	0.00
67	46.20	-77.70	273.00	-	-	40.00	992.00	-	0.00
68	46.20	-77.70	297.00	-	-	40.00	992.00	-	0.00
69	46.20	-77.70	321.00	-	-	40.00	992.00	-	1.00

Building Damage

General Building Stock Damage

Hazus estimates that about 53 buildings will be at least moderately damaged. This is over 0% of the total number of buildings in the region. There are an estimated 0 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 6 of the Hazus Hurricane technical manual. Table 2 below summarizes the expected damage by general occupancy for the buildings in the region. Table 3 summarizes the expected damage by general building type.

Table 2: Expected Building Damage by Occupancy

Occupancy	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	676	99.28	5	0.68	0	0.03	0	0.01	0	0.00
Commercial	9,505	99.19	74	0.78	3	0.03	0	0.00	0	0.00
Education	327	99.24	3	0.76	0	0.00	0	0.00	0	0.00
Government	178	99.16	2	0.84	0	0.00	0	0.00	0	0.00
Industrial	2,894	99.19	23	0.80	0	0.01	0	0.00	0	0.00
Religion	683	99.35	4	0.63	0	0.02	0	0.00	0	0.00
Residential	104,239	99.36	618	0.59	47	0.05	2	0.00	0	0.00
Total	118,503		729		51		2		0	

Table 3: Expected Building Damage by Building Type

Building Type	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	1,961	98.98	20	1.02	0	0.00	0	0.00	0	0.00
Masonry	12,357	98.37	181	1.44	23	0.18	1	0.01	0	0.00
M/H	198	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Steel	6,848	99.15	57	0.83	1	0.02	0	0.00	0	0.00
Wood	97,219	99.58	395	0.40	14	0.01	1	0.00	0	0.00

Essential Facility Damage

Before the hurricane, the region had 812 hospital beds available for use. On the day of the hurricane, the model estimates that 812 hospital beds (only 100.00%) are available for use. After one week, 100.00% of the beds will be in service. By 30 days, 100.00% will be operational.

Table 4: Expected Damage to Essential Facilities

Classification	# Facilities		
	Total	Probability of at Least Moderate Damage > 50%	Probability of Complete Damage > 50%
EOCs	8	0	0
Fire Stations	38	0	0
Hospitals	4	3	0
Police Stations	12	0	0
Schools	152	0	0

Induced Hurricane Damage

Debris Generation

Hazus estimates the amount of debris that will be generated by the hurricane. The model breaks the debris into four general categories: a) Brick/Wood, b) Reinforced Concrete/Steel, c) Eligible Tree Debris, and d) Other Tree Debris. 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 10,815 tons of debris will be generated. Of the total amount, 1,566 tons (14%) is Other Tree Debris. Of the remaining 9,249 tons, Brick/Wood comprises 53% of the total, Reinforced Concrete/Steel comprises of 0% of the total, with the remainder being Eligible Tree Debris. If the building debris tonnage is converted to an estimated number of truckloads, it will require 197 truckloads (@25 tons/truck) to remove the building debris generated by the hurricane. The number of Eligible Tree Debris truckloads will depend on how the 4,333 tons of Eligible Tree Debris are collected and processed. The volume of tree debris generally ranges from about 4 cubic yards per ton for chipped or compacted tree debris to about 10 cubic yards per ton for bulkier, uncompacted debris.

Social Impact

Shelter Requirement

Hazus estimates the number of households that are expected to be displaced from their homes due to the hurricane and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 4 households to be displaced due to the hurricane. Of these, 1 person (out of a total population of 353,556) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the hurricane is 57.1 million dollars, which represents 0.14 % of the total replacement value of the region's buildings.

Building-Related Losses

The building related losses are broken into two categories: direct property damage losses and business interruption losses. The direct property damage 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 hurricane. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the hurricane.

The total property damage losses were 57 million dollars. 0% of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 95% of the total loss. Table 4 below provides a summary of the losses associated with the building damage.

Table 5: Building-Related Economic Loss Estimates
(Thousands of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
<u>Property Damage</u>						
	Building	43,610.95	2,373.22	287.15	263.06	46,534.38
	Content	9,214.36	1.63	0.10	0.06	9,216.14
	Inventory	0.00	0.01	0.02	0.01	0.04
	Subtotal	52,825.31	2,374.86	287.27	263.12	55,750.56
<u>Business Interruption Loss</u>						
	Income	0.00	0.00	0.00	0.00	0.00
	Relocation	550.76	24.11	0.49	1.04	576.39
	Rental	787.58	0.00	0.00	0.00	787.58
	Wage	0.00	0.00	0.00	0.00	0.00
	Subtotal	1,338.34	24.11	0.49	1.04	1,363.98
<u>Total</u>						
	Total	54,163.65	2,398.97	287.76	264.16	57,114.54

Appendix A: County Listing for the Region

Connecticut
- Fairfield

Appendix B: Regional Population and Building Value Data

		Building Value (thousands of dollars)		
	Population	Residential	Non-Residential	Total
Connecticut				
Fairfield	353,556	27,414,335	12,610,292	40,024,627
Total	353,556	27,414,335	12,610,292	40,024,627
Study Region Total	353,556	27,414,335	12,610,292	40,024,627

Quick Assessment Report

B.77

November 5, 2014

Study Region : HMP2016_SWR_Hu

Scenario : Probabilistic

Regional Statistics

Area (Square Miles)

214

Number of Census Tracts

84

Number of People in the Region

353,556

General Building Stock

Occupancy		Building Count	Dollar Exposure (\$ K)
Residential		104,907	27,414,335
Commercial		9,582	9,458,590
Other		4,796	3,151,702
Total		119,285	40,024,627

Scenario Results

Number of Residential Buildings Damaged

Return Period	Minor	Moderate	Severe	Destruction	Total
10	0	0	0	0	0
20	63	3	0	0	66
50	642	46	2	0	690
100	4,131	423	10	1	4,566
200	12,171	1,877	59	29	14,136
500	28,236	7,925	732	465	37,359
1000	36,232	14,070	2,172	1,411	53,886

Number of Buildings Damaged

Return Period	Minor	Moderate	Severe	Destruction	Total
10	0	0	0	0	0
20	97	3	0	0	100
50	751	50	2	0	804
100	4,556	468	15	1	5,040
200	13,439	2,147	96	30	15,712
500	31,208	9,384	1,061	477	42,130
1000	39,947	16,683	3,033	1,439	61,102

Shelter Requirements

Return Period	Displaced Households (#Households)	Short Term Shelter (#People)
10	0	0
20	0	0
50	2	0
100	128	31
200	618	151
500	2,599	618
1000	5,637	1,312

Economic Loss (x 1000)

ReturnPeriod	Property Damage (Capital Stock) Losses		Business Interruption (Income) Losses
	Residential	Total	
10	0	0	0
20	2,774	2,774	6
50	51,379	54,190	1,345
100	176,552	191,394	13,707
200	414,592	473,567	49,665
500	1,295,418	1,608,395	195,510
1000	2,476,974	3,167,628	403,181
Annualized	12,686	15,788	1,826

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 and economic losses following a specific Hurricane. These results can be improved by using enhanced inventory data.

Hazus-MH: Hurricane Event Report

Region Name: HMP2016_SWR_Hu

Hurricane Scenario: Probabilistic 10-year Return Period

Print Date: Wednesday, November 05, 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 and economic losses following a specific Hurricane. These results can be improved by using enhanced inventory data.

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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 and the National Institute of Building Sciences. 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 hurricane loss estimates provided in this report are based on a region that includes 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 213.78 square miles and contains 84 census tracts. There are over 133 thousand households in the region and has a total population of 353,556 people (2000 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 119 thousand buildings in the region with a total building replacement value (excluding contents) of 40,025 million dollars (2006 dollars). Approximately 88% of the buildings (and 68% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

Hazus estimates that there are 119,285 buildings in the region which have an aggregate total replacement value of 40,025 million (2006 dollars). Table 1 presents the relative distribution of the value with respect to the general occupancies. Appendix B provides a general distribution of the building value by State and County.

Table 1: Building Exposure by Occupancy Type

Occupancy	Exposure (\$1000)	Percent of Tot
Residential	27,414,335	68.5%
Commercial	9,458,590	23.6%
Industrial	1,772,337	4.4%
Agricultural	143,166	0.4%
Religious	601,863	1.5%
Government	194,592	0.5%
Education	439,744	1.1%
Total	40,024,627	100.0%

Essential Facility Inventory

For essential facilities, there are 4 hospitals in the region with a total bed capacity of 812 beds. There are 152 schools, 38 fire stations, 12 police stations and 8 emergency operation facilities.

Hurricane Scenario

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

Scenario Name:	Probabilistic
Type:	Probabilistic

Building Damage

General Building Stock Damage

Hazus estimates that about 0 buildings will be at least moderately damaged. This is over 0% of the total number of buildings in the region. There are an estimated 0 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 6 of the Hazus Hurricane technical manual. Table 2 below summarizes the expected damage by general occupancy for the buildings in the region. Table 3 summarizes the expected damage by general building type.

Table 2: Expected Building Damage by Occupancy : 10 - year Event

Occupancy	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	681	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	9,582	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Education	330	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Government	180	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	2,918	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Religion	687	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Residential	104,907	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Total	119,285		0		0		0		0	

Table 3: Expected Building Damage by Building Type : 10 - year Event

Building Type	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	1,981	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Masonry	12,561	100.00	0	0.00	0	0.00	0	0.00	0	0.00
M/H	198	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Steel	6,907	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Wood	97,630	100.00	0	0.00	0	0.00	0	0.00	0	0.00

Essential Facility Damage

Before the hurricane, the region had 812 hospital beds available for use. On the day of the hurricane, the model estimates that 812 hospital beds (only 100.00%) are available for use. After one week, 100.00% of the beds will be in service. By 30 days, 100.00% will be operational.

Table 4: Expected Damage to Essential Facilities

Classification	# Facilities		
	Total	Probability of at Least Moderate Damage > 50%	Probability of Complete Damage > 50%
EOCs	8	0	0
Fire Stations	38	0	0
Hospitals	4	0	0
Police Stations	12	0	0
Schools	152	0	0

Induced Hurricane Damage

Debris Generation

Hazus estimates the amount of debris that will be generated by the hurricane. The model breaks the debris into four general categories: a) Brick/Wood, b) Reinforced Concrete/Steel, c) Eligible Tree Debris, and d) Other Tree Debris. 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 0 tons of debris will be generated. Of the total amount, 0 tons (0%) is Other Tree Debris. Of the remaining 0 tons, Brick/Wood comprises 0% of the total, Reinforced Concrete/Steel comprises of 0% of the total, with the remainder being Eligible Tree Debris. If the building debris tonnage is converted to an estimated number of truckloads, it will require 0 truckloads (@25 tons/truck) to remove the building debris generated by the hurricane. The number of Eligible Tree Debris truckloads will depend on how the 0 tons of Eligible Tree Debris are collected and processed. The volume of tree debris generally ranges from about 4 cubic yards per ton for chipped or compacted tree debris to about 10 cubic yards per ton for bulkier, uncompacted debris.

Social Impact

Shelter Requirement

Hazus estimates the number of households that are expected to be displaced from their homes due to the hurricane and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 0 households to be displaced due to the hurricane. Of these, 0 people (out of a total population of 353,556) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the hurricane is 0.0 million dollars, which represents 0.00 % of the total replacement value of the region's buildings.

Building-Related Losses

The building related losses are broken into two categories: direct property damage losses and business interruption losses. The direct property damage 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 hurricane. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the hurricane.

The total property damage losses were 0 million dollars. 0% of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 0% of the total loss. Table 4 below provides a summary of the losses associated with the building damage.

Table 5: Building-Related Economic Loss Estimates
(Thousands of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
<u>Property Damage</u>						
	Building	0.00	0.00	0.00	0.00	0.00
	Content	0.00	0.00	0.00	0.00	0.00
	Inventory	0.00	0.00	0.00	0.00	0.00
	Subtotal	0.00	0.00	0.00	0.00	0.00
<u>Business Interruption Loss</u>						
	Income	0.00	0.00	0.00	0.00	0.00
	Relocation	0.00	0.00	0.00	0.00	0.00
	Rental	0.00	0.00	0.00	0.00	0.00
	Wage	0.00	0.00	0.00	0.00	0.00
	Subtotal	0.00	0.00	0.00	0.00	0.00
<u>Total</u>						
	Total	0.00	0.00	0.00	0.00	0.00

Appendix A: County Listing for the Region

Connecticut
- Fairfield

Appendix B: Regional Population and Building Value Data

		Building Value (thousands of dollars)		
		Population	Residential	Non-Residential
Connecticut				Total
Fairfield		353,556	27,414,335	12,610,292
Total		353,556	27,414,335	12,610,292
Study Region Total		353,556	27,414,335	12,610,292
				40,024,627

Hazus-MH: Hurricane Event Report

Region Name: HMP2016_SWR_Hu

Hurricane Scenario: Probabilistic 100-year Return Period

Print Date: Wednesday, November 05, 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 and economic losses following a specific Hurricane. These results can be improved by using enhanced inventory data.

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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 and the National Institute of Building Sciences. 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 hurricane loss estimates provided in this report are based on a region that includes 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 213.78 square miles and contains 84 census tracts. There are over 133 thousand households in the region and has a total population of 353,556 people (2000 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 119 thousand buildings in the region with a total building replacement value (excluding contents) of 40,025 million dollars (2006 dollars). Approximately 88% of the buildings (and 68% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

Hazus estimates that there are 119,285 buildings in the region which have an aggregate total replacement value of 40,025 million (2006 dollars). Table 1 presents the relative distribution of the value with respect to the general occupancies. Appendix B provides a general distribution of the building value by State and County.

Table 1: Building Exposure by Occupancy Type

Occupancy	Exposure (\$1000)	Percent of Tot
Residential	27,414,335	68.5%
Commercial	9,458,590	23.6%
Industrial	1,772,337	4.4%
Agricultural	143,166	0.4%
Religious	601,863	1.5%
Government	194,592	0.5%
Education	439,744	1.1%
Total	40,024,627	100.0%

Essential Facility Inventory

For essential facilities, there are 4 hospitals in the region with a total bed capacity of 812 beds. There are 152 schools, 38 fire stations, 12 police stations and 8 emergency operation facilities.

Hurricane Scenario

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

Scenario Name:	Probabilistic
Type:	Probabilistic

Building Damage

General Building Stock Damage

Hazus estimates that about 484 buildings will be at least moderately damaged. This is over 0% of the total number of buildings in the region. There are an estimated 1 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 6 of the Hazus Hurricane technical manual. Table 2 below summarizes the expected damage by general occupancy for the buildings in the region. Table 3 summarizes the expected damage by general building type.

Table 2: Expected Building Damage by Occupancy : 100 - year Event

Occupancy	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	653	95.96	23	3.36	3	0.50	1	0.18	0	0.01
Commercial	9,263	96.68	283	2.96	33	0.34	2	0.03	0	0.00
Education	320	97.11	9	2.77	0	0.12	0	0.00	0	0.00
Government	174	96.82	5	3.04	0	0.14	0	0.00	0	0.00
Industrial	2,825	96.80	85	2.92	7	0.23	1	0.04	0	0.00
Religion	667	97.08	19	2.79	1	0.12	0	0.01	0	0.00
Residential	100,341	95.65	4,131	3.94	423	0.40	10	0.01	1	0.00
Total	114,245		4,556		468		15		1	

Table 3: Expected Building Damage by Building Type : 100 - year Event

Building Type	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	1,908	96.33	69	3.48	4	0.19	0	0.00	0	0.00
Masonry	11,797	93.92	585	4.66	173	1.38	5	0.04	0	0.00
M/H	198	99.86	0	0.11	0	0.02	0	0.00	0	0.00
Steel	6,688	96.83	193	2.80	23	0.33	2	0.03	0	0.00
Wood	93,951	96.23	3,510	3.60	160	0.16	8	0.01	1	0.00

Essential Facility Damage

Before the hurricane, the region had 812 hospital beds available for use. On the day of the hurricane, the model estimates that 812 hospital beds (only 100.00%) are available for use. After one week, 100.00% of the beds will be in service. By 30 days, 100.00% will be operational.

Table 4: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		Probability of at Least Moderate Damage > 50%	Probability of Complete Damage > 50%	Expected Loss of Use < 1 day
EOCs	8	0	0	8
Fire Stations	38	0	0	38
Hospitals	4	3	0	4
Police Stations	12	0	0	12
Schools	152	0	0	152

Induced Hurricane Damage

Debris Generation

Hazus estimates the amount of debris that will be generated by the hurricane. The model breaks the debris into four general categories: a) Brick/Wood, b) Reinforced Concrete/Steel, c) Eligible Tree Debris, and d) Other Tree Debris. 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 86,672 tons of debris will be generated. Of the total amount, 31,013 tons (36%) is Other Tree Debris. Of the remaining 55,659 tons, Brick/Wood comprises 38% of the total, Reinforced Concrete/Steel comprises of 0% of the total, with the remainder being Eligible Tree Debris. If the building debris tonnage is converted to an estimated number of truckloads, it will require 837 truckloads (@25 tons/truck) to remove the building debris generated by the hurricane. The number of Eligible Tree Debris truckloads will depend on how the 34,731 tons of Eligible Tree Debris are collected and processed. The volume of tree debris generally ranges from about 4 cubic yards per ton for chipped or compacted tree debris to about 10 cubic yards per ton for bulkier, uncompacted debris.

Social Impact

Shelter Requirement

Hazus estimates the number of households that are expected to be displaced from their homes due to the hurricane and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 128 households to be displaced due to the hurricane. Of these, 31 people (out of a total population of 353,556) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the hurricane is 205.1 million dollars, which represents 0.51 % of the total replacement value of the region's buildings.

Building-Related Losses

The building related losses are broken into two categories: direct property damage losses and business interruption losses. The direct property damage 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 hurricane. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the hurricane.

The total property damage losses were 205 million dollars. 1% of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 91% of the total loss. Table 4 below provides a summary of the losses associated with the building damage.

Table 5: Building-Related Economic Loss Estimates
(Thousands of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Property Damage	Building	147,649.47	10,171.55	1,455.65	1,206.94	160,483.60
	Content	28,902.31	1,421.38	368.72	124.75	30,817.17
	Inventory	0.00	23.83	61.80	7.28	92.92
	Subtotal	176,551.78	11,616.76	1,886.17	1,338.97	191,393.69
Business Interruption Loss						
	Income	0.00	1,358.56	5.23	78.91	1,442.70
	Relocation	4,954.99	1,101.41	38.82	69.02	6,164.24
	Rental	4,528.08	679.31	5.25	5.18	5,217.82
	Wage	0.00	688.18	8.65	185.52	882.36
	Subtotal	9,483.07	3,827.46	57.96	338.63	13,707.13
Total						
	Total	186,034.85	15,444.22	1,944.13	1,677.61	205,100.82

Appendix A: County Listing for the Region

Connecticut
- Fairfield

Appendix B: Regional Population and Building Value Data

		Building Value (thousands of dollars)		
	Population	Residential	Non-Residential	Total
Connecticut				
Fairfield	353,556	27,414,335	12,610,292	40,024,627
Total	353,556	27,414,335	12,610,292	40,024,627
Study Region Total	353,556	27,414,335	12,610,292	40,024,627

Hazus-MH: Hurricane Event Report

Region Name: HMP2016_SWR_Hu

Hurricane Scenario: Probabilistic 1000-year Return Period

Print Date: Wednesday, November 05, 2014

Disclaimer:

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

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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 and the National Institute of Building Sciences. 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 hurricane loss estimates provided in this report are based on a region that includes 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 213.78 square miles and contains 84 census tracts. There are over 133 thousand households in the region and has a total population of 353,556 people (2000 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 119 thousand buildings in the region with a total building replacement value (excluding contents) of 40,025 million dollars (2006 dollars). Approximately 88% of the buildings (and 68% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

Hazus estimates that there are 119,285 buildings in the region which have an aggregate total replacement value of 40,025 million (2006 dollars). Table 1 presents the relative distribution of the value with respect to the general occupancies. Appendix B provides a general distribution of the building value by State and County.

Table 1: Building Exposure by Occupancy Type

Occupancy	Exposure (\$1000)	Percent of Tot
Residential	27,414,335	68.5%
Commercial	9,458,590	23.6%
Industrial	1,772,337	4.4%
Agricultural	143,166	0.4%
Religious	601,863	1.5%
Government	194,592	0.5%
Education	439,744	1.1%
Total	40,024,627	100.0%

Essential Facility Inventory

For essential facilities, there are 4 hospitals in the region with a total bed capacity of 812 beds. There are 152 schools, 38 fire stations, 12 police stations and 8 emergency operation facilities.

Hurricane Scenario

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

Scenario Name:	Probabilistic
Type:	Probabilistic

Building Damage

General Building Stock Damage

Hazus estimates that about 21,155 buildings will be at least moderately damaged. This is over 18% of the total number of buildings in the region. There are an estimated 1,439 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 6 of the Hazus Hurricane technical manual. Table 2 below summarizes the expected damage by general occupancy for the buildings in the region. Table 3 summarizes the expected damage by general building type.

Table 2: Expected Building Damage by Occupancy : 1000 - year Event

Occupancy	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	310	45.58	203	29.74	102	15.02	55	8.02	11	1.64
Commercial	4,774	49.82	2,489	25.98	1,767	18.44	547	5.70	5	0.05
Education	172	52.02	84	25.39	58	17.54	17	5.05	0	0.00
Government	88	48.99	45	24.81	36	19.80	12	6.41	0	0.00
Industrial	1,469	50.33	693	23.74	541	18.54	204	6.99	12	0.40
Religion	349	50.74	201	29.30	109	15.92	28	4.04	0	0.00
Residential	51,021	48.63	36,232	34.54	14,070	13.41	2,172	2.07	1,411	1.35
Total	58,183		39,947		16,683		3,033		1,439	

Table 3: Expected Building Damage by Building Type : 1000 - year Event

Building Type	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	931	47.02	474	23.91	464	23.43	112	5.64	0	0.00
Masonry	5,674	45.17	3,129	24.91	3,134	24.95	565	4.50	59	0.47
M/H	174	87.89	11	5.45	9	4.60	1	0.46	3	1.61
Steel	3,479	50.37	1,525	22.07	1,371	19.84	527	7.63	6	0.08
Wood	48,468	49.64	35,191	36.05	10,812	11.07	1,852	1.90	1,307	1.34

Essential Facility Damage

Before the hurricane, the region had 812 hospital beds available for use. On the day of the hurricane, the model estimates that 0 hospital beds (only 0.00%) are available for use. After one week, 0.00% of the beds will be in service. By 30 days, 28.00% will be operational.

Table 4: Expected Damage to Essential Facilities

Classification	# Facilities		
	Total	Probability of at Least Moderate Damage > 50%	Probability of Complete Damage > 50%
EOCs	8	0	0
Fire Stations	38	0	0
Hospitals	4	4	2
Police Stations	12	0	0
Schools	152	139	0

Induced Hurricane Damage

Debris Generation

Hazus estimates the amount of debris that will be generated by the hurricane. The model breaks the debris into four general categories: a) Brick/Wood, b) Reinforced Concrete/Steel, c) Eligible Tree Debris, and d) Other Tree Debris. 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 704,198 tons of debris will be generated. Of the total amount, 199,439 tons (28%) is Other Tree Debris. Of the remaining 504,759 tons, Brick/Wood comprises 58% of the total, Reinforced Concrete/Steel comprises of 0% of the total, with the remainder being Eligible Tree Debris. If the building debris tonnage is converted to an estimated number of truckloads, it will require 11733 truckloads (@25 tons/truck) to remove the building debris generated by the hurricane. The number of Eligible Tree Debris truckloads will depend on how the 211,441 tons of Eligible Tree Debris are collected and processed. The volume of tree debris generally ranges from about 4 cubic yards per ton for chipped or compacted tree debris to about 10 cubic yards per ton for bulkier, uncompacted debris.

Social Impact

Shelter Requirement

Hazus estimates the number of households that are expected to be displaced from their homes due to the hurricane and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 5,637 households to be displaced due to the hurricane. Of these, 1,312 people (out of a total population of 353,556) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the hurricane is 3570.8 million dollars, which represents 8.92 % of the total replacement value of the region's buildings.

Building-Related Losses

The building related losses are broken into two categories: direct property damage losses and business interruption losses. The direct property damage 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 hurricane. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the hurricane.

The total property damage losses were 3,571 million dollars. 2% of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 76% of the total loss. Table 4 below provides a summary of the losses associated with the building damage.

Table 5: Building-Related Economic Loss Estimates
(Thousands of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Property Damage	Building	1,827,279.76	334,227.84	72,946.01	43,506.24	2,277,959.86
	Content	649,694.38	155,446.04	54,630.40	18,979.80	878,750.62
	Inventory	0.00	2,721.51	7,717.67	478.83	10,918.01
	Subtotal	2,476,974.14	492,395.40	135,294.07	62,964.87	3,167,628.48
Business Interruption Loss						
	Income	200.45	22,342.18	859.18	1,473.45	24,875.25
	Relocation	156,710.86	63,104.66	6,075.17	8,677.46	234,568.16
	Rental	75,536.56	35,470.64	935.15	914.06	112,856.41
	Wage	472.38	21,615.71	1,393.38	7,399.92	30,881.38
	Subtotal	232,920.26	142,533.19	9,262.87	18,464.89	403,181.21
Total						
	Total	2,709,894.40	634,928.59	144,556.95	81,429.75	3,570,809.69

Appendix A: County Listing for the Region

Connecticut
- Fairfield

Appendix B: Regional Population and Building Value Data

	Building Value (thousands of dollars)			Total
	Population	Residential	Non-Residential	
Connecticut				
Fairfield	353,556	27,414,335	12,610,292	40,024,627
Total	353,556	27,414,335	12,610,292	40,024,627
Study Region Total	353,556	27,414,335	12,610,292	40,024,627

Hazus-MH: Hurricane Event Report

Region Name: HMP2016_SWR_Hu

Hurricane Scenario: Probabilistic 20-year Return Period

Print Date: Wednesday, November 05, 2014

Disclaimer:

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The hurricane loss estimates provided in this report are based on a region that includes 1 county(ies) from the following state(s):

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Note:

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

The geographical size of the region is 213.78 square miles and contains 84 census tracts. There are over 133 thousand households in the region and has a total population of 353,556 people (2000 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 119 thousand buildings in the region with a total building replacement value (excluding contents) of 40,025 million dollars (2006 dollars). Approximately 88% of the buildings (and 68% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

Hazus estimates that there are 119,285 buildings in the region which have an aggregate total replacement value of 40,025 million (2006 dollars). Table 1 presents the relative distribution of the value with respect to the general occupancies. Appendix B provides a general distribution of the building value by State and County.

Table 1: Building Exposure by Occupancy Type

Occupancy	Exposure (\$1000)	Percent of Tot
Residential	27,414,335	68.5%
Commercial	9,458,590	23.6%
Industrial	1,772,337	4.4%
Agricultural	143,166	0.4%
Religious	601,863	1.5%
Government	194,592	0.5%
Education	439,744	1.1%
Total	40,024,627	100.0%

Essential Facility Inventory

For essential facilities, there are 4 hospitals in the region with a total bed capacity of 812 beds. There are 152 schools, 38 fire stations, 12 police stations and 8 emergency operation facilities.

Hurricane Scenario

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

Scenario Name:	Probabilistic
Type:	Probabilistic

Building Damage

General Building Stock Damage

Hazus estimates that about 3 buildings will be at least moderately damaged. This is over 0% of the total number of buildings in the region. There are an estimated 0 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 6 of the Hazus Hurricane technical manual. Table 2 below summarizes the expected damage by general occupancy for the buildings in the region. Table 3 summarizes the expected damage by general building type.

Table 2: Expected Building Damage by Occupancy : 20 - year Event

Occupancy	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	680	99.83	1	0.17	0	0.00	0	0.00	0	0.00
Commercial	9,560	99.77	22	0.23	0	0.00	0	0.00	0	0.00
Education	329	99.76	1	0.24	0	0.00	0	0.00	0	0.00
Government	180	99.73	0	0.27	0	0.00	0	0.00	0	0.00
Industrial	2,911	99.75	7	0.25	0	0.00	0	0.00	0	0.00
Religion	686	99.81	1	0.19	0	0.00	0	0.00	0	0.00
Residential	104,841	99.94	63	0.06	3	0.00	0	0.00	0	0.00
Total	119,185		97		3		0		0	

Table 3: Expected Building Damage by Building Type : 20 - year Event

Building Type	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	1,975	99.69	6	0.31	0	0.00	0	0.00	0	0.00
Masonry	12,517	99.65	43	0.34	1	0.01	0	0.00	0	0.00
M/H	198	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Steel	6,889	99.73	18	0.27	0	0.00	0	0.00	0	0.00
Wood	97,610	99.98	17	0.02	2	0.00	0	0.00	0	0.00

Essential Facility Damage

Before the hurricane, the region had 812 hospital beds available for use. On the day of the hurricane, the model estimates that 812 hospital beds (only 100.00%) are available for use. After one week, 100.00% of the beds will be in service. By 30 days, 100.00% will be operational.

Table 4: Expected Damage to Essential Facilities

Classification	# Facilities		
	Total	Probability of at Least Moderate Damage > 50%	Probability of Complete Damage > 50%
EOCs	8	0	0
Fire Stations	38	0	0
Hospitals	4	0	0
Police Stations	12	0	0
Schools	152	0	0

Induced Hurricane Damage

Debris Generation

Hazus estimates the amount of debris that will be generated by the hurricane. The model breaks the debris into four general categories: a) Brick/Wood, b) Reinforced Concrete/Steel, c) Eligible Tree Debris, and d) Other Tree Debris. 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 1,107 tons of debris will be generated. Of the total amount, 254 tons (23%) is Other Tree Debris. Of the remaining 853 tons, Brick/Wood comprises 23% of the total, Reinforced Concrete/Steel comprises of 0% of the total, with the remainder being Eligible Tree Debris. If the building debris tonnage is converted to an estimated number of truckloads, it will require 8 truckloads (@25 tons/truck) to remove the building debris generated by the hurricane. The number of Eligible Tree Debris truckloads will depend on how the 659 tons of Eligible Tree Debris are collected and processed. The volume of tree debris generally ranges from about 4 cubic yards per ton for chipped or compacted tree debris to about 10 cubic yards per ton for bulkier, uncompacted debris.

Social Impact

Shelter Requirement

Hazus estimates the number of households that are expected to be displaced from their homes due to the hurricane and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 0 households to be displaced due to the hurricane. Of these, 0 people (out of a total population of 353,556) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the hurricane is 2.8 million dollars, which represents 0.01 % of the total replacement value of the region's buildings.

Building-Related Losses

The building related losses are broken into two categories: direct property damage losses and business interruption losses. The direct property damage 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 hurricane. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the hurricane.

The total property damage losses were 3 million dollars. 0% of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 100% of the total loss. Table 4 below provides a summary of the losses associated with the building damage.

Table 5: Building-Related Economic Loss Estimates
(Thousands of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Property Damage						
	Building	1,886.79	0.00	0.00	0.00	1,886.79
	Content	887.69	0.00	0.00	0.00	887.69
	Inventory	0.00	0.00	0.00	0.00	0.00
	Subtotal	2,774.49	0.00	0.00	0.00	2,774.49
Business Interruption Loss						
	Income	0.00	0.00	0.00	0.00	0.00
	Relocation	6.43	0.00	0.00	0.00	6.43
	Rental	0.00	0.00	0.00	0.00	0.00
	Wage	0.00	0.00	0.00	0.00	0.00
	Subtotal	6.43	0.00	0.00	0.00	6.43
Total	Total	2,780.92	0.00	0.00	0.00	2,780.92

Appendix A: County Listing for the Region

Connecticut
- Fairfield

Appendix B: Regional Population and Building Value Data

		Building Value (thousands of dollars)		
		Population	Residential	Non-Residential
Connecticut				Total
Fairfield		353,556	27,414,335	12,610,292
				40,024,627
Total		353,556	27,414,335	12,610,292
				40,024,627
Study Region Total		353,556	27,414,335	12,610,292
				40,024,627

Hazus-MH: Hurricane Event Report

Region Name: HMP2016_SWR_Hu

Hurricane Scenario: Probabilistic 200-year Return Period

Print Date: Wednesday, November 05, 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 and economic losses following a specific Hurricane. These results can be improved by using enhanced inventory data.

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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 and the National Institute of Building Sciences. 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 hurricane loss estimates provided in this report are based on a region that includes 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 213.78 square miles and contains 84 census tracts. There are over 133 thousand households in the region and has a total population of 353,556 people (2000 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 119 thousand buildings in the region with a total building replacement value (excluding contents) of 40,025 million dollars (2006 dollars). Approximately 88% of the buildings (and 68% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

Hazus estimates that there are 119,285 buildings in the region which have an aggregate total replacement value of 40,025 million (2006 dollars). Table 1 presents the relative distribution of the value with respect to the general occupancies. Appendix B provides a general distribution of the building value by State and County.

Table 1: Building Exposure by Occupancy Type

Occupancy	Exposure (\$1000)	Percent of Tot
Residential	27,414,335	68.5%
Commercial	9,458,590	23.6%
Industrial	1,772,337	4.4%
Agricultural	143,166	0.4%
Religious	601,863	1.5%
Government	194,592	0.5%
Education	439,744	1.1%
Total	40,024,627	100.0%

Essential Facility Inventory

For essential facilities, there are 4 hospitals in the region with a total bed capacity of 812 beds. There are 152 schools, 38 fire stations, 12 police stations and 8 emergency operation facilities.

Hurricane Scenario

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

Scenario Name:	Probabilistic
Type:	Probabilistic

Building Damage

General Building Stock Damage

Hazus estimates that about 2,273 buildings will be at least moderately damaged. This is over 2% of the total number of buildings in the region. There are an estimated 30 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 6 of the Hazus Hurricane technical manual. Table 2 below summarizes the expected damage by general occupancy for the buildings in the region. Table 3 summarizes the expected damage by general building type.

Table 2: Expected Building Damage by Occupancy : 200 - year Event

Occupancy	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	589	86.48	68	10.05	16	2.34	7	1.04	1	0.09
Commercial	8,528	89.00	847	8.84	186	1.95	20	0.21	0	0.00
Education	298	90.37	27	8.26	4	1.31	0	0.05	0	0.00
Government	160	89.12	16	9.14	3	1.67	0	0.06	0	0.00
Industrial	2,611	89.48	245	8.40	52	1.79	9	0.32	1	0.02
Religion	615	89.54	63	9.19	8	1.22	0	0.06	0	0.00
Residential	90,771	86.53	12,171	11.60	1,877	1.79	59	0.06	29	0.03
Total	103,573		13,439		2,147		96		30	

Table 3: Expected Building Damage by Building Type : 200 - year Event

Building Type	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	1,743	88.00	195	9.86	41	2.09	1	0.05	0	0.00
Masonry	10,531	83.84	1,372	10.92	628	5.00	28	0.23	2	0.02
M/H	196	99.22	1	0.59	0	0.16	0	0.00	0	0.03
Steel	6,183	89.52	558	8.08	144	2.09	22	0.31	0	0.00
Wood	85,462	87.54	11,094	11.36	997	1.02	50	0.05	26	0.03

Essential Facility Damage

Before the hurricane, the region had 812 hospital beds available for use. On the day of the hurricane, the model estimates that 64 hospital beds (only 8.00%) are available for use. After one week, 100.00% of the beds will be in service. By 30 days, 100.00% will be operational.

Table 4: Expected Damage to Essential Facilities

Classification	# Facilities		
	Total	Probability of at Least Moderate Damage > 50%	Probability of Complete Damage > 50%
EOCs	8	0	0
Fire Stations	38	0	0
Hospitals	4	3	0
Police Stations	12	0	0
Schools	152	0	0

Induced Hurricane Damage

Debris Generation

Hazus estimates the amount of debris that will be generated by the hurricane. The model breaks the debris into four general categories: a) Brick/Wood, b) Reinforced Concrete/Steel, c) Eligible Tree Debris, and d) Other Tree Debris. 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 157,957 tons of debris will be generated. Of the total amount, 45,789 tons (29%) is Other Tree Debris. Of the remaining 112,168 tons, Brick/Wood comprises 51% of the total, Reinforced Concrete/Steel comprises of 0% of the total, with the remainder being Eligible Tree Debris. If the building debris tonnage is converted to an estimated number of truckloads, it will require 2278 truckloads (@25 tons/truck) to remove the building debris generated by the hurricane. The number of Eligible Tree Debris truckloads will depend on how the 55,216 tons of Eligible Tree Debris are collected and processed. The volume of tree debris generally ranges from about 4 cubic yards per ton for chipped or compacted tree debris to about 10 cubic yards per ton for bulkier, uncompacted debris.

Social Impact

Shelter Requirement

Hazus estimates the number of households that are expected to be displaced from their homes due to the hurricane and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 618 households to be displaced due to the hurricane. Of these, 151 people (out of a total population of 353,556) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the hurricane is 523.2 million dollars, which represents 1.31 % of the total replacement value of the region's buildings.

Building-Related Losses

The building related losses are broken into two categories: direct property damage losses and business interruption losses. The direct property damage 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 hurricane. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the hurricane.

The total property damage losses were 523 million dollars. 2% of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 84% of the total loss. Table 4 below provides a summary of the losses associated with the building damage.

Table 5: Building-Related Economic Loss Estimates
(Thousands of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Property Damage	Building	340,301.91	35,223.61	6,477.98	4,452.90	386,456.39
	Content	74,289.88	7,862.84	3,280.37	965.83	86,398.92
	Inventory	0.00	143.78	523.59	43.95	711.32
	Subtotal	414,591.79	43,230.23	10,281.93	5,462.68	473,566.63
Business Interruption Loss						
	Income	0.00	5,534.96	84.06	577.34	6,196.37
	Relocation	13,553.94	5,894.17	452.48	717.02	20,617.62
	Rental	12,203.66	3,296.46	70.89	71.57	15,642.57
	Wage	0.00	4,655.42	136.31	2,416.44	7,208.17
	Subtotal	25,757.60	19,381.01	743.75	3,782.36	49,664.72
Total						
	Total	440,349.39	62,611.24	11,025.68	9,245.04	523,231.35

Appendix A: County Listing for the Region

Connecticut
- Fairfield

Appendix B: Regional Population and Building Value Data

		Building Value (thousands of dollars)		
		Population	Residential	Non-Residential
Connecticut				Total
Fairfield		353,556	27,414,335	12,610,292
				40,024,627
Total		353,556	27,414,335	12,610,292
				40,024,627
Study Region Total		353,556	27,414,335	12,610,292
				40,024,627

Hazus-MH: Hurricane Event Report

Region Name: HMP2016_SWR_Hu

Hurricane Scenario: Probabilistic 50-year Return Period

Print Date: Wednesday, November 05, 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 and economic losses following a specific Hurricane. These results can be improved by using enhanced inventory data.

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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 and the National Institute of Building Sciences. 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 hurricane loss estimates provided in this report are based on a region that includes 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 213.78 square miles and contains 84 census tracts. There are over 133 thousand households in the region and has a total population of 353,556 people (2000 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 119 thousand buildings in the region with a total building replacement value (excluding contents) of 40,025 million dollars (2006 dollars). Approximately 88% of the buildings (and 68% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

Hazus estimates that there are 119,285 buildings in the region which have an aggregate total replacement value of 40,025 million (2006 dollars). Table 1 presents the relative distribution of the value with respect to the general occupancies. Appendix B provides a general distribution of the building value by State and County.

Table 1: Building Exposure by Occupancy Type

Occupancy	Exposure (\$1000)	Percent of Tot
Residential	27,414,335	68.5%
Commercial	9,458,590	23.6%
Industrial	1,772,337	4.4%
Agricultural	143,166	0.4%
Religious	601,863	1.5%
Government	194,592	0.5%
Education	439,744	1.1%
Total	40,024,627	100.0%

Essential Facility Inventory

For essential facilities, there are 4 hospitals in the region with a total bed capacity of 812 beds. There are 152 schools, 38 fire stations, 12 police stations and 8 emergency operation facilities.

Hurricane Scenario

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

Scenario Name:	Probabilistic
Type:	Probabilistic

Building Damage

General Building Stock Damage

Hazus estimates that about 52 buildings will be at least moderately damaged. This is over 0% of the total number of buildings in the region. There are an estimated 0 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 6 of the Hazus Hurricane technical manual. Table 2 below summarizes the expected damage by general occupancy for the buildings in the region. Table 3 summarizes the expected damage by general building type.

Table 2: Expected Building Damage by Occupancy : 50 - year Event

Occupancy	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	676	99.27	5	0.69	0	0.04	0	0.01	0	0.00
Commercial	9,505	99.20	73	0.77	3	0.03	0	0.00	0	0.00
Education	328	99.25	2	0.74	0	0.00	0	0.00	0	0.00
Government	179	99.17	1	0.82	0	0.00	0	0.00	0	0.00
Industrial	2,894	99.19	23	0.80	0	0.01	0	0.00	0	0.00
Religion	683	99.37	4	0.62	0	0.02	0	0.00	0	0.00
Residential	104,217	99.34	642	0.61	46	0.04	2	0.00	0	0.00
Total	118,481		751		50		2		0	

Table 3: Expected Building Damage by Building Type : 50 - year Event

Building Type	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	1,961	99.00	20	1.00	0	0.00	0	0.00	0	0.00
Masonry	12,361	98.41	178	1.41	22	0.17	1	0.01	0	0.00
M/H	198	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Steel	6,849	99.16	56	0.81	2	0.03	0	0.00	0	0.00
Wood	97,190	99.55	424	0.43	14	0.01	1	0.00	0	0.00

Essential Facility Damage

Before the hurricane, the region had 812 hospital beds available for use. On the day of the hurricane, the model estimates that 812 hospital beds (only 100.00%) are available for use. After one week, 100.00% of the beds will be in service. By 30 days, 100.00% will be operational.

Table 4: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		Probability of at Least Moderate Damage > 50%	Probability of Complete Damage > 50%	Expected Loss of Use < 1 day
EOCs	8	0	0	8
Fire Stations	38	0	0	38
Hospitals	4	3	0	4
Police Stations	12	0	0	12
Schools	152	0	0	152

Induced Hurricane Damage

Debris Generation

Hazus estimates the amount of debris that will be generated by the hurricane. The model breaks the debris into four general categories: a) Brick/Wood, b) Reinforced Concrete/Steel, c) Eligible Tree Debris, and d) Other Tree Debris. 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 10,691 tons of debris will be generated. Of the total amount, 1,529 tons (14%) is Other Tree Debris. Of the remaining 9,162 tons, Brick/Wood comprises 50% of the total, Reinforced Concrete/Steel comprises of 0% of the total, with the remainder being Eligible Tree Debris. If the building debris tonnage is converted to an estimated number of truckloads, it will require 184 truckloads (@25 tons/truck) to remove the building debris generated by the hurricane. The number of Eligible Tree Debris truckloads will depend on how the 4,570 tons of Eligible Tree Debris are collected and processed. The volume of tree debris generally ranges from about 4 cubic yards per ton for chipped or compacted tree debris to about 10 cubic yards per ton for bulkier, uncompacted debris.

Social Impact

Shelter Requirement

Hazus estimates the number of households that are expected to be displaced from their homes due to the hurricane and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 2 households to be displaced due to the hurricane. Of these, 0 people (out of a total population of 353,556) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the hurricane is 55.5 million dollars, which represents 0.14 % of the total replacement value of the region's buildings.

Building-Related Losses

The building related losses are broken into two categories: direct property damage losses and business interruption losses. The direct property damage 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 hurricane. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the hurricane.

The total property damage losses were 56 million dollars. 0% of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 95% of the total loss. Table 4 below provides a summary of the losses associated with the building damage.

Table 5: Building-Related Economic Loss Estimates
(Thousands of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Property Damage						
	Building	41,894.59	2,239.09	288.27	253.79	44,675.74
	Content	9,484.15	24.94	2.81	0.87	9,512.76
	Inventory	0.00	0.34	0.59	0.11	1.04
	Subtotal	51,378.74	2,264.37	291.67	254.76	54,189.54
Business Interruption Loss						
	Income	0.00	0.00	0.00	0.00	0.00
	Relocation	576.29	24.23	0.63	1.21	602.36
	Rental	742.47	0.00	0.00	0.00	742.47
	Wage	0.00	0.00	0.00	0.00	0.00
	Subtotal	1,318.76	24.23	0.63	1.21	1,344.83
Total						
	Total	52,697.50	2,288.60	292.30	255.98	55,534.37

Appendix A: County Listing for the Region

Connecticut
- Fairfield

Appendix B: Regional Population and Building Value Data

		Building Value (thousands of dollars)		
		Population	Residential	Non-Residential
Connecticut				Total
Fairfield		353,556	27,414,335	12,610,292
Total		353,556	27,414,335	12,610,292
Study Region Total		353,556	27,414,335	12,610,292
				40,024,627

Hazus-MH: Hurricane Event Report

Region Name: HMP2016_SWR_Hu

Hurricane Scenario: Probabilistic 500-year Return Period

Print Date: Wednesday, November 05, 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 and economic losses following a specific Hurricane. These results can be improved by using enhanced inventory data.

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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 and the National Institute of Building Sciences. 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 hurricane loss estimates provided in this report are based on a region that includes 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 213.78 square miles and contains 84 census tracts. There are over 133 thousand households in the region and has a total population of 353,556 people (2000 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 119 thousand buildings in the region with a total building replacement value (excluding contents) of 40,025 million dollars (2006 dollars). Approximately 88% of the buildings (and 68% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

Hazus estimates that there are 119,285 buildings in the region which have an aggregate total replacement value of 40,025 million (2006 dollars). Table 1 presents the relative distribution of the value with respect to the general occupancies. Appendix B provides a general distribution of the building value by State and County.

Table 1: Building Exposure by Occupancy Type

Occupancy	Exposure (\$1000)	Percent of Tot
Residential	27,414,335	68.5%
Commercial	9,458,590	23.6%
Industrial	1,772,337	4.4%
Agricultural	143,166	0.4%
Religious	601,863	1.5%
Government	194,592	0.5%
Education	439,744	1.1%
Total	40,024,627	100.0%

Essential Facility Inventory

For essential facilities, there are 4 hospitals in the region with a total bed capacity of 812 beds. There are 152 schools, 38 fire stations, 12 police stations and 8 emergency operation facilities.

Hurricane Scenario

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

Scenario Name:	Probabilistic
Type:	Probabilistic

Building Damage

General Building Stock Damage

Hazus estimates that about 10,921 buildings will be at least moderately damaged. This is over 9% of the total number of buildings in the region. There are an estimated 477 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 6 of the Hazus Hurricane technical manual. Table 2 below summarizes the expected damage by general occupancy for the buildings in the region. Table 3 summarizes the expected damage by general building type.

Table 2: Expected Building Damage by Occupancy : 500 - year Event

Occupancy	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	426	62.55	158	23.21	61	9.01	31	4.51	5	0.72
Commercial	6,402	66.81	1,991	20.78	986	10.29	201	2.10	2	0.02
Education	228	69.20	66	20.06	30	9.22	5	1.52	0	0.00
Government	119	66.08	37	20.75	20	11.20	4	1.98	0	0.00
Industrial	1,966	67.36	565	19.35	303	10.39	80	2.73	5	0.17
Religion	466	67.87	155	22.61	57	8.29	8	1.23	0	0.00
Residential	67,548	64.39	28,236	26.92	7,925	7.55	732	0.70	465	0.44
Total	77,155		31,208		9,384		1,061		477	

Table 3: Expected Building Damage by Building Type : 500 - year Event

Building Type	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	1,275	64.35	412	20.78	261	13.17	34	1.70	0	0.00
Masonry	7,650	60.90	2,662	21.19	2,012	16.02	215	1.71	22	0.17
M/H	185	93.43	7	3.57	4	2.26	0	0.13	1	0.61
Steel	4,658	67.43	1,265	18.32	779	11.28	203	2.94	2	0.03
Wood	64,046	65.60	26,929	27.58	5,602	5.74	622	0.64	430	0.44

Essential Facility Damage

Before the hurricane, the region had 812 hospital beds available for use. On the day of the hurricane, the model estimates that 0 hospital beds (only 0.00%) are available for use. After one week, 8.00% of the beds will be in service. By 30 days, 100.00% will be operational.

Table 4: Expected Damage to Essential Facilities

Classification	# Facilities		
	Total	Probability of at Least Moderate Damage > 50%	Probability of Complete Damage > 50%
EOCs	8	0	0
Fire Stations	38	0	0
Hospitals	4	4	0
Police Stations	12	0	0
Schools	152	38	0

Induced Hurricane Damage

Debris Generation

Hazus estimates the amount of debris that will be generated by the hurricane. The model breaks the debris into four general categories: a) Brick/Wood, b) Reinforced Concrete/Steel, c) Eligible Tree Debris, and d) Other Tree Debris. 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 393,843 tons of debris will be generated. Of the total amount, 103,307 tons (26%) is Other Tree Debris. Of the remaining 290,536 tons, Brick/Wood comprises 57% of the total, Reinforced Concrete/Steel comprises of 0% of the total, with the remainder being Eligible Tree Debris. If the building debris tonnage is converted to an estimated number of truckloads, it will require 6645 truckloads (@25 tons/truck) to remove the building debris generated by the hurricane. The number of Eligible Tree Debris truckloads will depend on how the 124,406 tons of Eligible Tree Debris are collected and processed. The volume of tree debris generally ranges from about 4 cubic yards per ton for chipped or compacted tree debris to about 10 cubic yards per ton for bulkier, uncompacted debris.

Social Impact

Shelter Requirement

Hazus estimates the number of households that are expected to be displaced from their homes due to the hurricane and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 2,599 households to be displaced due to the hurricane. Of these, 618 people (out of a total population of 353,556) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the hurricane is 1803.9 million dollars, which represents 4.51 % of the total replacement value of the region's buildings.

Building-Related Losses

The building related losses are broken into two categories: direct property damage losses and business interruption losses. The direct property damage 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 hurricane. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the hurricane.

The total property damage losses were 1,804 million dollars. 2% of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 78% of the total loss. Table 4 below provides a summary of the losses associated with the building damage.

Table 5: Building-Related Economic Loss Estimates
(Thousands of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Property Damage	Building	991,588.37	159,788.85	34,129.55	20,746.66	1,206,253.43
	Content	303,829.34	62,269.89	23,580.37	7,657.41	397,337.00
	Inventory	0.00	1,162.71	3,397.28	244.38	4,804.37
	Subtotal	1,295,417.71	223,221.44	61,107.20	28,648.45	1,608,394.80
Business Interruption Loss						
	Income	18.63	11,460.12	369.33	1,303.00	13,151.08
	Relocation	70,548.61	30,303.55	2,968.53	4,089.02	107,909.71
	Rental	39,771.62	16,566.53	436.22	412.90	57,187.27
	Wage	43.91	10,233.89	597.78	6,386.18	17,261.77
	Subtotal	110,382.78	68,564.09	4,371.85	12,191.11	195,509.83
Total						
	Total	1,405,800.48	291,785.54	65,479.05	40,839.55	1,803,904.62

Appendix A: County Listing for the Region

Connecticut
- Fairfield

Appendix B: Regional Population and Building Value Data

		Building Value (thousands of dollars)		
	Population	Residential	Non-Residential	Total
Connecticut				
Fairfield	353,556	27,414,335	12,610,292	40,024,627
Total	353,556	27,414,335	12,610,292	40,024,627
Study Region Total	353,556	27,414,335	12,610,292	40,024,627

Hazus-MH: Earthquake Event Report

Region

HMP2016_SWR_EQ

Earthquake Scenario:

SWR_M5_0km_Center

Print Date:

October 07, 2014

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

Disclaimer:

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 and economic losses following a specific earthquake. These results can be improved by using enhanced inventory, geotechnical, and observed ground motion data.

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The earthquake loss estimates provided in this report was based on a region that includes 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 213.72 square miles and contains 84 census tracts. There are over 133 thousand households in the region which has a total population of 353,556 people (2002 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 119 thousand buildings in the region with a total building replacement value (excluding contents) of 40,024 (millions of dollars). Approximately 88.00 % of the buildings (and 68.00% of the building value) are associated with residential housing.

The replacement value of the transportation and utility lifeline systems is estimated to be 6,937 and 916 (millions of dollars) , respectively.

Building and Lifeline Inventory

Building Inventory

Hazus estimates that there are 119 thousand buildings in the region which have an aggregate total replacement value of 40,024 (millions of dollars). Appendix B provides a general distribution of the building value by State and County.

In terms of building construction types found in the region, wood frame construction makes up 82% of the building inventory. The remaining percentage is distributed between the other general building types.

Critical Facility Inventory

Hazus breaks critical facilities into two (2) groups: essential facilities and high potential loss facilities (HPL). Essential facilities include hospitals, medical clinics, schools, fire stations, police stations and emergency operations facilities. High potential loss facilities include dams, levees, military installations, nuclear power plants and hazardous material sites.

For essential facilities, there are 4 hospitals in the region with a total bed capacity of 812 beds. There are 152 schools, 53 fire stations, 12 police stations and 8 emergency operation facilities. With respect to high potential loss facilities (HPL), there are 39 dams identified within the region. Of these, 18 of the dams are classified as 'high hazard'. The inventory also includes 36 hazardous material sites, 0 military installations and 0 nuclear power plants.

Transportation and Utility Lifeline Inventory

Within Hazus, the lifeline inventory is divided between transportation and utility lifeline systems. There are seven (7) transportation systems that include highways, railways, light rail, bus, ports, ferry and airports. There are six (6) utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power and communications. The lifeline inventory data are provided in Tables 1 and 2.

The total value of the lifeline inventory is over 7,853.00 (millions of dollars). This inventory includes over 322 kilometers of highways, 296 bridges, 5,916 kilometers of pipes.

Table 1: Transportation System Lifeline Inventory

System	Component	# Locations/ # Segments	Replacement Value (millions of dollars)
Highway	Bridges	296	4,525.20
	Segments	162	2,304.20
	Tunnels	0	0.00
	Subtotal		6,829.30
Railways	Bridges	6	0.40
	Facilities	2	5.30
	Segments	20	89.20
	Tunnels	0	0.00
	Subtotal		95.00
Light Rail	Bridges	0	0.00
	Facilities	0	0.00
	Segments	0	0.00
	Tunnels	0	0.00
	Subtotal		0.00
Bus	Facilities	7	8.80
	Subtotal		8.80
Ferry	Facilities	3	4.00
	Subtotal		4.00
Port	Facilities	0	0.00
	Subtotal		0.00
Airport	Facilities	0	0.00
	Runways	0	0.00
	Subtotal		0.00
	Total		6,937.10

Table 2: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	59.20
	Facilities	0	0.00
	Pipelines	0	0.00
	Subtotal		59.20
Waste Water	Distribution Lines	NA	35.50
	Facilities	7	536.10
	Pipelines	0	0.00
	Subtotal		571.60
Natural Gas	Distribution Lines	NA	23.70
	Facilities	0	0.00
	Pipelines	0	0.00
	Subtotal		23.70
Oil Systems	Facilities	0	0.00
	Pipelines	0	0.00
	Subtotal		0.00
Electrical Power	Facilities	3	379.50
	Subtotal		379.50
Communication	Facilities	9	1.00
	Subtotal		1.00
	Total		1,035.00

Earthquake Scenario

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

Scenario Name	SVR_M5_0km_Center
Type of Earthquake	Arbitrary
Fault Name	NA
Historical Epicenter ID #	NA
Probabilistic Return Period	NA
Longitude of Epicenter	-73.50
Latitude of Epicenter	41.13
Earthquake Magnitude	5.05
Depth (km) *	10.00
Rupture Length (km)	NA
Rupture Orientation (degrees)	NA
Attenuation Function	Central & East US (CEUS 2008)

Note: For shallow crustal earthquakes in the western U.S. (strike-slip, normal, reverse), Hazus uses the latest Next Generation Attenuation (NGA) functions for Historic Epicenter, Fault and Arbitrary scenarios based on specific fault source geometry and earthquake scenario depth is not used.

Building Damage

Building Damage

Hazus estimates that about 13,871 buildings will be at least moderately damaged. This is over 12.00 % of the buildings in the region. There are an estimated 294 buildings that will be damaged beyond repair. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the Hazus technical manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 below summarizes the expected damage by general building type.

Table 3: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	386	0.49	154	0.59	107	0.93	30	1.41	5	1.68
Commercial	5,453	6.88	1,955	7.46	1,620	14.14	473	22.28	81	27.63
Education	190	0.24	66	0.25	57	0.49	15	0.71	3	0.93
Government	100	0.13	36	0.14	33	0.29	9	0.43	2	0.54
Industrial	1,612	2.03	575	2.19	543	4.74	161	7.59	28	9.41
Other Residential	10,464	13.21	3,601	13.74	1,981	17.30	468	22.05	74	25.04
Religion	419	0.53	141	0.54	96	0.83	27	1.26	5	1.57
Single Family	60,584	76.49	19,678	75.09	7,019	61.28	940	44.28	98	33.20
Total	79,207		26,206		11,454		2,123		294	

Table 4: Expected Building Damage by Building Type (All Design Levels)

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	67,365	85.05	21925	83.66	7,456	65.09	836	39.35	56	19.01
Steel	3,726	4.70	1298	4.95	1,385	12.09	414	19.51	73	24.66
Concrete	872	1.10	282	1.08	305	2.66	68	3.21	11	3.77
Precast	236	0.30	69	0.26	91	0.79	42	1.98	3	0.99
RM	1,718	2.17	346	1.32	400	3.50	143	6.76	5	1.86
URM	5,192	6.56	2240	8.55	1,773	15.48	608	28.65	145	49.35
MH	99	0.12	46	0.18	44	0.38	11	0.54	1	0.36
Total	79,207		26,206		11,454		2,123		294	

*Note:

RM Reinforced Masonry
URM Unreinforced Masonry
MH Manufactured Housing

Essential Facility Damage

Before the earthquake, the region had 812 hospital beds available for use. On the day of the earthquake, the model estimates that only 271 hospital beds (33.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 56.00% of the beds will be back in service. By 30 days, 81.00% will be operational.

Table 5: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate Damage > 50%	Complete Damage > 50%	With Functionality > 50% on day 1
Hospitals	4	1	0	1
Schools	152	38	0	11
EOCs	8	1	0	1
PoliceStations	12	1	0	2
FireStations	53	2	0	11

Transportation and Utility Lifeline Damage

Table 6 provides damage estimates for the transportation system.

Table 6: Expected Damage to the Transportation Systems

System	Component	Locations/ Segments	With at Least Mod. Damage	Number of Locations_		
				With Complete Damage	With Functionality After Day 1	After Day 7 > 50 %
Highway	Segments	162	0	0	162	162
	Bridges	296	6	0	291	296
	Tunnels	0	0	0	0	0
Railways	Segments	20	0	0	20	20
	Bridges	6	0	0	6	6
	Tunnels	0	0	0	0	0
	Facilities	2	0	0	2	2
Light Rail	Segments	0	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Bus	Facilities	7	1	0	7	7
Ferry	Facilities	3	0	0	3	3
Port	Facilities	0	0	0	0	0
Airport	Facilities	0	0	0	0	0
	Runways	0	0	0	0	0

Note: Roadway segments, railroad tracks and light rail tracks are assumed to be damaged by ground failure only. If ground failure maps are not provided, damage estimates to these components will not be computed.

Tables 7-9 provide information on the damage to the utility lifeline systems. Table 7 provides damage to the utility system facilities. Table 8 provides estimates on the number of leaks and breaks by the pipelines of the utility systems. For electric power and potable water, Hazus performs a simplified system performance analysis. Table 9 provides a summary of the system performance information.

Table 7 : Expected Utility System Facility Damage

System	Total #	With at Least Moderate Damage	# of Locations			
			With Complete Damage	with Functionality > 50 %		
				After Day 1	After Day 7	
Potable Water	0	0	0	0	0	0
Waste Water	7	5	0	1	7	7
Natural Gas	0	0	0	0	0	0
Oil Systems	0	0	0	0	0	0
Electrical Power	3	2	0	0	3	3
Communication	9	7	0	9	9	9

Table 8 : Expected Utility System Pipeline Damage (Site Specific)

System	Total Pipelines Length (kms)	Number of Leaks	Number of Breaks
Potable Water	2,958	173	43
Waste Water	1,775	87	22
Natural Gas	1,183	30	7
Oil	0	0	0

Table 9: Expected Potable Water and Electric Power System Performance

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	133,575	84	0	0	0	0
Electric Power	133,575	80,072	47,250	16,484	2,491	103

Induced Earthquake Damage

Fire Following Earthquake

Fires often occur after an earthquake. Because of the number of fires and the lack of water to fight the fires, they can often burn out of control. Hazus uses a Monte Carlo simulation model to estimate the number of ignitions and the amount of burnt area. For this scenario, the model estimates that there will be 4 ignitions that will burn about 0.07 sq. mi 0.03 % of the region's total area.) The model also estimates that the fires will displace about 323 people and burn about 35 (millions of dollars) of building value.

Debris Generation

Hazus estimates the amount of debris that will be generated by the earthquake. The model breaks the debris into two general categories: a) Brick/Wood and b) Reinforced Concrete/Steel. 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 0.50 million tons of debris will be generated. Of the total amount, Brick/Wood comprises 51.00% of the total, with the remainder being Reinforced Concrete/Steel. If the debris tonnage is converted to an estimated number of truckloads, it will require 19,880 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Social Impact

Shelter Requirement

Hazus estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 1,633 households to be displaced due to the earthquake. Of these, 1,007 people (out of a total population of 353,556) will seek temporary shelter in public shelters.

Casualties

Hazus estimates the number of people that will be injured and killed by the earthquake. The casualties are broken down into four (4) severity levels that describe the extent of the injuries. The levels are described as follows:

- Severity Level 1: Injuries will require medical attention but hospitalization is not needed.
- Severity Level 2: Injuries will require hospitalization but are not considered life-threatening
- Severity Level 3: Injuries will require hospitalization and can become life threatening if not promptly treated.
- Severity Level 4: Victims are killed by the earthquake.

The casualty estimates are provided for three (3) times of day: 2:00 AM, 2:00 PM and 5:00 PM. These times represent the periods of the day that different sectors of the community are at their peak occupancy loads. The 2:00 AM estimate considers that the residential occupancy load is maximum, the 2:00 PM estimate considers that the educational, commercial and industrial sector loads are maximum and 5:00 PM represents peak commute time.

Table 10 provides a summary of the casualties estimated for this earthquake

Table 10: Casualty Estimates

	Level 1	Level 2	Level 3	Level 4
2 AM				
Commercial	7	1	0	0
Communting	0	0	0	0
Educational	0	0	0	0
Hotels	2	0	0	0
Industrial	8	2	0	0
Other-Residential	156	29	3	7
Single Family	136	18	1	2
Total	308	50	5	10
2 PM				
Commercial	369	72	8	16
Communting	0	1	1	0
Educational	59	12	1	3
Hotels	0	0	0	0
Industrial	57	11	1	2
Other-Residential	28	5	1	1
Single Family	25	3	0	0
Total	539	104	13	23
5 PM				
Commercial	251	49	6	11
Communting	14	19	31	6
Educational	6	1	0	0
Hotels	1	0	0	0
Industrial	36	7	1	2
Other-Residential	62	12	1	3
Single Family	53	7	1	1
Total	422	95	40	23

Economic Loss

The total economic loss estimated for the earthquake is 3,153.09 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

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 earthquake. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the earthquake.

The total building-related losses were 2,777.92 (millions of dollars); 15 % of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 52 % of the total loss. Table 11 below provides a summary of the losses associated with the building damage.

Table 11: Building-Related Economic Loss Estimates
(Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Losses							
	Wage	0.00	9.60	82.34	2.64	3.81	98.39
	Capital-Related	0.00	4.01	74.59	1.60	0.81	81.00
	Rental	10.81	26.48	49.91	1.19	1.56	89.95
	Relocation	40.64	17.26	75.84	6.58	12.47	152.78
	Subtotal	51.44	57.35	282.69	12.00	18.65	422.13
Capital Stock Losses							
	Structural	90.97	35.79	96.61	16.99	14.37	254.74
	Non_Structural	566.53	269.10	380.90	82.74	53.91	1,353.18
	Content	283.16	95.48	251.79	63.28	38.06	731.77
	Inventory	0.00	0.00	4.49	10.99	0.62	16.10
	Subtotal	940.66	400.37	733.79	174.01	106.95	2,355.78
	Total	992.10	457.72	1,016.48	186.01	125.60	2,777.92

Transportation and Utility Lifeline Losses

For the transportation and utility lifeline systems, Hazus computes the direct repair cost for each component only. There are no losses computed by Hazus for business interruption due to lifeline outages. Tables 12 & 13 provide a detailed breakdown in the expected lifeline losses.

Hazus estimates the long-term economic impacts to the region for 15 years after the earthquake. The model quantifies this information in terms of income and employment changes within the region. Table 14 presents the results of the region for the given earthquake.

Table 12: Transportation System Economic Losses
(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segments	2,304.18	\$0.00	0.00
	Bridges	4,525.16	\$184.83	4.08
	Tunnels	0.00	\$0.00	0.00
	Subtotal	6829.30	184.80	
Railways	Segments	89.18	\$0.00	0.00
	Bridges	0.44	\$0.00	0.82
	Tunnels	0.00	\$0.00	0.00
	Facilities	5.33	\$1.33	24.97
	Subtotal	95.00	1.30	
Light Rail	Segments	0.00	\$0.00	0.00
	Bridges	0.00	\$0.00	0.00
	Tunnels	0.00	\$0.00	0.00
	Facilities	0.00	\$0.00	0.00
	Subtotal	0.00	0.00	
Bus	Facilities	8.77	\$2.62	29.90
	Subtotal	8.80	2.60	
Ferry	Facilities	3.99	\$0.56	13.96
	Subtotal	4.00	0.60	
Port	Facilities	0.00	\$0.00	0.00
	Subtotal	0.00	0.00	
Airport	Facilities	0.00	\$0.00	0.00
	Runways	0.00	\$0.00	0.00
	Subtotal	0.00	0.00	
	Total	6937.10	189.30	

Table 13: Utility System Economic Losses
(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Potable Water	Pipelines	0.00	\$0.00	0.00
	Facilities	0.00	\$0.00	0.00
	Distribution Line	59.20	\$0.78	1.32
	Subtotal	59.16	\$0.78	
Waste Water	Pipelines	0.00	\$0.00	0.00
	Facilities	536.10	\$106.01	19.77
	Distribution Line	35.50	\$0.39	1.10
	Subtotal	571.63	\$106.40	
Natural Gas	Pipelines	0.00	\$0.00	0.00
	Facilities	0.00	\$0.00	0.00
	Distribution Line	23.70	\$0.13	0.57
	Subtotal	23.66	\$0.13	
Oil Systems	Pipelines	0.00	\$0.00	0.00
	Facilities	0.00	\$0.00	0.00
	Subtotal	0.00	\$0.00	
Electrical Power	Facilities	379.50	\$78.29	20.63
	Subtotal	379.50	\$78.29	
Communication	Facilities	1.00	\$0.22	21.21
	Subtotal	1.04	\$0.22	
	Total	1,034.99	\$185.82	

Table 14. Indirect Economic Impact with outside aid
(Employment as # of people and Income in millions of \$)

LOSS		Total	%

Appendix A: County Listing for the Region

Fairfield, CT

Appendix B: Regional Population and Building Value Data

State	County Name	Population	Building Value (millions of dollars)		
			Residential	Non-Residential	Total
Connecticut	Fairfield	353,556	27,414	12,610	40,024
Total State		353,556	27,414	12,610	40,024
Total Region		353,556	27,414	12,610	40,024

Hazus-MH: Earthquake Event Report

Region

HMP2016_SWR_EQ

Earthquake Scenario:

SWR_EQ_M5_25km

Print Date:

October 07, 2014

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

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Building and Lifeline Inventory

Building Inventory

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For essential facilities, there are 4 hospitals in the region with a total bed capacity of 812 beds. There are 152 schools, 53 fire stations, 12 police stations and 8 emergency operation facilities. With respect to high potential loss facilities (HPL), there are 39 dams identified within the region. Of these, 18 of the dams are classified as 'high hazard'. The inventory also includes 36 hazardous material sites, 0 military installations and 0 nuclear power plants.

Transportation and Utility Lifeline Inventory

Within Hazus, the lifeline inventory is divided between transportation and utility lifeline systems. There are seven (7) transportation systems that include highways, railways, light rail, bus, ports, ferry and airports. There are six (6) utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power and communications. The lifeline inventory data are provided in Tables 1 and 2.

The total value of the lifeline inventory is over 7,853.00 (millions of dollars). This inventory includes over 322 kilometers of highways, 296 bridges, 5,916 kilometers of pipes.

Table 1: Transportation System Lifeline Inventory

System	Component	# Locations/ # Segments	Replacement Value (millions of dollars)
Highway	Bridges	296	4,525.20
	Segments	162	2,304.20
	Tunnels	0	0.00
	Subtotal		6,829.30
Railways	Bridges	6	0.40
	Facilities	2	5.30
	Segments	20	89.20
	Tunnels	0	0.00
	Subtotal		95.00
Light Rail	Bridges	0	0.00
	Facilities	0	0.00
	Segments	0	0.00
	Tunnels	0	0.00
	Subtotal		0.00
Bus	Facilities	7	8.80
	Subtotal		8.80
Ferry	Facilities	3	4.00
	Subtotal		4.00
Port	Facilities	0	0.00
	Subtotal		0.00
Airport	Facilities	0	0.00
	Runways	0	0.00
	Subtotal		0.00
	Total		6,937.10

Table 2: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	59.20
	Facilities	0	0.00
	Pipelines	0	0.00
	Subtotal		59.20
Waste Water	Distribution Lines	NA	35.50
	Facilities	7	536.10
	Pipelines	0	0.00
	Subtotal		571.60
Natural Gas	Distribution Lines	NA	23.70
	Facilities	0	0.00
	Pipelines	0	0.00
	Subtotal		23.70
Oil Systems	Facilities	0	0.00
	Pipelines	0	0.00
	Subtotal		0.00
Electrical Power	Facilities	3	379.50
	Subtotal		379.50
Communication	Facilities	9	1.00
	Subtotal		1.00
	Total		1,035.00

Earthquake Scenario

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

Scenario Name	SVR_EQ_M5_25km
Type of Earthquake	Arbitrary
Fault Name	NA
Historical Epicenter ID #	NA
Probabilistic Return Period	NA
Longitude of Epicenter	-73.50
Latitude of Epicenter	41.36
Earthquake Magnitude	5.05
Depth (km) *	10.00
Rupture Length (km)	NA
Rupture Orientation (degrees)	NA
Attenuation Function	Central & East US (CEUS 2008)

Note: For shallow crustal earthquakes in the western U.S. (strike-slip, normal, reverse), Hazus uses the latest Next Generation Attenuation (NGA) functions for Historic Epicenter, Fault and Arbitrary scenarios based on specific fault source geometry and earthquake scenario depth is not used.

Building Damage

Building Damage

Hazus estimates that about 1,018 buildings will be at least moderately damaged. This is over 1.00 % of the buildings in the region. There are an estimated 5 buildings that will be damaged beyond repair. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the Hazus technical manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 below summarizes the expected damage by general building type.

Table 3: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	643	0.56	28	0.64	9	0.93	1	1.24	0	1.08
Commercial	9,015	7.92	400	9.14	146	15.82	20	21.46	1	24.04
Education	311	0.27	14	0.31	5	0.52	1	0.66	0	0.92
Government	171	0.15	7	0.15	2	0.26	0	0.30	0	0.37
Industrial	2,749	2.41	118	2.71	45	4.88	6	6.13	0	6.54
Other Residential	15,864	13.93	551	12.59	154	16.69	18	19.91	1	23.02
Religion	647	0.57	28	0.65	10	1.08	1	1.53	0	2.01
Single Family	84,492	74.19	3,229	73.80	551	59.81	45	48.77	3	42.01
Total	113,891		4,376		920		92		6	

Table 4: Expected Building Damage by Building Type (All Design Levels)

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	93,791	82.35	3334	76.19	484	52.59	28	30.57	0	6.21
Steel	6,544	5.75	248	5.68	93	10.12	10	10.58	0	8.09
Concrete	1,478	1.30	46	1.06	14	1.57	1	0.78	0	0.52
Precast	408	0.36	18	0.41	12	1.29	2	2.61	0	0.31
RM	2,494	2.19	73	1.68	40	4.40	5	5.76	0	0.15
URM	8,997	7.90	641	14.65	270	29.32	45	49.32	5	84.68
MH	179	0.16	15	0.34	7	0.71	0	0.38	0	0.04
Total	113,891		4,376		920		92		6	

*Note:

RM Reinforced Masonry
URM Unreinforced Masonry
MH Manufactured Housing

Essential Facility Damage

Before the earthquake, the region had 812 hospital beds available for use. On the day of the earthquake, the model estimates that only 633 hospital beds (78.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 91.00% of the beds will be back in service. By 30 days, 98.00% will be operational.

Table 5: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate Damage > 50%	Complete Damage > 50%	With Functionality > 50% on day 1
Hospitals	4	0	0	4
Schools	152	0	0	150
EOCs	8	0	0	8
PoliceStations	12	0	0	12
FireStations	53	0	0	53

Transportation and Utility Lifeline Damage

Table 6 provides damage estimates for the transportation system.

Table 6: Expected Damage to the Transportation Systems

System	Component	Locations/ Segments	With at Least Mod. Damage	Number of Locations_		
				With Complete Damage	With Functionality After Day 1	After Day 7 > 50 %
Highway	Segments	162	0	0	162	162
	Bridges	296	0	0	296	296
	Tunnels	0	0	0	0	0
Railways	Segments	20	0	0	20	20
	Bridges	6	0	0	6	6
	Tunnels	0	0	0	0	0
	Facilities	2	0	0	2	2
Light Rail	Segments	0	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Bus	Facilities	7	0	0	7	7
Ferry	Facilities	3	0	0	3	3
Port	Facilities	0	0	0	0	0
Airport	Facilities	0	0	0	0	0
	Runways	0	0	0	0	0

Note: Roadway segments, railroad tracks and light rail tracks are assumed to be damaged by ground failure only. If ground failure maps are not provided, damage estimates to these components will not be computed.

Tables 7-9 provide information on the damage to the utility lifeline systems. Table 7 provides damage to the utility system facilities. Table 8 provides estimates on the number of leaks and breaks by the pipelines of the utility systems. For electric power and potable water, Hazus performs a simplified system performance analysis. Table 9 provides a summary of the system performance information.

Table 7 : Expected Utility System Facility Damage

System	# of Locations				
	Total #	With at Least Moderate Damage	With Complete Damage	with Functionality > 50 %	
				After Day 1	After Day 7
Potable Water	0	0	0	0	0
Waste Water	7	0	0	7	7
Natural Gas	0	0	0	0	0
Oil Systems	0	0	0	0	0
Electrical Power	3	0	0	3	3
Communication	9	0	0	9	9

Table 8 : Expected Utility System Pipeline Damage (Site Specific)

System	Total Pipelines Length (kms)	Number of Leaks	Number of Breaks
Potable Water	2,958	16	4
Waste Water	1,775	8	2
Natural Gas	1,183	3	1
Oil	0	0	0

Table 9: Expected Potable Water and Electric Power System Performance

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	133,575	0	0	0	0	0
Electric Power	133,575	0	0	0	0	0

Induced Earthquake Damage

Fire Following Earthquake

Fires often occur after an earthquake. Because of the number of fires and the lack of water to fight the fires, they can often burn out of control. Hazus uses a Monte Carlo simulation model to estimate the number of ignitions and the amount of burnt area. For this scenario, the model estimates that there will be 2 ignitions that will burn about 0.01 sq. mi 0.00 % of the region's total area.) The model also estimates that the fires will displace about 41 people and burn about 4 (millions of dollars) of building value.

Debris Generation

Hazus estimates the amount of debris that will be generated by the earthquake. The model breaks the debris into two general categories: a) Brick/Wood and b) Reinforced Concrete/Steel. 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 0.03 million tons of debris will be generated. Of the total amount, Brick/Wood comprises 71.00% of the total, with the remainder being Reinforced Concrete/Steel. If the debris tonnage is converted to an estimated number of truckloads, it will require 1,360 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Social Impact

Shelter Requirement

Hazus estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 49 households to be displaced due to the earthquake. Of these, 29 people (out of a total population of 353,556) will seek temporary shelter in public shelters.

Casualties

Hazus estimates the number of people that will be injured and killed by the earthquake. The casualties are broken down into four (4) severity levels that describe the extent of the injuries. The levels are described as follows:

- Severity Level 1: Injuries will require medical attention but hospitalization is not needed.
- Severity Level 2: Injuries will require hospitalization but are not considered life-threatening
- Severity Level 3: Injuries will require hospitalization and can become life threatening if not promptly treated.
- Severity Level 4: Victims are killed by the earthquake.

The casualty estimates are provided for three (3) times of day: 2:00 AM, 2:00 PM and 5:00 PM. These times represent the periods of the day that different sectors of the community are at their peak occupancy loads. The 2:00 AM estimate considers that the residential occupancy load is maximum, the 2:00 PM estimate considers that the educational, commercial and industrial sector loads are maximum and 5:00 PM represents peak commute time.

Table 10 provides a summary of the casualties estimated for this earthquake

Table 10: Casualty Estimates

	Level 1	Level 2	Level 3	Level 4
2 AM				
Commercial	0	0	0	0
Communting	0	0	0	0
Educational	0	0	0	0
Hotels	0	0	0	0
Industrial	0	0	0	0
Other-Residential	7	1	0	0
Single Family	11	1	0	0
Total	19	2	0	0
2 PM				
Commercial	18	2	0	0
Communting	0	0	0	0
Educational	3	0	0	0
Hotels	0	0	0	0
Industrial	2	0	0	0
Other-Residential	1	0	0	0
Single Family	2	0	0	0
Total	27	3	0	0
5 PM				
Commercial	13	2	0	0
Communting	0	0	0	0
Educational	0	0	0	0
Hotels	0	0	0	0
Industrial	1	0	0	0
Other-Residential	3	0	0	0
Single Family	4	0	0	0
Total	21	3	1	0

Economic Loss

The total economic loss estimated for the earthquake is 165.35 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

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 earthquake. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the earthquake.

The total building-related losses were 152.67 (millions of dollars); 17 % of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 53 % of the total loss. Table 11 below provides a summary of the losses associated with the building damage.

Table 11: Building-Related Economic Loss Estimates
(Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Losses							
	Wage	0.00	0.44	4.98	0.15	0.29	5.86
	Capital-Related	0.00	0.18	4.55	0.09	0.06	4.89
	Rental	0.83	1.39	3.53	0.07	0.09	5.92
	Relocation	2.91	0.89	4.52	0.39	0.78	9.49
	Subtotal	3.74	2.91	17.59	0.70	1.22	26.16
Capital Stock Losses							
	Structural	8.63	2.06	5.84	0.97	0.96	18.46
	Non_Structural	39.22	9.35	20.23	4.46	3.02	76.27
	Content	13.03	2.16	11.06	3.04	1.70	30.98
	Inventory	0.00	0.00	0.19	0.57	0.03	0.80
	Subtotal	60.87	13.57	37.32	9.05	5.70	126.51
	Total	64.61	16.47	54.91	9.75	6.93	152.67

Transportation and Utility Lifeline Losses

For the transportation and utility lifeline systems, Hazus computes the direct repair cost for each component only. There are no losses computed by Hazus for business interruption due to lifeline outages. Tables 12 & 13 provide a detailed breakdown in the expected lifeline losses.

Hazus estimates the long-term economic impacts to the region for 15 years after the earthquake. The model quantifies this information in terms of income and employment changes within the region. Table 14 presents the results of the region for the given earthquake.

Table 12: Transportation System Economic Losses
(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segments	2,304.18	\$0.00	0.00
	Bridges	4,525.16	\$2.65	0.06
	Tunnels	0.00	\$0.00	0.00
	Subtotal	6829.30	2.60	
Railways	Segments	89.18	\$0.00	0.00
	Bridges	0.44	\$0.00	0.00
	Tunnels	0.00	\$0.00	0.00
	Facilities	5.33	\$0.16	3.03
	Subtotal	95.00	0.20	
Light Rail	Segments	0.00	\$0.00	0.00
	Bridges	0.00	\$0.00	0.00
	Tunnels	0.00	\$0.00	0.00
	Facilities	0.00	\$0.00	0.00
	Subtotal	0.00	0.00	
Bus	Facilities	8.77	\$0.44	5.05
	Subtotal	8.80	0.40	
Ferry	Facilities	3.99	\$0.09	2.28
	Subtotal	4.00	0.10	
Port	Facilities	0.00	\$0.00	0.00
	Subtotal	0.00	0.00	
Airport	Facilities	0.00	\$0.00	0.00
	Runways	0.00	\$0.00	0.00
	Subtotal	0.00	0.00	
	Total	6937.10	3.30	

Table 13: Utility System Economic Losses
(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Potable Water	Pipelines	0.00	\$0.00	0.00
	Facilities	0.00	\$0.00	0.00
	Distribution Line	59.20	\$0.07	0.12
	Subtotal	59.16	\$0.07	
Waste Water	Pipelines	0.00	\$0.00	0.00
	Facilities	536.10	\$6.00	1.12
	Distribution Line	35.50	\$0.04	0.10
	Subtotal	571.63	\$6.03	
Natural Gas	Pipelines	0.00	\$0.00	0.00
	Facilities	0.00	\$0.00	0.00
	Distribution Line	23.70	\$0.01	0.05
	Subtotal	23.66	\$0.01	
Oil Systems	Pipelines	0.00	\$0.00	0.00
	Facilities	0.00	\$0.00	0.00
	Subtotal	0.00	\$0.00	
Electrical Power	Facilities	379.50	\$3.20	0.84
	Subtotal	379.50	\$3.20	
Communication	Facilities	1.00	\$0.02	1.78
	Subtotal	1.04	\$0.02	
	Total	1,034.99	\$9.34	

Table 14. Indirect Economic Impact with outside aid
(Employment as # of people and Income in millions of \$)

LOSS		Total	%

Appendix A: County Listing for the Region

Fairfield, CT

Appendix B: Regional Population and Building Value Data

State	County Name	Population	Building Value (millions of dollars)		
			Residential	Non-Residential	Total
Connecticut	Fairfield	353,556	27,414	12,610	40,024
Total State		353,556	27,414	12,610	40,024
Total Region		353,556	27,414	12,610	40,024

Appendix B-4

Repetitive Loss Properties

Town	Number of Properties	Property Type*	Flooding Source	FEMA Zone
Wilton	1	R	Belden Hill Brook	X
	1	R	Belden Hill Brook	C
	1	R	Copts Brook	X
	3	R	East Branch Silvermine River	A
	2	NR	Norwalk River	A
	1	NR	Norwalk River	B
	1	NR	Norwalk River	C
	1	R	Norwalk River	A
	3	R	Norwalk River	C
	1	R	West Branch Saugatuck River	A
	1	R	Tributary to Parting Brook	A
	27	R	Long Island Sound	AE
	1	Condo	Long Island Sound	VE
	1	R	Long Island Sound	VE
	1	R	Long Island Sound	X
	2	NR	Goodwives River	B
	1	R	Goodwives River	X
	1	NR	Noroton River	AE
	1	NR	Noroton River	C
	4	R	Noroton River	X
Darien	1	R	Noroton River	A
	1	Condo	Noroton River	V
	1	R	Tributary to Noroton River	X
	4	R	Stony Brook	AE
	1	R	Stony Brook	C
	1	R	Stony Brook	EMG
	2	R	Stony Brook	X
	5	NR	Tributary to Stony Brook	X
	1	Condo	Tributary to Stony Brook	X
	1	R	Tributary to Stony Brook	X
	1	NR	Tributary to Stony Brook	C
	1	R	5 Mile River	AE
	1	R	Byram River	A
	1	NR	Byram River	A
	6	R	Byram River	AE
	1	R	Byram River	X
	2	R	East Branch Byram River	B
	1	R	East Branch Byram River	X
	1	R	Greenwich Creek	A
	1	R	Tributary to Greenwich Creek	C
Greenwich	2	R	Tributary to Greenwich Creek	X
	2	R	Tributary to Greenwich Creek	X
	1	R	Horseneck Brook	X
	1	R	Horseneck Brook	A
	1	R	Rockwood Lake Brook	C
	77	R	Long Island Sound	AE

Town	Number of Properties	Property Type*	Flooding Source	FEMA Zone
	2	NR	Long Island Sound	AE
	11	R	Long Island Sound	VE
	7	R	Long Island Sound	X
	1	R	Tributary to Long Island Sound	C
Greenwich (Cos Cob Section)	3	NR	Long Island Sound	AE
	6	R	Long Island Sound	AE
	2	R	Long Island Sound	AE
	1	NR	Brothers Brook	A
	1	NR	Brothers Brook	AE
	2	R	Brothers Brook	AE
New Canaan	1	NR	Brothers Brook	X
	1	R	Fivemile River	C
	1	R	Fivemile River	A
	2	R	Tributary to Fivemile River	X
	1	R	Tributary to Noroton River	X
	1	R	Unnamed Wetland	A
Norwalk	1	NR	Betts Pong Brook	X
	2	R	Fivemile River	A
	1	R	Holy Ghost Fathers Brook	C
	1	R	Keelers Brook	X
	1	R	Tributary to Keelers Brook	X
	1	NR	Norwalk River	A
	1	NR	Norwalk River	C
	3	N	Silvermine River	A
	1	R	Tributary to Stony Brook	X
	1	R	Tributary to Long Island Sound	A
	211	R	Long Island Sound	AE
	7	NR	Long Island Sound	AE
Stamford	2	Condo	Long Island Sound	AE
	6	R	Long Island Sound	VE
	2	NR	Long Island Sound	VE
	1	Condo	Long Island Sound	VE
	5	R	Long Island Sound	X
	64	R	Long Island Sound	AE
	2	Condo	Long Island Sound	AE
	1	NR	Long Island Sound	AE
	3	R	Long Island Sound	VE
	7	R	Long Island Sound	X
	1	NR	Long Island Sound	X
	1	R	Ayers Brook	A
	1	R	Mianus River	AE
	2	R	Noroton River	A
	5	R	Noroton River	AE
	1	NR	Noroton River	C
	2	R	Noroton River	X

Town	Number of Properties	Property Type*	Flooding Source	FEMA Zone
	1	Condo	Noroton River	X
	1	R	Rippowam River	A
	1	NR	Rippowam River	A
	10	R	Rippowam River	AE
	1	NR	Rippowam River	AE
	1	R	Rippowam River	B
	1	R	Rippowam River	C
	1	R	Rippowam River	EMG
	1	R	Tributary to Rippowam River	A
	1	R	Tributary to Rippowam River	AE
	1	R	Tributary to Rippowam River	C
	1	R	Tributary to Rippowam River	X
	1	R	Springdale Brook	X
	3	R	Saugatuck River	AE
	1	R	Saugatuck River	X
Weston	1	R	Tributary to Saugatuck River	X
	1	R	West Branch Saugatuck River	A
	4	R	West Branch Saugatuck River	AE
	1	R	West Branch Saugatuck River	B
	2	R	West Branch Saugatuck River	X
	1	R	Trib to N Branch W Branch Saugatuck R	X
	1	R	Jennings Brook	X
	2	R	Aspetuck River	AE
	3	NR	Deadman Brook	AE
	3	R	Deadman Brook	AE
Westport	1	R	Deadman Brook	C
	1	R	Tributary to Deadman Brook	B
	1	R	Tributary to Deadman Brook	X
	1	R	Green Farms Brook	C
	1	R	Indian River	X
	2	R	Sasco Brook	A
	2	R	Sasco Brook	AE
	1	NR	Sasco Brook	AE
	1	R	Sasco Brook	C
	6	NR	Saugatuck River	A
	12	R	Saugatuck River	A
	3	NR	Saugatuck River	AE
	3	R	Saugatuck River	AE
	2	NR	Saugatuck River	B
	1	NR	Saugatuck River	C
	1	R	Saugatuck River	X

Town	Number of Properties	Property Type*	Flooding Source	FEMA Zone
	2	R	West Branch Saugatuck River	A
	2	R	West Branch Saugatuck River	AE
	1	R	West Branch Saugatuck River	C
	1	R	Tributary to W Branch Saugatuck River	EMG
	1	NR	Silver Brook	C
	1	R	Stony Brook	X
	1	R	Stony Brook	AE
	1	NR	Stony Brook	AE
	2	R	Willow Brook	C
	1	R	Tributary to Muddy Brook	EMG
	171	R	Long Island Sound	AE
	4	Condo	Long Island Sound	AE
	10	R	Long Island Sound	VE
	3	R	Long Island Sound	X
	1	R	Long Island Sound	EMG
	2	R	Tributary to Long Island Sound	A
	1	R	Unnamed	A
	3	R	Unnamed	V
	1	R	Unnamed	X