

**ADDENDUM  
TO  
AGENDA**

**CITY COUNCIL MEETING**

**MONDAY, JULY 7, 2014**

7:00 p.m.

City Council Chambers, City Hall - 45 Lyon Terrace  
Bridgeport, Connecticut

**ADDED:**

**MATTERS TO BE ACTED UPON (CONSENT CALENDAR):**

- \*59-13 (A)** Special Committee for CDBG Program Report re: Consolidated Plan 2013-2018 PY 40 Annual Action Plan Community Development Block Grant Program (CDBG).
- \*59-13 (B)** Economic and Community Development and Environment Committee Report re: Consolidated Plan 2013-2018 PY 40 Annual Action Homeless Emergency Solutions Grant Program (HESG).
- \*59-13 (C)** Economic and Community Development and Environment Committee Report re: Consolidated Plan 2013-2018 PY 40 Annual Action HOME Investment Partnership Program.
- \*59-13 (D)** Economic and Community Development and Environment Committee Report re: Consolidated Plan 2013-2018 PY 40 Annual Action Housing Opportunities for Persons with AIDS Program (HOPWA).

AGENDA

CITY COUNCIL MEETING

MONDAY, JULY 7, 2014

7:00 P.M.

CITY COUNCIL CHAMBERS, CITY HALL - 45 LYON TERRACE  
BRIDGEPORT, CONNECTICUT

Prayer

Pledge of Allegiance

Roll Call

Mayoral Proclamation: In Recognition of Bridgeport resident Stanley Grauso on his 102<sup>nd</sup> Birthday.

City Council Citation: In Recognition of Bridgeport resident Stanley Grauso on his 102<sup>nd</sup> Birthday.

Presentation by the United States Postal Service regarding the Proposed Relocation of the Barnum Station Post Office Located at 2253 Fairfield Avenue.

**MINUTES FOR APPROVAL:**

Approval of City Council Minutes: May 19, 2014

**COMMUNICATIONS TO BE REFERRED TO COMMITTEES:**

- 120-13** Communication from OPED re: Proposed Resolution Authorizing a Referendum on Renewal of City and Town Development Act, referred to Economic and Community Development and Environment Committee.
- 121-13** Communication from OPED re: Proposed Resolution regarding the Discontinuance of Morris Street, East of Bostwick Avenue, referred to Public Safety and Transportation Committee.
- 123-13** Communication from City Attorney re: Proposed Settlement of Pending Litigation with Ryan Keane, referred to Miscellaneous Matters Committee.
- 124-13** Communication from Central Grants re: Grant Submission: Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds for Elderly Hispanic Program, referred to Economic and Community Development and Environment Committee.
- 125-13** Communication from Central Grants re: Grant Submission: Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds for Tai Chi Program, referred to Economic and Community Development and Environment Committee.
- 126-13** Communication from Central Grants re: Grant Submission: Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds for East Side Senior Center Program, referred to Economic and Community Development and Environment Committee.

**COMMUNICATIONS TO BE REFERRED TO COMMITTEES CONTINUED:**

- 127-13** Communication from Central Grants re: Grant Submission: Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds for Chore Program, referred to Economic and Community Development and Environment Committee.
- 128-13** Communication from Central Grants re: Grant Submission: State of Connecticut Department of Energy and Environmental Protection NPS 319 Grant for Blackham School LID Retrofit Project, referred to Economic and Community Development and Environment Committee.
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- 131-13** Communication from OPED re: Proposed Resolution Authorizing a Tax Incentive Development Agreement for the New Construction of 56 Residential Units Located at 3336 Fairfield Avenue (Riverbank Landing), referred to Economic and Community Development and Environment Committee.
- 132-13** Communication from Central Grants re: Grant Submission: re State of Connecticut Department of Economic and Community Development Round 5 Brownfield Grant - 1564 Seaview Avenue, referred to Economic and Community Development and Environment Committee.
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**COMMUNICATIONS TO BE REFERRED TO COMMITTEES CONTINUED:**

- 136-13** Communication from Mayor re: Appointment of Cynthia Saunders Maignan (D) to the Fire Commission, referred to Public Safety and Transportation Committee.

**RESOLUTIONS TO BE REFERRED TO BOARDS, COMMISSIONS, ETC.:**

- 122-13** Resolution presented by Council Members McBride-Lee and Salter re: Proposed Request that the Honorary Designation of W.L. Phillips Boulevard be added above the street Signage on the Two Corners where Trumbull Avenue Intersects with Chopsey Hill Road and Reservoir Avenue, referred to Public Safety and Transportation Committee.

**MATTERS TO BE ACTED UPON (CONSENT CALENDAR):**

- \*102-13** Public Safety and Transportation Committee Report re: Grant Submission: FY 2012 U.S. Department of Homeland Security, Federal Emergency Management Agency Port Security City of Stamford Grant Subrecipient Agreement.
- \*103-13** Public Safety and Transportation Committee Report re: Grant Submission: U.S. Department of Homeland Security, Federal Emergency Management Agency Port Security Grant Program.
- \*104-13** Public Safety and Transportation Committee Report re: Grant Submission: State of Connecticut Department of Emergency Services & Public Protection, Division of Emergency Management and Homeland Security State Homeland Security Grant Program.
- \*110-13** Public Safety and Transportation Committee Report re: Resolution Adopting The Greater Bridgeport Regional Council (GBRC) Multi-Jurisdiction Natural Hazard Mitigation Plan 2014 Update.
- \*113-13** Public Safety and Transportation Committee Report re: Grant Submission: United States Department of Justice FY 2014 Edward Byrne Memorial Justice Assistance Grant (JAG) Local Solicitation Program.
- \*115-13** Public Safety and Transportation Committee Report re: Grant Submission: Agreement with the City of Norwalk for the Port Security Grant Program.
- \*69-13** Economic and Community Development and Environment Committee Report re: Resolution Concerning the Disposition of City-Owned Property Located at 38 Luther Street.
- \*78-13** Economic and Community Development and Environment Committee Report re: Resolution concerning the Disposition of City-Owned Property Located at 63 Waldorf Avenue to Habitat for Humanity.

**MATTERS TO BE ACTED UPON (CONSENT CALENDAR) CONTINUED:**

- \*89-13 Economic and Community Development and Environment Committee Report re: Grant Submission: United States Conference of Mayors (USCM) 2014 Lead Safe for Kids Sake Grant Program.
- \*90-13 Economic and Community Development and Environment Committee Report re: Grant Submission: United States Environmental Protection Agency Targeted Brownfield Assessment (TBA) Program.
- \*99-13 Economic and Community Development and Environment Committee Report re: Grant Submission: KaBOOM! Community Partner Playground Program.
- \*109-13 Economic and Community Development and Environment Committee Report re: Resolution Authorizing a Tax Incentive Development Agreement for the Security Building in Downtown North.
- \*98-13 Miscellaneous Matters Committee Report re: Appointment of Tania Mayen (D) to the Harbor Commission.
- \*107-13 Miscellaneous Matters Committee Report re: Appointment of Rosa J. Correa (R) to the Planning & Zoning Commission.
- \*117-13 Miscellaneous Matters Committee Report re: Appointment of Alfred Yazbak (D) to the WPCA Commission.

**MATTERS TO BE ACTED UPON:**

- 61-13 Ordinance Committee Report re: Proposed Amendment to the Municipal Code of Ordinances, Chapter 6.04 Animal Control Regulations Generally amend Section 6.04.010 Keeping of Certain Animals Prohibited, **DENIED**.

THE FOLLOWING NAMED PERSON HAS REQUESTED PERMISSION TO ADDRESS THE CITY COUNCIL ON MONDAY, JULY 7, 2014 AT 6:30 P.M., IN THE CITY COUNCIL CHAMBERS, CITY HALL, 45 LYON TERRACE, BRIDGEPORT, CT.

NAME	SUBJECT
John Marshall Lee 30 Beacon Street Bridgeport, CT 06605	Fiscal Year Ends.
Ethan Book 144 Coleman Street Bridgeport, CT 06604	Institutionalized interagency governmental conspiracy.
Cecil C. Young 99 Carroll Avenue Bridgeport, CT 06607	Update on termination status.

**CITY of BRIDGEPORT**  
**CITY COUNCIL**  
**PUBLIC SPEAKING SESSION**  
**MONDAY, JULY 7, 2014**  
**6:30 PM**

**ATTENDANCE:** Council members: Brannelly, Torres, Banta, Taylor-Moye, Halstead Swain, McCarthy, Vizzo-Paniccia, McBride-Lee, Salter, DeJesus, Castillo, Martinez, Feliciano, \*Marella, Paoletto, Martinez-Walker, Holloway

**ABSENT:** Council members: Austin, Lyons  
\*arrived late

Council President McCarthy called the public speaking session to order at 6:45 pm.

The city clerk took the roll call and announced there was a quorum.

*Please go to [www.SoundviewTV.org/Bridgeport](http://www.SoundviewTV.org/Bridgeport) to view or listen to the detailed comments that the speakers below addressed to the City Council on July 7, 2014.*

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John Marshall Lee  
30 Beacon Street  
Bridgeport, CT 06605

Fiscal Year Ends.

**BE GREEN, Mayor Finch, in more things...especially the "green" \$\$\$\$....**

The City has many problems as you know. Financial issues loom large in almost everything that crosses your desk. The Charter and Ordinances as well as other external or internal rules govern your financial life, yet they are not always followed. And the public simply does not get the word, which as taxpayers is their due.

Let's focus on the Charter required monthly financial report. It runs 88 pages or more often. As Mayor Finch indicated in his 2014 address to the BRBC, he is "finding ways to cut government waste". Will the Council target this report for immediate reform?

RECEIVED  
CITY CLERK'S OFFICE  
2014 JUL 21 A 9:10  
ATTEST  
CITY CLERK

- Eliminate ALL Public School budget info except for three or four summary lines that would include: Education (Lines 01800-01899), BOE Food Services (01900), BOE Transportation (01875), and perhaps Debt Service (01940) though this is paid by the City. BOE budget info is available on Public Schools site. This saves 20 pages.
- There are approximately 60 departments with personnel expense. Why not list each DEPARTMENT on one line, use the next five lines to summarize (1) Personal Services, (2) Other Personal Services (3) Fringe Benefits (4) Other Expenses and (5) Special Services? This is the format used in recent years with budget presentations to B&A. During the year Variances will be more easily spotted by everyone and necessary transfers (See City Charter Chapter 9 Section (5i) can be attended to easily.) This format can **decrease 50 pages to 8 pages**, eliminating special confusion in Police and Fire Department sections. Next to the Department title the number of current FTE as of that month can be reported as it does on the Public Schools site. That is not done today!!
- A title page that indicates the month and year with a summary of where budgeted and actual stand and what variance is happening along with explanation of variances is necessary. Four to six pages per month total.
- The Revenue reporting pages currently run around 8 pages and are good as they are except for Line Item categories that remain empty all year. Remove these lines as they only fill space. Likewise BOE revenues can be compressed to single lines, where the City contributions of all kinds can be clearly identified. City Grants Managers may be encouraged to produce regular reports of their fiscal efforts like the Public Schools.
- And the simplified report should be made available monthly by the fourth Friday of the following month as called for in the Charter at the City Clerk's office BUT ALSO PLACED ON THE FINANCE DEPARTMENT City site. Perhaps a Grants report for the City similar to the Public Schools needs to be presented regularly as well. The full report similar to current format needs to be available on the Finance Department site so that line item details eliminated in the Summary (1-5) format can be viewed.

**More, better, and faster, the marks of the global economy!!** In summary City fiscal reporting can be reduced to about 21 pages a savings of printing and paper by 75%. The Council and public can better see what is happening by reading notes and observing variances in a format that will allow them to monitor the report monthly as their Agenda declares. And trees can be saved. Win, win, wins would seem in order. What will you call for? Time will tell.

**John Marshall Lee & Phil Smith prepared: April 18, 2014 to City Council: 7-7-14**



Ethan Book  
144 Coleman Street  
Bridgeport, CT 06604

Institutionalized interagency governmental  
conspiracy.

It was announced that Ethan Book wasn't present to address the city council.

Cecil C. Young  
99 Carroll Avenue  
Bridgeport, CT 06607

Update on termination status.

Mr. Young recalled his comments that he said he has been speaking about for the last eight years. He mentioned the documents that he said were submitted to look into the matter of his unjust termination, noting that he asked Council member Torres to distribute the information for the council to address or respond to. He expressed that all of us are created are supposed to be created equal and as a taxpayer; he has to keep coming forth to find out why he was terminated. He said that someone should respond to his concerns and he questioned what he has to do to get the council's attention. He further questioned why the public was constantly being ignored and disrespected and he stressed that the council members took an oath to service the public. He posed the question of whether he needed to use the race card to get their attention or he needed to throw a shoe to get their attention. He emphasized that he was angry and upset about the ongoing situation and that he intends to do something about it, commenting that he hoped something is done about his request.

*The following persons signed up to speak prior to the public speaking forum:*

Clyde Nicholson

Mr. Nicholson mentioned Newfield Park, Seaside Park, Washington Park to make the point that the Mayor spent \$8 million on the reopening of Pleasure Beach; when there are roads in the city that need fixing. He commented that Pro Bass has come into the city, but no one in Bridgeport is working there. He went on to say that residents are paying taxes, yet snow plowing during the winter is lax. He further spoke about the Gun Free Zone in reference to making a law for a mandatory sentence. He stated that although people have a right to bear arms, guns and weapons should be prohibited to carry on the street to cut down on violent crimes. He questioned how the city could spend \$8 million on a beach when citizens aren't seeing any of the benefits of their tax dollars.

Carolyn Nah

Ms. Han stated that she had issues and concerns. She mentioned Cecil Young's complaint, noting that what happened to him is what happened to many who worked for the city in the past, when they were in her opinion illegally terminated during the 1990's, including herself and others she knows. She said she felt that an investigation was in

order to address Cecil Young's complaint. She went on to say that residents are losing their homes because they are being overtaxed and mis-taxed. She spoke about the importance of knowing past history regarding civil rights and she questioned if people don't know; then how can we move forward. Overall, she didn't feel that the system is fair for our children and the community, noting that it takes a family!

Amos Brown

Mr. Brown spoke about the job situation for youth. He questioned what will happen when they get out of school, noting that there should be enough summer jobs to go around. He questioned what the politicians are doing to represent Bridgeport and he questioned why citizens should waste their time voting, when the politicians don't care. He further noted that it seemed that they care more about other countries than they do their own. He ended in saying that everyone will eventually have to answer to a higher God!

Hearing none, the public speaking forum ended at 7:15 pm.

**CITY of BRIDGEPORT**

**CITY COUNCIL MEETING**

**MONDAY, JULY 7, 2014  
7:00 PM**

**City Council Chambers, City Hall - 45 Lyon Terrace  
Bridgeport, Connecticut**

**ATTENDANCE:** Council members: Brannelly, Torres, Banta, Taylor-Moye, Halstead Swain, McCarthy, Vizzo-Paniccia, McBride-Lee, Salter, DeJesus, Castillo, Martinez, Feliciano, Marella, Paoletto, Martinez-Walker, Holloway

**ABSENT:** Council members: Austin, Lyons

Mayor Finch called the meeting to order at 7:18 pm.

- Prayer - Council member Feliciano offered the prayer.
- Pledge of Allegiance - Council member Brannelly led the pledge of allegiance.
- Roll Call - the City Clerk took the roll call and announced there was a quorum.

**Mayoral Proclamation:** In Recognition of Bridgeport resident Stanley Grauso on his 102<sup>nd</sup> Birthday.

*Mayor Finch and the council members came forward to present the citation.*

*The recipient Stanley Grauso came forward with his son to accept the citation.*

Mayor Finch expressed that it was an honor to pay tribute to Mr. Grauso with his some present. He expressed that it was the least they could do to honor

him for what he has done for the city and for his undying loyalty to the city – *he read the proclamation honoring Stanley Grauso for being 102 years old and he proclaimed July 7, 2014 as Stanley Grauso Day!*

City Council Citation: In Recognition of Bridgeport resident Stanley Grauso on his 102<sup>nd</sup> Birthday.

Council President McCarthy expressed that he was excited to honor a life lived well – *he read the citation that outlined congratulations to Stanley Grauso and best wishes.* He further expressed that the wealth of knowledge that Mr. Grauso has acquired through the years; has made him a truly exceptional individual.

Stanley Grauso thanked everyone from the bottom of his heart. He shared that although he had a rough life in his younger years, he thanked everyone for their help and support through the years and up until this time.

Stanley Grauso's son, Stanley Grauso II, stated that it was unbelievable what his father does from day to day, noting that he's up early and makes breakfast and lunch and prepares a good meal and he keeps busy and reads a lot. He said that he was very thankful for honoring his father.

Mayor Finch exclaimed that Stanley has outlived many and he's still going strong. He thanked him for all that he's done for the City of Bridgeport.

*Upon leaving the front of council chambers, Stanley Grauso enlightened everyone by doing a lively dance!!*

#### **MINUTES FOR APPROVAL:**

Approval of City Council Minutes: May 19, 2014

**\*\* COUNCIL MEMBER McCARTHY MOVED TO ACCEPT THE MINUTES  
\*\* COUNCIL MEMBER PAOLETTO SECONDED  
\*\* MOTION PASSED UNANIMOUSLY**

Council president McCarthy announced that there would be a five-minute recess for the purpose of discussing the process for voting on (CDBG) Allotments.

The city council took a recess at 7:30 pm.  
The city council returned out of recess at 7:44pm.

Mayor Finch reconvened the meeting at 7:45 pm.

**ADDED:**

**MATTERS TO BE ACTED UPON (CONSENT CALENDAR):**

Mayor Finch stated that it was critical to keep the funding, noting that it's a struggle from year to year to maintain the funds. He emphasized the importance of the funding used to fight poverty and protect the environment.

Council President McCarthy stated that it was a trying process for the city due to the rules change by the federal government. He explained that they tried hard to be transparent and follow the rules. He further explained that what the audience would observe tonight may seem unusual, but it was necessary to follow the law. He went on to say that they would hear four sections voted upon and any council member that is required to recuse will physically leave the room. He relayed that there are twenty (20) council members that are active in the community, which creates a conflict in them voting on a specific program. He clarified that the recusal only means that that council member is active in the community and they need to ensure that the process is followed so that the funding isn't at risk and they aren't violating the law.

*The voting for each item was taken up as follow:*

**\*59-13 (A)** Special Committee for CDBG Program Report re: Consolidated Plan 2013-2018 PY 40 Annual Action Plan Community Development Block Grant Program (CDBG).

\*\*  
\*\* **COUNCIL MEMBR BRANNELLY MOVED TO APPROVE  
COUNCIL PRESIDENT McCARTHY SECONDED**

Council member Holloway suggested that instead of each council member leaving the room, that they take a roll call vote. Mayor Finch clarified that they were advised that the person with the conflict **must** leave the room.

**The following Council members recused from the vote:** Council members: Taylor-Moye, Vizzo-Paniccia, Martinez, Marella, Martinez-Walker, Feliciano, McBride-Lee

\*\*  
\*\* **MOTION PASSED WITH TEN VOTES IN FAVOR AND EIGHT  
ABSTENTIONS(Council members: Taylor-Moye, Vizzo-Paniccia,  
Martinez, Marella, Martinez-Walker, Feliciano, McBride-Lee, Holloway)**

**\*59-13 (B)** Economic and Community Development and Environment Committee Report re: Consolidated Plan 2013-2018 PY 40 Annual Action Homeless Emergency Solutions Grant Program (HESG).

\*\*  
\*\* **COUNCIL MEMBR PAOLETTO MOVED TO APPROVE**

**\*\* COUNCIL PRESIDENT McCARTHY SECONDED**

The following Council member recused from the vote: Council member Feliciano

**\*\* MOTION PASSED WITH SIXTEEN VOTES IN FAVOR AND TWO ABSTENTIONS (Council members: Feliciano and Holloway)**

**\*59-13 (C)** Economic and Community Development and Environment Committee Report re: Consolidated Plan 2013-2018 PY 40 Annual Action HOME Investment Partnership Program.

**\*\* COUNCIL MEMBR BRANNELLY MOVED TO APPROVE  
\*\* COUNCIL MEMBER PAOLETTO SECONDED**

*\*let it be noted that the entire city council was allowed to vote on this item*

**\*\* MOTION PASSED WITH SEVENTEEN VOTES IN FAVOR AND ONE ABSTENTION (Council member: Holloway)**

**\*59-13 (D)** Economic and Community Development and Environment Committee Report re: Consolidated Plan 2013-2018 PY 40 Annual Action Housing Opportunities for Persons with AIDS Program (HOPWA).

**\*\* COUNCIL PRESIDENT McCARTHY MOVED TO APPROVE  
\*\* COUNCIL MEMBER BRANNELLY SECONDED**

The following Council members recused from the vote: Council members: DeJesus and Martinez-Walker

**\*\* MOTION PASSED WITH FIFTEEN VOTES IN FAVOR AND THREE ABSTENTIONS (Council members: DeJesus, Martinez-Walker, Holloway)**

Council President McCarthy made a comment to say that he didn't entirely agree with the process, because he thought it eliminated constituents that are crucial in the community.

Presentation by the United States Postal Service regarding the Proposed Relocation of the Barnum Station Post Office Located at 2253 Fairfield Avenue.

Garry Thompson, Postmaster and the Real Estate Specialist/USPS Joseph Mulvey were present for this item. Mr. Mulvey gave some details why they were considering moving the Barnum Station:

- There would be 1,000 sq. ft of space to occupy and it's why they're proposing to relocate as close as possible to the existing location.
- Retail services will continue at the new location.
- Written comments regarding the move will be accepted through July 22, 2014.
- They are relocating due to significant net losses.
- They don't receive any tax dollars for the facility and revenue comes solely from the sales of postage and services.
- They are looking to cut costs and increase revenue.
- The relocation will consist of securing an accessible and suitable location.
- There are **no plans** to close the post office, they are only relocating.

Council member Brannelly commented that the new relocated facility should be within walking distance to accommodate public housing persons and seniors that walk to the post office – **Response:** there is no intention of closing the post office and they need to ensure that the postal service is in compliance. It was noted that the Fairfield post office located on Commerce Drive offers the same services, except they only deliver to Fairfield residents. They are looking to keep retail services in the community.

Council member Torres questioned what will happen if they take out the P.O. boxes at the current location, noting that the relocation may inconvenience those that already have one, particularly the local businesses in the area. He emphasized that they need to consider the businesses in the area.

Council President McCarthy stated that he was somewhat dubious that the post office won't really close, recalling that the north end branch was closed. He also emphasized that there is a lot of foot traffic to the post office currently and low income persons that may not have access to the post office otherwise should be considered. He added that the area being considered shouldn't be in a remote strictly residential area. He requested information regarding population statistics of other post offices.

Mayor Finch emphasized and stressed that in a city of 150,000 people and dozens of suburbs with post offices that aren't looking to close; he urged the speaker to do the math and consider the people that need a post office within walking distance and not in a remote area.

Council member Taylor-Moye stated that it was essential to have a post office in an accessible area for those that need the services. She posed the question that if the current location hasn't been working, then why has it been so active all these years. She commented that the post office has been a fixture in the community for a long time.

Mr. Mulvey pointed out that they aren't proposing to reduce post offices locations, they are only relocating this one and the number of post offices in the city will remain.

Council member Swain questioned if there was a possibility of downsizing space wise in the current location. Response: they can downsize in the new location and currently they have 10,000 sq. ft. of under-utilized space. There are **no plans to close the post office** and USPS is committed to the community.

Mayor Finch stated that staff will reach out to assist the post office in finding another viable location.

Council member Holloway stated that he was glad the postal service at least came forward with the presentation, to make the point that numerous post offices were closed in the city without warning. He emphasized how much this hurts certain communities when it happens. He recalled there was supposed to be a shopping center constructed along Stratford Avenue in the past. He went on to say that he has recently inquired about placing mail boxes in the area, but he was told that they couldn't. He stressed that the cost of stamps keep going up regularly, noting that if money is more important; then it should be said that there are 10,000 people living on the east end and if they relocate, it will be a long way for many to travel.

Council member Martinez-Walker stated that it was a disgrace that USPS has removed post offices from areas where people have limited transportation. She emphasized that this affects the minority districts primarily. She further questioned where the statistics were that indicates the post office is losing revenue.

Council member Torres mentioned that the lower the income, the less likely that they will use electronic mail; wherein higher income persons are more inclined to. He urged them to restore services to the area(s) where it's most definitely needed.

Council member Vizzo-Paniccia stated that she grew up in the area of the current post office and she made the following comments: they took the mail processing out of Bridgeport and went to New York. She suggested that they consider using the space available at the Stop & Shop location that could be shared space for the post office and convenient for the community. She mentioned the problem of metered stamps not being processed due to a problem with the machines, to make the point that when this happens; the stamps are reused, thus revenue is lost. She relayed that there is a rumor that the post office is in fact closing and she stressed that the city council and the public should be made aware of that if that's the case. She expressed that she hoped they could work together to benefit everyone on this matter, noting that the change shouldn't effect certain areas.

Council member Brannelly pointed out the following disparity: there are only four (4) post offices in a city with a population of **150,000 people** vs. three (3) post offices in the Town of Fairfield with a population of only 27,000 people.

Mayor Finch commented that the post office offers great jobs that offer great public service. He emphasized that the city needs the service, wants it and it shouldn't be taken away.



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**\*\* COUNCIL MEMBER PAOLETTO MOVED TO REFER  
COMMUNICATIONS TO BE REFERRED TO COMMITTEES  
\*\* COUNCIL MEMBER VIZZO-PANICCIA SECONDED  
\*\* MOTION PASSED UNANIMOUSLY**

- \*103-13** Public Safety and Transportation Committee Report re: Grant Submission: U.S. Department of Homeland Security, Federal Emergency Management Agency Port Security Grant Program.
- \*104-13** Public Safety and Transportation Committee Report re: Grant Submission: State of Connecticut Department of Emergency Services & Public Protection, Division of Emergency Management and Homeland Security State Homeland Security Grant Program.
- \*110-13** Public Safety and Transportation Committee Report re: Resolution Adopting The Greater Bridgeport Regional Council (GBRC) Multi-Jurisdiction Natural Hazard Mitigation Plan 2014 Update.
- \*113-13** Public Safety and Transportation Committee Report re: Grant Submission: United States Department of Justice FY 2014 Edward Byrne Memorial Justice Assistance Grant (JAG) Local Solicitation Program.
- \*115-13** Public Safety and Transportation Committee Report re: Grant Submission: Agreement with the City of Norwalk for the Port Security Grant Program.
- \*69-13** Economic and Community Development and Environment Committee Report re: Resolution Concerning the Disposition of City-Owned Property Located at 38 Luther Street.
- \*78-13** Economic and Community Development and Environment Committee Report re: Resolution concerning the Disposition of City-Owned Property Located at 63 Waldorf Avenue to Habitat for Humanity.
- \*89-13** Economic and Community Development and Environment Committee Report re: Grant Submission: United States Conference of Mayors (USCM) 2014 Lead Safe for Kids Sake Grant Program.
- \*90-13** Economic and Community Development and Environment Committee Report re: Grant Submission: United States Environmental Protection Agency Targeted Brownfield Assessment (TBA) Program.
- \*99-13** Economic and Community Development and Environment Committee Report re: Grant Submission: KaBOOM! Community Partner Playground Program.
- \*109-13** Economic and Community Development and Environment Committee Report re: Resolution Authorizing a Tax Incentive Development Agreement for the Security Building in Downtown North.
- \*98-13** Miscellaneous Matters Committee Report re: Appointment of Tania Mayen (D) to the Harbor Commission.

**\*107-13** Miscellaneous Matters Committee Report re: Appointment of Rosa J. Correa (R) to the Planning & Zoning Commission.

**\*117-13** Miscellaneous Matters Committee Report re: Appointment of Alfred Yazbak (D) to the WPCA Commission.

**\*\* MOTION PASSED UNANIMOUSLY**

Mayor Finch returned to **\*109-13** Economic and Community Development and Environment Committee Report re: Resolution Authorizing a Tax Incentive Development Agreement for the Security Building in Downtown North.

**\*\* COUNCIL MEMBER PAOLETTO MOVED TO APPROVE**  
**\*\* COUNCIL PRESIDENT McCARTHY SECONDED**

Council member Torres commented about tax dollars; economic development; the \$3 million will never be reached; PILOT Program; security building has no proof of income and the City of Bridgeport should receive proper taxation. He stated that he would vote no.

Mayor Finch stated that he was excited about the project, noting that the district representatives are in support of the project.

**\*\* MOTION PASSED WITH SEVENTEEN VOTES IN FAVOR AND ONE VOTE IN OPPOSITION (COUNCIL MEMBER TORRES)**

**\*98-13** Miscellaneous Matters Committee Report re: Appointment of Tania Mayen (D) to the Harbor Commission.

**\*\* COUNCIL MEMBER PAOLETTO MOVED TO APPROVE**  
**\*\* COUNCIL PRESIDENT McCARTHY SECONDED**

Council member Halstead requested to send the item back to committee for further review for the purpose of reviewing the appointee's qualifications and to consider another appointee. He stated he would vote against the item.

Council President McCarthy stated that the appointee came before the committee and he seemed knowledgeable, energetic and indicated that he would work for the city. He said he was in support of the appointment.

Council member Paoletto concurred with Council President McCarthy, noting that he was in support and he felt that the appointee was fully qualified to serve and benefit the city.

**\*\* MOTION PASSED WITH FIFTEEN VOTES IN FAVOR AND THREE VOTES IN OPPOSITION (COUNCIL MEMBERS: HALSTEAD, TORRES, SALTER)**

**\*107-13** Miscellaneous Matters Committee Report re: Appointment of Rosa J. Correa (R) to the Planning & Zoning Commission.

**\*\* COUNCIL MEMBER MARELLA MOVED TO APPROVE  
\*\* COUNCIL MEMBER MARTINEZ SECONDED  
\*\* MOTION PASSED UNANIMOUSLY**

**\*117-13** Miscellaneous Matters Committee Report re: Appointment of Alfred Yazbak (D) to the WPCA Commission.

Council member Swain suggested that the item be tabled for the purpose of further reviewing the appointee's background.

**\*\* COUNCIL MEMBER SWAIN MOVED TO TABLE  
\*\* COUNCIL PRESIDENT McCARTHY SECONDED  
\*\* MOTION PASSED UNANIMOUSLY**

**MATTERS TO BE ACTED UPON:**

**61-13** Ordinance Committee Report re: Proposed Amendment to the Municipal Code of Ordinances, Chapter 6.04 Animal Control Regulations Generally amend Section 6.04.010 Keeping of Certain Animals Prohibited, **DENIED**.

**\*\* COUNCIL MEMBER PAOLETTO MOVED TO APPROVE  
\*\* COUNCIL PRESIDENT McCARTHY SECONDED  
\*\* MOTION PASSED UNANIMOUSLY**

Announcements – Council President McCarthy

- Council member DeJesus wife recently gave birth to a girl, Charlotte Rose.
- There are only two meetings scheduled during the months of July and August.
- Reminder to attend the prayer vigil for the recent killing in the city and urged to attend the press conference to support the family.

Mayor Finch thanked the East End NRZ for their help in getting the billiards pool hall closed and padlocked, noting this was initiated by Council member Martinez-Walker.

Council member Martinez commented that the community was upset about the two recent killings in the city, noting that the city is doing as much as they can to help stop the violence and help the kids and youth live a better life!

**ADJOURNMENT**

**\*\* COUNCIL MEMBER MARELLA MOVED TO ADJOURN  
\*\* COUNCIL MEMBER PAOLETTO SECONDED  
\*\* MOTION PASSED UNANIMOUSLY**

The meeting adjourned at 9:05 pm.

Respectfully submitted,

Diane Graham  
Telesco Secretarial Services



City of Bridgeport, Connecticut  
**OFFICE OF PLANNING & ECONOMIC DEVELOPMENT**  
MARGARET E. MORTON GOVERNMENT CENTER  
999 BROAD STREET  
BRIDGEPORT, CONNECTICUT 06604  
TELEPHONE: (203) 576-7221  
FAX: (203) 332-5611

BILL FINCH  
Mayor

DAVID M. KOORIS  
Director

COMM. #120-13 Referred to ECD&E Committee  
on 7/7/2014

June 6, 2014

The Honorable City Council  
45 Lyon Terrace  
Bridgeport, CT 06604

RE: City and Town Development Act; renewal of local powers

Dear Honorable Body:

State law requires that Connecticut municipalities that wish to issue bonds for development projects; construct, rehabilitate, own, sell, or lease commercial, industrial, or housing facilities; and establish payments in lieu of taxes for development projects must approve the City and Town Development Act. The electorate must approve the Act in a referendum at least once every five (5) years. The Act was last approved on November 24, 2009. In order to initiate the renewal of the powers contained within the Act, the City Council must adopt a resolution placing a referendum question pertaining to the Act on the ballot for the November 4, 2014 election.

The City Council resolution pertaining to the renewal of the Act must be adopted "no less than sixty days, but not more than one hundred and twenty days" before the referendum on Election Day. This office requests that the attached resolution be considered and approved no later than the August 4th City Council meeting. The resolution is very similar to the resolutions previously adopted by the Council in 1989, 1994, 1999, and 2004, 2009 and incorporates the Secretary of State's suggested language for the referendum question.

Please call me should you require any additional information in your consideration of this matter.

Sincerely,

Max Perez  
Senior Economic Associate

cc. Mayor Bill Finch  
Andrew Nunn, CAO  
David Kooris OPED Director  
Mark T. Anastasi, City Attorney

ATTEST  
CITY CLERK

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2014 JUN 19 A 9:04

RESOLUTION BY CITY OF BRIDGEPORT CITY COUNCIL  
AUTHORIZING A REFERENDUM ON RENEWAL OF CITY  
AND TOWN DEVELOPMENT ACT

WHEREAS, the City of Bridgeport and the residents thereof require substantial further development of employment opportunities, an upgrade of the housing stock, and construction and restoration of manufacturing/commercial properties; and

WHEREAS, the legislature of the State of Connecticut in recognition of the existence of unemployment, a shortage of housing, substandard housing, and deteriorated, vacant, or underutilized commercial/industrial properties in municipalities throughout the state enacted legislation known as the Connecticut City and Town Development Act (Chapter 114 of the Connecticut General Statutes) which allows needful municipalities to realize the benefits of this enactment through the passage of a resolution making certain findings and submitting that resolution to the electors of the municipality for approval.

Therefore, it is hereby resolved:

- A That in accordance with Section 7-485 of the Connecticut General Statutes, this body finds:
1. an unreasonable number of residents of the City of Bridgeport subject to hardship in finding employment and adequate, safe, and sanitary housing;
  2. conditions of blight and deterioration
  3. private enterprise is not meeting such need for housing, employment, and the reduction of blight and deterioration;
  4. the need for employment and adequate, safe and sanitary housing will be lessened and the City of Bridgeport will be revitalized by exercise of the powers granted under this chapter,
  5. adequate provisions shall be made for the payment of the cost of acquisition, construction, operation, maintenance and insurance of all development property;
  6. a feasible method exists and shall be utilized for the relocation into a safe and sanitary dwelling of comparable rent of families and individuals displaced as a result of the exercises granted under this chapter and such families and individuals shall not suffer disproportionate injuries as a result of actions authorized by this chapter for the public benefit;
  7. development property shall not be acquired or disposed of without due consideration of the environment and economic impact of such acquisition or disposition and the adequacy of existing or proposed municipal services;
  8. the acquisition or disposition of all development property shall advance the public interest, health and safety of the City of Bridgeport.
- B. That the foregoing findings be presented to the electors of the City of Bridgeport for the general approval at the general election on November 4, 2014, in accordance with the provision of Section 7-480 of the Connecticut General Statutes in order that the benefits for the residents of Bridgeport resulting from the powers granted by Chapter 114 of the statutes may be realized by the residents. It is proposed that this matter be presented to the electors in the following fashion:
1. The ballot question to read:

"Shall the findings of the Bridgeport City Council authorizing the City to exercise powers granted in the State of Connecticut City and Town Development Act be approved?"



2. Explanatory Text as to the Intent and Purpose

On August 4, 2014, the Bridgeport City Council adopted a resolution, which would allow for the granting of certain powers to the city under the City and Town Development Act. The electors of this city must approve findings of unemployment, shortages of adequate housing, shortages of modern commercial and industrial facilities, and blight before the city can issue bonds, construct, rehabilitate, own, sell, or lease commercial, industrial, or housing facilities. It is anticipated that the availability of these powers will expand the economic base of Bridgeport and provide new jobs and housing accommodations.

This resolution shall be in effect and force until November 4, 2019.



City of Bridgeport, Connecticut  
**OFFICE OF PLANNING & ECONOMIC DEVELOPMENT**  
**MARGARET E. MORTON GOVERNMENT CENTER**  
999 BROAD STREET  
BRIDGEPORT, CONNECTICUT 06604  
TELEPHONE: (203) 576-7221  
FAX: (203) 332-5611

**BILL FINCH**  
Mayor

**DAVID M. KOORIS**  
Director

Comm. #121-13 Ref'd to Public Safety & Transportation Committee  
on 07/07/2014.

Fleeta C. Hudson  
Office of the City Clerk  
45 Lyon Terrace  
Bridgeport, CT 06604

June 19, 2013

Dear City Clerk:

Attached please find a resolution for the discontinuance of Morris Street, east of Bostwick Avenue. This item is for referral to the Public Safety Committee. Public hearing is not required for this street discontinuance.

Sincerely,

Parag Agrawal  
Director of Planning

CC: Adam Wood, Chief of Staff  
Andrew Nunn, CAO  
David Kooris, Director, OPED  
Ron Pacacha, Associate City Attorney

ATTEST  
CITY CLERK

RECEIVED  
CITY CLERK'S OFFICE  
2014 JUN 24 P 3:55

## **RESOLUTION OF THE BRIDGEPORT CITY COUNCIL REGARDING THE DISCONTINUANCE OF MORRIS STREET, EAST OF BOSTWICK AVENUE**

**WHEREAS**, the City of Bridgeport (the "City") acting through its Office of Planning and Economic Development ("OPED") is working with O&G Industries Inc. ("Property Owner") to better accommodate the industrial uses on property parcels located at 260 Bostwick Avenue, 300 Bostwick Avenue and at 3 Anthony Street; and

**WHEREAS**, the Property Owner is the owner of record of all parcels abutting the section of Morris Street for which a "street discontinuance" is being sought; and

**WHEREAS**, this approximately 40 foot wide and 340 foot long section of roadway has a very limited amount of daily traffic usage; and

**WHEREAS**, the Property Owner is proposing to enhance the industrial operations on the site and improve circulation; and

**WHEREAS**, OPED has reviewed this concept and found it to be in compliance with the City's Master Plan for Conservation and Development in that it encourages economic development by supporting the growth of local businesses; and

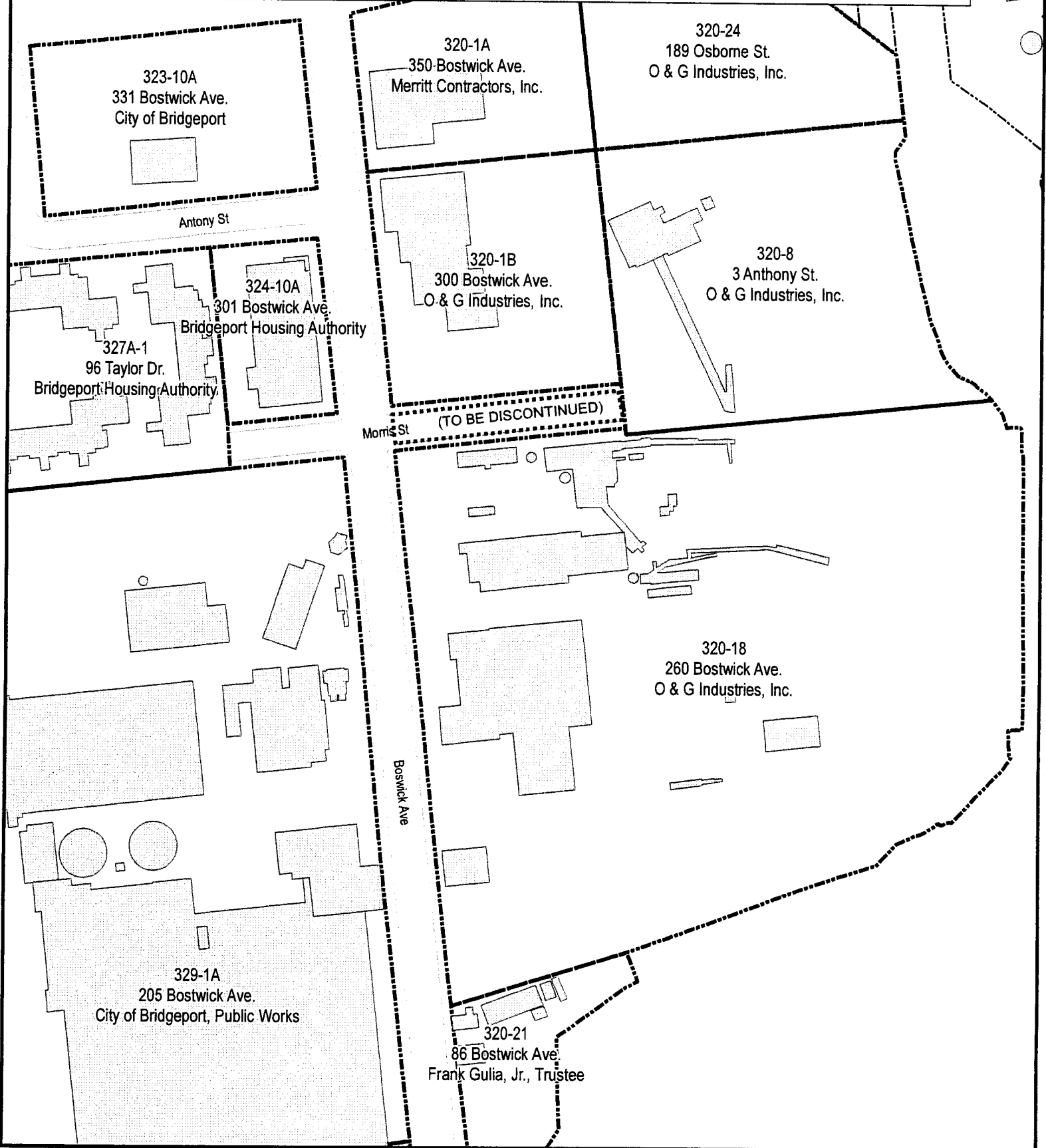
**WHEREAS**, the City finds that this concept will result in expansion of the City's tax base and will reduce the street maintenance costs; and

**WHEREAS**, the City finds that this street discontinuance will not hinder in neighborhood traffic circulation;

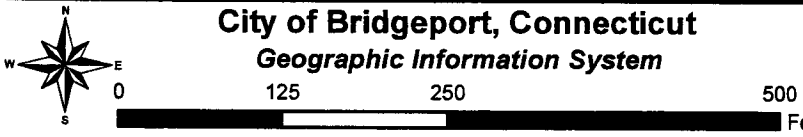
**NOW, THEREFORE, BE IT RESOLVED**, that the Bridgeport City Council hereby acknowledges the City's and Property Owner's efforts to promote economic development, approves of the discontinuance of the section of Morris Street, east of Bostwick Avenue, described above. The Mayor or his designee is further authorized to take all actions and do all things necessary to implement the intent of this resolution.

# Discontinuance of Morris St., east of Bostwick Ave.

AREA OF STREET DISCONTINUANCE: 14,364 Sq. Ft. (0.33 Ac.)



**City of Bridgeport, Connecticut**  
**Geographic Information System**



The Bridgeport Enterprise GIS System (BEGIS) was created by the City of Bridgeport for its governmental use. The City of Bridgeport does not warrant the accuracy of the information contained herein nor is it responsible for any errors or omissions, accuracy, timeliness, or completeness of any of the information provided herein. The City of Bridgeport assumes no liability for its use, availability, or compatibility with users' software or computers. The City of Bridgeport explicitly disclaims any representations and warranties including, without limitation, the implied warranties of merchantability and fitness for a particular purpose. The City of Bridgeport also shall assume no liability for:

1. Any errors, omissions, or inaccuracies in the information provided regardless of how caused; or
2. Any decision made of action taken or not taken by the user in reliance upon any information or data furnished hereunder.

CITY OF BRIDGEPORT  
OFFICE OF THE CITY ATTORNEY

999 Broad Street  
Bridgeport, Connecticut 06604-4328

CITY ATTORNEY  
Mark T. Anastasi

DEPUTY CITY ATTORNEY  
Arthur C. Laske, III

ASSOCIATE CITY ATTORNEYS  
Gregory M. Conte  
Betsy A. Edwards  
Richard G. Kascak, Jr.  
Russell D. Liskov  
John R. Mitola  
Ronald J. Pacacha  
Lisa R. Trachtenburg



ASSISTANT CITY ATTORNEYS  
Salvatore C. DePiano  
R. Christopher Meyer  
Edmund F. Schmidt  
Eroll V. Skyers

Telephone (203) 576-7647  
Facsimile (203) 576-8252

COMM. #123-13 Referred to Miscellaneous Matters Committee  
on 7/7/2014

June 27, 2014

The Honorable City Council  
City of Bridgeport  
45 Lyon Terrace  
Bridgeport, CT 06604

Re: Settlement of Lawsuit

Dear Honorable Members:

A Lawsuit in the following name was filed against the City of Bridgeport and/or its employees and investigation discloses the likelihood on the part of the City for which in the event of trial, the City might be held liable.

Negotiations with the Plaintiffs' attorney have made it possible to settle this matter for the monetary sum set forth below and I therefore recommend settlement in that amount be approved and accepted.

<u>PLAINTIFF</u>	<u>ATTORNEY</u>	<u>CAUSE/INJURY</u>	<u>SETTLEMENT AMOUNT</u>
Ryan Keane	Patrick McCabe, Esq. The Law Offices of Patrick McCabe, LLC 22 5th Street Stamford, CT 06905	Personal Injury	\$30,000

Very truly yours,

/S/ MTA  
Mark T. Anastasi  
City Attorney

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2014 JUN 30 P 3:27  
ATTEST  
CITY CLERK



City of Bridgeport, Connecticut  
**CENTRAL GRANTS OFFICE**

999 Broad Street  
Bridgeport, Connecticut 06604  
Telephone (203) 332-5662  
Fax (203) 332-5657

BILL FINCH  
Mayor

COMM. #124-13 Referred to ECD&E Committee  
on 7/7/2014

ANDREW J. NUNN  
Chief Administrative Officer

CHRISTINA B. SMITH  
Director  
Central Grants

June 24, 2014

Office of the City Clerk  
City of Bridgeport  
45 Lyon Terrace, Room 204  
Bridgeport, Connecticut 06604

Re: **Resolution – Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds: Elderly Hispanic Program (#15270)**

Attached, please find a Grant Summary and Resolution for the **Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds: Elderly Hispanic Program (#15270)** to be referred to the **Economic and Community Development & Environment Committee** of the City Council.

Grant: **City of Bridgeport application to the Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds: Elderly Hispanic Program (#15270)**

If you have any questions or require any additional information please contact me at 203-332-5665 or [christinab.smith@bridgeportct.gov](mailto:christinab.smith@bridgeportct.gov).

Thank you,

Christina Smith  
Central Grants Office

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2014 JUN 25 P 1:01  
ATTEST  
CITY CLERK



## GRANT SUMMARY

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PROJECT TITLE: **Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds: Elderly Hispanic Program (#15270)**

NEW  RENEWAL  CONTINUING

DEPARTMENT SUBMITTING INFORMATION: **Central Grants Office**

CONTACT NAME: **Christina Smith**

PHONE NUMBER: **203-332-5665**

**PROJECT SUMMARY/DESCRIPTION:** The City of Bridgeport **Department of Health and Social Services** annually seeks **Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds** for various activities. The Elderly Hispanic Program has been instrumental in serving individuals that have been traditionally underserved. Our efforts have allowed us to provide services to Hispanic seniors as well as other seniors within the community. These individuals are typically not aware or informed of community services or entitlements they are eligible for. The worker assigned to this project has been active in identifying and counseling seniors on how to best match their needs with available resources. Our Social Worker, who is assigned to the Elderly Hispanic Program, has been providing benefits counseling to a significant number of the target population. This counseling includes collaborating with various insurance companies to negotiate an appropriate medical supplemental plan for our seniors.

**CONTRACT PERIOD:** October 1, 2014 – September 30, 2015

### IF APPLICABLE

FUNDING SOURCES (include matching/in-kind funds):

Federal: \$16,655.00

State:

City: \$18,576 in-kind – \$14,000 space, \$4,576 intern time

Other:

FUNDS REQUESTED

Salaries/Benefits:

Supplies:

**A Resolution by the Bridgeport City Council**

**Regarding the**

**Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds: Elderly Hispanic Program (#15270)**

**(DRAFT)**

**WHEREAS**, the Southwestern Connecticut Agency on the Aging is authorized to extend financial assistance to municipalities in the form of grants; and,

**WHEREAS**, this funding has been made possible through a grant for the Elderly Hispanic Program; and,

**WHEREAS**, funds under this grant will be used to improve the quality of life for low-income elderly Hispanics within Bridgeport; and,

**WHEREAS**, it is desirable and in the public interest that the City of Bridgeport, Department of Health and Social Services, submit an application to the Southwestern Connecticut Agency on the Aging in the amount of \$16,655.00 for the purpose of improving quality of life for low-income elderly Hispanics within Bridgeport.

**NOW THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL:**

1. That it is cognizant of the City's grant application to and contract with the Southwestern Connecticut Agency on the Aging for the purpose of providing the Elderly Hispanic Program; and,
2. That it hereby authorizes, directs and empowers the Mayor or his designee to execute and file such application with the Southwestern Connecticut Agency on the Aging for the Elderly Hispanic Program Grant and to provide such additional information and to execute such other contracts, amendments, and documents as may be necessary to administer this program.





City of Bridgeport, Connecticut  
**CENTRAL GRANTS OFFICE**

999 Broad Street  
Bridgeport, Connecticut 06604  
Telephone (203) 332-5662  
Fax (203) 332-5657

**ANDREW J. NUNN**  
Chief Administrative Officer

**CHRISTINA B. SMITH**  
Director  
Central Grants

**BILL FINCH**  
Mayor

**COMM. #125-13 Referred to ECD&E Committee  
on 7/7/2014**

June 24, 2014

Office of the City Clerk  
City of Bridgeport  
45 Lyon Terrace, Room 204  
Bridgeport, Connecticut 06604

**Re: Resolution – Southwestern Connecticut Agency on the Aging (SWCAA) Title III  
Funds: Tai Chi Program (#15417)**

Attached, please find a Grant Summary and Resolution for the **Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds: Tai Chi Program (#15417)** to be referred to the **Economic and Community Development & Environment Committee** of the City Council.

**Grant: City of Bridgeport application to the Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds: Tai Chi Program (#15417)**

If you have any questions or require any additional information please contact me at 203-332-5665 or [christinab.smith@bridgeportct.gov](mailto:christinab.smith@bridgeportct.gov).

Thank you,

Christina Smith  
Central Grants Office

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2014 JUN 25 P 1:01  
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## GRANT SUMMARY

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PROJECT TITLE: **Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds: Tai Chi Program (#15417)**

NEW  RENEWAL  CONTINUING

DEPARTMENT SUBMITTING INFORMATION: **Central Grants Office**

CONTACT NAME: **Christina Smith**

PHONE NUMBER: **203-332-5665**

**PROJECT SUMMARY/DESCRIPTION:** The City of Bridgeport **Department of Health and Social Services** annually seeks **Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds** for various activities. The Tai Chi Program will offer certified classes that will help our seniors improve balance, relieve stress, protect their immune system and develop their strength and flexibility resulting in more seniors able to live at home and be self-sufficient. By promoting physical activity and mental well-being to our older adults we will increase their quality of life and promote better health and wellness practices at these centers.

**CONTRACT PERIOD:** October 1, 2014 – September 30, 2015

### IF APPLICABLE

FUNDING SOURCES (include matching/in-kind funds):

Federal: \$10,350.00

State:

City: \$4,345.38 in-kind – see narrative following

Other:

FUNDS REQUESTED

Salaries/Benefits:

Supplies:

**City of Bridgeport**

**2014-2015 Budget Narrative**

**Tai Chi Program**

	<u>SWCAA</u>	<u>Match:</u>
<b><u>Personnel:</u></b>		
Contractor:	\$9,600.00	
Director, Social Services: (Iris Molina) 1% of Time @ \$99,652 per year		\$996.52
Officer Coordinator, Department of Social Services: (Julianne Burdo) 1% of Time @ \$45,034 per year		\$450.34
Janitor, Dept. of Health & Social Services (Bobby Oliveria) 1% of Time @ \$37,454 per year		\$374.54
Assistant Special Projects Manager (Dennis Scinto, Jr.) 1% of Time @ \$62,510 per year \$625.10		
<b><u>Supplies:</u></b>		
Printing, Brochures, etc.	\$750.00	
<b><u>Space @ Senior Centers</u></b>		\$1,898.88
Approx 1,000 Square Feet @ \$18.00 Sq. Feet \$18,000 Annually 7 Hours Per Day x 5 Days x 52 Weeks=1,820 hours a year \$18,000/1,820=\$9.89 a sq ft. per hour of operation 2 Hours per Week x 32 Weeks=64 Hours 64 Hours x \$9.89 an hour=\$632.96 per center \$632.96 a center x 3 centers: \$1,898.88		
<b><u>Total:</u></b>	\$10,350.00	\$4,345.38
<b>Total Project Cost:</b>	<b>\$14,695.38</b>	
<b>Title III Funds:</b>	<b>\$10,350.00</b>	
<b>City Match:</b>	<b>\$4,345.38</b>	



BILL FINCH  
Mayor

City of Bridgeport, Connecticut  
**CENTRAL GRANTS OFFICE**

999 Broad Street  
Bridgeport, Connecticut 06604  
Telephone (203) 332-5662  
Fax (203) 332-5657

ANDREW J. NUNN  
Chief Administrative Officer

CHRISTINA B. SMITH  
Director  
Central Grants

COMM. #126-13 Referred to ECD&E Committee  
on 7/7/2014

June 24, 2014

Office of the City Clerk  
City of Bridgeport  
45 Lyon Terrace, Room 204  
Bridgeport, Connecticut 06604

Re: Resolution – Southwestern Connecticut Agency on the Aging (SWCAA) Title III  
Funds: East Side Senior Center (#15533)

Attached, please find a Grant Summary and Resolution for the Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds: East Side Senior Center (#15533) to be referred to the Economic and Community Development & Environment Committee of the City Council.

Grant: City of Bridgeport application to the Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds: East Side Senior Center (#15533)

If you have any questions or require any additional information please contact me at 203-332-5665 or [christinab.smith@bridgeportct.gov](mailto:christinab.smith@bridgeportct.gov).

Thank you,

Christina Smith  
Central Grants Office

ATTEST  
CITY CLERK

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2014 JUN 25 P 1:01



## GRANT SUMMARY

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PROJECT TITLE: **Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds: East Side Senior Center (#15533)**

NEW  RENEWAL  CONTINUING

DEPARTMENT SUBMITTING INFORMATION: **Central Grants Office**

CONTACT NAME: **Christina Smith**

PHONE NUMBER: **203-332-5665**

**PROJECT SUMMARY/DESCRIPTION:** The City of Bridgeport **Department of Health and Social Services** annually seeks **Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds** for various activities. The East Side Senior Center (ESSC) is the focal point of Bridgeport's culturally diverse East Side neighborhood. The ESSC ensures a nutritious daily meal for attendees. The Center also provides health education and health screening services to help promote and maintain community wellbeing. In addition, information and assistance services are also provided to help seniors who reside in the East Side reduce the barriers to access. The ESSC's staff and volunteers are committed to making sure that seniors are provided as many services as possible. All speakers are bi-lingual, and written materials are provided in both English and Spanish, and are culturally sensitive, ensuring that diverse non-English populations have the same access to the essential services provided at the ESSC.

**CONTRACT PERIOD:** October 1, 2014 – September 30, 2015

### IF APPLICABLE

FUNDING SOURCES (include matching/in-kind funds):

Federal: \$26,144.97

State:

City: \$91,247.26 cash and in-kind – see narrative following

Other:

FUNDS REQUESTED

Salaries/Benefits:

Supplies:

**City of Bridgeport**

**2014-2015 Budget Narrative**

**East Side Senior Center**

<b><u>Personnel:</u></b>	<b><u>Total:</u></b>	<b><u>SWCAA</u></b>	<b><u>Match:</u></b>
East Side Senior Center Program Coordinator: (Martha Santiago): 40% of Time	\$49,939.00	\$19,975.60	\$29,964.00 (General Fund)
Director, Social Services: (Iris Molina) 3% of Time @ \$99,652 per year			\$2,989.56
Officer Coordinator, Department of Social Services: (Julianne Burdo) 3% of Time @ \$45,034 per year			\$1,351.02
Janitor, East Side Senior Center (Bobby Oliveria) 3% of Time @ \$37,454 per year			\$1,111.62
Intern, East Side Senior Center: Approx 22 Hours a Week x 16 Weeks: 352 Hours Total \$13.00/hr			\$4,576.00
<b><u>Fringe Benefits:</u></b> Medical and Fringe Benefits for Program Coordinator	\$15,423.43	\$6,169.37	\$9,254.06
<b><u>Program Supplies:</u></b> Arts and Crafts Supplies, Refreshments			\$2,000.00
<b><u>Rent:</u></b> Lease Agreement between City of Bridgeport & Marrakech, Inc. for East Side Senior Center			\$40,000 (CDBG Funds)
<b><u>Total:</u></b>	\$117,391.23	\$26,144.97	\$91,246.26

**Total Project Cost: \$117,391.23**

**Title III Funds: \$26,144.97**

**City Match: \$91,246.26**

(\$40,000 of CDBG Funding for Rental Space)

(\$39,218.06 of GF for Martha Santiago's Salary & Benefits)

(\$10,028.20 for Hours of Director of SS, Office Coordinator, Janitor & Intern from Social Services)

**A Resolution by the Bridgeport City Council**

**Regarding the**

**Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds: East Side Senior Center  
(#15533)**

**(DRAFT)**

**WHEREAS**, the Southwestern Connecticut Agency on the Aging is authorized to extend financial assistance to municipalities in the form of grants; and,

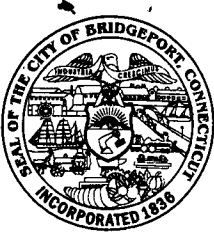
**WHEREAS**, this funding has been made possible through a grant for the East Side Senior Center; and,

**WHEREAS**, funds under this grant will be used to promote, enhance and develop community focal points, endorse physical and mental well-being and encourage good nutrition among Seniors; and,

**WHEREAS**, it is desirable and in the public interest that the City of Bridgeport, Department of Health and Social Services, submit an application to the Southwestern Connecticut Agency on the Aging in the amount of \$26,144.97 for the purpose of providing services at the East Side Senior Center.

**NOW THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL:**

1. That it is cognizant of the City's grant application to and contract with the Southwestern Connecticut Agency on the Aging for the purpose of providing services at the East Side Senior Center; and,
2. That it hereby authorizes, directs and empowers the Mayor or his designee to execute and file such application with the Southwestern Connecticut Agency on the Aging for the East Side Senior Center Grant and to provide such additional information and to execute such other contracts, amendments, and documents as may be necessary to administer this program.



City of Bridgeport, Connecticut  
**CENTRAL GRANTS OFFICE**

999 Broad Street  
Bridgeport, Connecticut 06604  
Telephone (203) 332-5662  
Fax (203) 332-5657

BILL FINCH  
Mayor

ANDREW J. NUNN  
Chief Administrative Officer

CHRISTINA B. SMITH  
Director  
Central Grants

COMM. #127-13 Referred to ECD&E Committee on  
7/7/2014

June 24, 2014

Office of the City Clerk  
City of Bridgeport  
45 Lyon Terrace, Room 204  
Bridgeport, Connecticut 06604

Re: Resolution – Southwestern Connecticut Agency on the Aging (SWCAA) Title III  
Funds: Chore Program (#15418)

Attached, please find a Grant Summary and Resolution for the **Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds: Chore Program (#15418)** to be referred to the **Economic and Community Development & Environment Committee** of the City Council.

Grant: City of Bridgeport application to the **Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds: Chore Program (#15418)**

If you have any questions or require any additional information please contact me at 203-332-5665 or [christinab.smith@bridgeportct.gov](mailto:christinab.smith@bridgeportct.gov).

Thank you,

Christina Smith  
Central Grants Office

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2014 JUN 25 P 1:00  
ATTEST  
CITY CLERK





## GRANT SUMMARY

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PROJECT TITLE: **Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds: Chore Program (#15418)**

NEW  RENEWAL  CONTINUING

DEPARTMENT SUBMITTING INFORMATION: **Central Grants Office**

CONTACT NAME: **Christina Smith**

PHONE NUMBER: **203-332-5665**

**PROJECT SUMMARY/DESCRIPTION:** The City of Bridgeport **Department of Health and Social Services** annually seeks **Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds** for various activities. The Chore Program will help assist elderly, low-income Bridgeport seniors who are experiencing difficulties with minor home repairs. This service will help elderly seniors make minor repairs to their homes to make them safe by removing hazards. Participants of the Chore Program will be eligible to receive renovations designed to provide improvements that will enable participants suffering from chronic disabling conditions to remain in their own homes safely and securely. The Senior Chore Program will provide maintenance service only and materials will not be included. Income requirements will apply.

**CONTRACT PERIOD:** October 1, 2014 – September 30, 2015

### IF APPLICABLE

FUNDING SOURCES (include matching/in-kind funds):

Federal: \$13,520.00

State:

City: \$10,218.50 in-kind – see narrative following

Other:

FUNDS REQUESTED

Salaries/Benefits:

Supplies:

**City of Bridgeport**

**2014-2015 Budget Narrative**

**Chore Program**

	<u>SWCAA</u>	<u>Match:</u>
<b><u>Contractual:</u></b>		
Part Time Maintenance Worker \$13.00/hr @ 20/hrs per week x 52 weeks	\$13,520.00	
<b><u>Personnel:</u></b>		
Director, Social Services: (Iris Molina) 1% of Time @ \$99,652 per year		\$996.52
Officer Coordinator, Department of Social Services: (Julianne Burdo) 1% of Time @ \$45,034 per year		\$450.34
Janitor, Dept. of Health & Social Services (Bobby Oliveria) 1% of Time @ \$37,454 per year		\$374.54
Assistant Special Projects Manager (Dennis Scinto, Jr.) 1% of Time @ \$62,510 per year \$625.10		
Intern, Department of Social Services: \$3,380.00 Approx 5 Hours a Week x 52 Weeks: 260 Hours Total \$13.00/hr		
<b><u>Space</u></b>		
Maintenance Worker Office (100 Sq. Ft x \$18.00 sq. ft) \$1,800.00		
Client Waiting Area (144 Sq. Ft x \$18.00 sq ft.)		\$2,592.00
<b>Total Project Cost:</b>	<b>\$23,738.50</b>	
<b>Title III Funds:</b>	<b>\$13,520.00</b>	
<b>City Match:</b>	<b>\$10,218.50</b>	

**A Resolution by the Bridgeport City Council**

**Regarding the**

**Southwestern Connecticut Agency on the Aging (SWCAA) Title III Funds: Chore Program  
(#15418)**

**(DRAFT)**

**WHEREAS**, the Southwestern Connecticut Agency on the Aging is authorized to extend financial assistance to municipalities in the form of grants; and,

**WHEREAS**, this funding has been made possible through a grant for the Chore Program; and,

**WHEREAS**, funds under this grant will be used to contract with a maintenance worker to help assist elderly, low-income Bridgeport seniors make minor home repairs; and,

**WHEREAS**, it is desirable and in the public interest that the City of Bridgeport, Department of Health and Social Services, submit an application to the Southwestern Connecticut Agency on the Aging in the amount of \$13,520.00 for the purpose of providing minor home repairs for low-income elderly seniors within Bridgeport.

**NOW THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL:**

1. That it is cognizant of the City's grant application to and contract with the Southwestern Connecticut Agency on the Aging for the purpose of providing the Chore Program; and,
2. That it hereby authorizes, directs and empowers the Mayor or his designee to execute and file such application with the Southwestern Connecticut Agency on the Aging for the Chore Program Grant and to provide such additional information and to execute such other contracts, amendments, and documents as may be necessary to administer this program.



City of Bridgeport, Connecticut  
**CENTRAL GRANTS OFFICE**

999 Broad Street  
Bridgeport, Connecticut 06604  
Telephone (203) 332-5662  
Fax (203) 332-5657

**ANDREW J. NUNN**  
Chief Administrative Officer

**CHRISTINA B. SMITH**  
Director  
Central Grants

**BILL FINCH**  
Mayor

**COMM. #128-13 Referred to ECD&E Committee  
on 7/7/2014**

June 24, 2014

Office of the City Clerk  
City of Bridgeport  
45 Lyon Terrace, Room 204  
Bridgeport, Connecticut 06604

**Re: Resolution – State of Connecticut Department of Energy and Environmental  
Protection NPS 319 Grant - Blackham School LID Retrofit Project (#14608)**

Attached, please find a Grant Summary and Resolution for the **State of Connecticut Department of Energy and Environmental Protection NPS 319 Grant - Blackham School LID Retrofit Project (#14608)** to be referred to the **Economic and Community Development & Environment Committee** of the City Council.

**Grant: City of Bridgeport application to the State of Connecticut Department of Energy and Environmental Protection NPS 319 Grant - Blackham School LID Retrofit Project (#14608)**

If you have any questions or require any additional information please contact me at 203-332-5665 or [christinab.smith@bridgeportct.gov](mailto:christinab.smith@bridgeportct.gov).

Thank you,

Christina Smith  
Central Grants Office

ATTEST  
CITY CLERK

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2014 JUN 27 A 10:31



## GRANT SUMMARY

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**PROJECT TITLE:** State of Connecticut Department of Energy and Environmental Protection NPS 319 Grant - Blackham School LID Retrofit Project (#14608)

NEW  RENEWAL  CONTINUING

**DEPARTMENT SUBMITTING INFORMATION:** Central Grants Office

**CONTACT NAME:** Christina Smith

**PHONE NUMBER:** 203-332-5665

**PROJECT SUMMARY/DESCRIPTION:** As a result of the recent development of the Rooster River Watershed Based Plan, the Southwest Conservation District (SWCD), partnering with the City of Bridgeport, proposes an implementation project entitled the Blackham School LID Retrofit Project to be considered for funding under the 2014 NPS 319 funding. The proposed LID Retrofit Project for Blackham School involves converting a portion of paved asphalt parking lot into a bioretention basin and retrofitting an existing grass median into a functional bioswale to capture, treat, and infiltrate runoff from the adjacent parking area during average storms. These bioretention areas will sequester water from combined sewer network in this area of the Rooster River Watershed that outfalls in Ash Creek. This project was inspired by the Rooster River Technical Memorandum #2, which is a component of the upcoming Rooster River Watershed Based Plan. Southwest Conservation District will be the Applicant and will Administer Grant.

**CONTRACT PERIOD:** September 2014- August 2015(depending on EPA approval timeline)

### IF APPLICABLE

**FUNDING SOURCES (include matching/in-kind funds):**

Federal: \$57,980

State:

City: \$38,653

Other:

**FUNDS REQUESTED**

Salaries/Benefits:

Supplies:

**A Resolution by the Bridgeport City Council**

**Regarding the**

**State of Connecticut Department of Energy and Environmental Protection**

**NPS 319 Grant - Blackham School LID Retrofit Project (#14608)**

**WHEREAS**, the State of Connecticut Department of Energy and Environmental Protection (DEEP) is authorized to extend financial assistance to municipalities in the form of grants; and,

**WHEREAS**, this funding has been made possible through a grant for the NPS 319 Program; and,

**WHEREAS**, funds under this grant will be used to convert a portion of paved asphalt parking lot into a bioretention basin and retrofit an existing grass median into a functional bioswale to capture, treat, and infiltrate runoff from the adjacent parking area during average storms at Blackham School; and,

**WHEREAS**, it is desirable and in the public interest that the City of Bridgeport, Department of Public Facilities, submit an application to the State of Connecticut Department of Energy and Environmental Protection in the amount of \$57,980 to support the Department of Public Facilities in coordinating the implementation of the Blackham School LID Retrofit Project.

**NOW THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL:**

1. That it is cognizant of the City's grant application to and contract with the State of Connecticut Department of Energy and Environmental Protection for the purpose of implementing the Blackham School LID Retrofit Project Project; and,
2. That it hereby authorizes, directs and empowers the Mayor or his designee to execute and file such application with the State Department of Energy and Environmental Protection for the NPS 319 Grant Program and to provide such additional information and to execute such other contracts, amendments, and documents as may be necessary to administer this program.



City of Bridgeport, Connecticut  
**CENTRAL GRANTS OFFICE**

999 Broad Street  
Bridgeport, Connecticut 06604  
Telephone (203) 332-5662  
Fax (203) 332-5657

BILL FINCH  
Mayor

ANDREW J. NUNN  
Chief Administrative Officer

CHRISTINA B. SMITH  
Director  
Central Grants

COMM. #129-13 Referred to ECD&E Committee on  
7/7/2014

June 26, 2014

Office of the City Clerk  
City of Bridgeport  
45 Lyon Terrace, Room 204  
Bridgeport, Connecticut 06604

Re: Resolution – **FY 2014 US EPA Brownfield Cleanup Grant Program- 80 Hastings Street (#14405)**

Attached, please find a Grant Summary and Resolution for the **FY 2014 US EPA Brownfield Cleanup Grant Program- 80 Hastings Street (#14405)** to be referred to the City Council.

Grant: City of Bridgeport application to the **FY 2014 US EPA Brownfield Cleanup Grant Program- 80 Hastings Street (#14405)**

If you have any questions or require any additional information please contact me at 203-576-7732 or [Renu.Gupta@bridgeportct.gov](mailto:Renu.Gupta@bridgeportct.gov).

Thank you,

Renu Gupta  
Central Grants Office

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CITY CLERK

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2014 JUN 27 A 10:31



## GRANT SUMMARY

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**PROJECT TITLE: FY 2014 US EPA Brownfield Cleanup Grant Program- 80 Hastings Street (#14405)**

NEW

RENEWAL

CONTINUING

DEPARTMENT SUBMITTING INFORMATION: **Central Grants Office**

CONTACT NAME: **Renu Gupta**

PHONE NUMBER: **203-576-7732**

**PROJECT SUMMARY/DESCRIPTION:** The City of Bridgeport Office of Planning and Economic Development is applying to the United States Environmental Protection Agency (EPA) for a FY 2014 Brownfield Cleanup Grant. The City is requesting \$200,000 for the Cleanup of 80 Hastings Street, the home of the former Progress Plating Technologies site. The objective is to put the property back into productive use. To achieve this goal, the site will need to be remediated. The 20% cost share will be met through the OPED Staff Time and the City Capital funding which OPED has requested.

**CONTRACT PERIOD:** 3 years from the Date of Signed Cooperative Agreement

### IF APPLICABLE

FUNDING SOURCES (include matching/in-kind funds):

Federal: \$200,000

State:

City: \$40,000( in-Kind Staff Time and Capital)

Other:

FUNDS REQUESTED

Salaries/Benefits:

Supplies:



**A Resolution by the Bridgeport City Council**

**Regarding the**

**2014 US EPA Brownfield Cleanup Grant Program- 80 Hastings Street (#14405)**

**WHEREAS**, the United States Environmental Protection Agency (EPA) is authorized to extend financial assistance to municipalities in the form of grants; and,

**WHEREAS**, this funding has been made possible through a Cooperative Agreement between the US EPA and the City of Bridgeport; and,

**WHEREAS**, funds under this grant will be used for cleanup of 80 Hastings Street -home of the former Progress Plating Technologies site ; and,

**WHEREAS**, it is desirable and in the public interest that the City of Bridgeport, Office of Planning and Economic Development submits an application to the United States Environmental Protection Agency (EPA) for a FY 2014 Brownfield Cleanup Grant in an amount not to exceed \$200,000 for the purpose of environmental remediation at 80 Hastings Street; and

**NOW THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL:**

1. That it is cognizant of the City's grant application to and contract with the United States Environmental Protection Agency (EPA) for financial assistance for environmental remediation of the former Progressive Plating Technologies site located at 80 Hastings Street.
2. That it hereby authorizes, directs and empowers the Mayor or his designee, David Kooris, to execute and file such application with the United States Environmental Protection Agency (EPA) for the FY 2014 Brownfield Cleanup Grant and to provide such additional information and to execute such other contracts, amendments, and documents as may be necessary to administer this program.



BILL FINCH  
Mayor

City of Bridgeport, Connecticut  
**CENTRAL GRANTS OFFICE**

999 Broad Street  
Bridgeport, Connecticut 06604  
Telephone (203) 332-5662  
Fax (203) 332-5657

ANDREW J. NUNN  
Chief Administrative Officer

CHRISTINA B. SMITH  
Director  
Central Grants

COMM. #130-13 Ref'd to Public Safety & Transportation  
Committee on 07/07/2014.

June 27, 2014

Office of the City Clerk  
City of Bridgeport  
45 Lyon Terrace, Room 204  
Bridgeport, Connecticut 06604

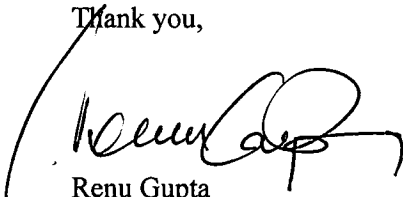
Re: Resolution – **State of Connecticut Office of Policy & Management Youth Services Prevention Grant Program for the Police Department's Gang Resistance Education and Training Program (#15434)**

Attached, please find a Grant Summary and Resolution for the **State of Connecticut Office of Policy & Management Youth Services Prevention Grant for the Police Department's Gang Resistance Education and Training Program** for the City Council.

Grant: City of Bridgeport application to the **State of Connecticut Office of Policy & Management Youth Services Prevention grant for the Police Department's Gang Resistance Education and Training Program**

If you have any questions or require any additional information please contact me at 203-576-7732 or [renu.gupta@bridgeportct.gov](mailto:renu.gupta@bridgeportct.gov).

Thank you,

  
Renu Gupta  
Central Grants Office

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2014 JUL - 1 P 4: 04  
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CITY CLERK



## GRANT SUMMARY

**PROJECT TITLE:** State of Connecticut Office of Policy & Management Youth Services  
Prevention Grant Program for the Police Department's Gang Resistance Education  
and Training Program (#15434)

NEW \_\_\_\_\_ RENEWAL  X  CONTINUING

DEPARTMENT SUBMITTING INFORMATION: **Central Grants Office**

CONTACT NAME: **Renu Gupta**

PHONE NUMBER: **203-576-7732**

**PROJECT SUMMARY/DESCRIPTION:** City of Bridgeport Central Grants Office working with Police Department is applying for funds from State of Connecticut Office of Planning and Management to implement a Gang Resistance Education and Training Program for youth. The Bridgeport Police Department will implement this program in the elementary and middle school grades. These schools have high incident and arrest rates and are more prone to criminal activity. Officers will implement the Middle School Component of the GREAT Program in the 6<sup>th</sup> grade and 7<sup>th</sup> grade classrooms, reaching approximately 800 students.

**CONTRACT PERIOD:** July 2014- June 2015

### IF APPLICABLE

FUNDING SOURCES (include matching/in-kind funds):	FUNDS REQUESTED
Federal:	Salaries/Benefits: \$55,721.20
State: \$67,150	Supplies: \$ 2,250.18
City:	Training: \$4,000
Other:	Refreshments:\$2,500.00
	Contractual(Family Therapist): \$1,500
	Equipment:\$1,178.62

**A Resolution by the Bridgeport City Council**

**Regarding the**

**State of Connecticut Office of Policy & Management Youth Services Prevention Grant Program  
for the Police Department's Gang Resistance Education and Training Program  
(#15434)**

**WHEREAS**, the State of Connecticut Office of Policy & Management (OPM) is authorized to extend financial assistance to municipalities in the form of grants; and,

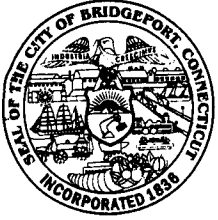
**WHEREAS**, this funding has been made possible through a Youth Service Prevention Grant Program; and,

**WHEREAS**, funds under this grant will be used for Police Department's Gang Resistance Education and Training Program; and,

**WHEREAS**, it is desirable and in the public interest that the City of Bridgeport Central Grants Office with the Police Department, submits an application to the State of Connecticut Office of Policy & Management in the amount of \$67,150 to implement a Gang Resistance Education and Training Program:

**NOW THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL:**

1. That it is cognizant of the City's grant application to and contract with the State of Connecticut Office of Policy & Management in the amount of \$67,150 to implement a **Gang Resistance Education and Training Program** focused on offering life skills, and fitness academy; and,
2. That it hereby authorizes, directs and empowers the Mayor or his designee to execute and file such application with the State of Connecticut Office of Policy & Management for the **Gang Resistance Education and Training Program** and to provide such additional information and to execute such other contracts, amendments, and documents as may be necessary to administer this program.



City of Bridgeport, Connecticut  
**OFFICE OF PLANNING & ECONOMIC DEVELOPMENT**

999 BROAD STREET  
BRIDGEPORT, CONNECTICUT 06604  
TELEPHONE: (203) 576-7221  
FAX: (203) 332-5611

BILL FINCH  
Mayor

COMM. #131-13 Referred to ECD&E Committee  
on 7/7/2014

Office of the City Clerk  
45 Lyon Terrace  
Bridgeport, CT 06605

July 1, 2014

Dear City Clerk:

Attached, please find a resolution authorizing a Tax Incentive Development Agreement for 3336 Fairfield Avenue. Also please find an accompanying financial analysis in a memo from the National Development Council dated 6-24-14.

This item is for referral to the Economic and Community Development and Environment Committee.

Sincerely,

Bill Coleman

Director of Neighborhood Development

CC: Mayor Finch  
Andrew Nunn, CAO  
David Kooris, OPED

ATTEST  
CITY CLERK

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2014 JUL - 2 A 8:43

**A Resolution by the Bridgeport City Council  
Authorizing a Tax Incentive Development Agreement for the  
New Construction of 56 Residential Units at 3336 Fairfield  
Avenue, “Riverbank Landing”**

WHEREAS, Riverbank Landing LLC, (the “Developer”), pursuant to a \$700,000 private purchase in July of 2004, is the owner of 1.22 acres of land located at 3336 Fairfield Avenue in the Black Rock Section of the City, (the “Property”);

WHEREAS, the Developer proposes to invest approximately \$13 million to construct 56 new residential units on the Property, to consist of forty 2-bedroom units expected to rent for \$2,243 per month, as well as sixteen 1-bedroom units expected to rent for \$1,600 per month (the “Project”);

WHEREAS, the Developer has secured zoning approval for the Project;

WHEREAS the Developer has completed pre-development demolition on the Property and has completed considerable site-work and installed the foundation for the Project;

WHEREAS, the Developer has not been able to attract the capital necessary to complete the Project;

WHEREAS, the Developer has presented to the City’s Office of Planning and Economic Development (“OPED”) a request for a Tax Incentive which would allow the Project to attract the necessary capital;

WHEREAS, OPED, making use of the National Development Council, has analyzed this request, subjecting it to an economic pro forma analysis (see attached memo of 6-24-14 from the National

Development Council to David Kooris and Bill Coleman of OPED, herein after known as the “Analysis”) against industry and market standards for this type of Project, considering such factors as Developer equity and return, costs of construction, leveraging of financing, all as per the requirements of the City’s Tax Incentive Development Program, Ch 3.20 of the Municipal Code.

WHEREAS, the Analysis indicates that the Project, as it would be structured under the Tax Incentive Agreement, allows the Developer a reasonable rate of return of less than 12 percent, attracts sufficient private capital in the amount of 70 percent of the Project cost, and affords the City a significant increase in tax revenue on the Property from the approximately \$20,000 it currently produces to the \$120,000 it would produce in the first year of occupancy;

WHEREAS, the Tax Incentive Development Agreement herein proposed provides over \$1.3 mm in tax revenue over the first ten years of occupancy, commencing at an average per unit tax rate that is roughly equivalent to 3% of the Project’s Effective Gross Income, which is the percentage standard OPED has sought to achieve as policy with respect to such agreements, and which in the case of this Project translates to an initial tax payment of \$2,150 per unit that will then escalate annually at a rate of 3%;

WHEREAS, Building Permit Fees for the Project, with a construction cost estimated at \$10 mm, would equate to approximately \$250,000 in additional revenue for the City;

WHEREAS, this Project meets the eligibility criteria of the City’s Tax Incentive Development Program in that the City’s Office of Planning and Economic Development (“OPED”) finds that it:

- (1) represents at least \$3 million in investment;
- (2) is compatible with the Master Plan;

- (3) has received OPED's economic pro-forma analysis;
- (4) creates public benefits in neighborhood improvement;
- (5) shall not generate any less in taxes than in the year prior;
- (6) shall begin construction within two years;
- (7) has earned OPED's favorable report on economic impact

WHEREAS, it is in the City's interest to encourage the completion of this long-stalled Project:

NOW THEREFORE BE IT RESOLVED that the Director of the Office of Planning and Economic Development is authorized to negotiate and execute a Tax Incentive Development Agreement that will fix the real estate taxes at the Property for the first ten years after the issuance of a Certificate of Occupancy as follows:

Year 1:	\$ 120,394
Year 2:	\$ 124,005
Year 3:	\$ 127,726
Year 4:	\$ 131,558
Year 5:	\$ 135,505
Year 6:	\$ 139,570
Year 7:	\$ 143,757
Year 8:	\$ 148,070
Year 9:	\$ 152,512
Year 10:	\$ <u>157,087</u>
<b>Total:</b>	<b>\$1,380,184</b>

BE IT FURTHER RESOLVED that the Mayor and the Director of the Office of Planning and Economic Development are each authorized to execute such agreements and take such other necessary or desirable actions in furtherance of the Project and consistent with this resolution in the best interests of the City.



TO: David Kooris  
Bill Coleman

FROM: Kevin F. Gremse **KFG**

DATE: June 24, 2014

RE: [REDACTED] g  
Payment in Lieu of Taxes (PILOT)

Per your request, the National Development Council (NDC) has reviewed the financial model for Riverbank Landing, the proposed residential development in Black Rock, and analyzed the need for a payment in lieu of taxes (PILOT). In this memo, I have provided a summary of the development's program and financial structure, reviewed the Sources and Uses of Funds, reviewed the operating proforma, and provided the basis and justification for the consideration of the proposed PILOT.

**SUMMARY**

The project involves the new construction of [REDACTED] Avenue, a property which has been vacant for over two decades since the Mary Journey's Inn closed. [REDACTED] bought the property about 10 years ago, [REDACTED] structures, col [REDACTED] work, and [REDACTED] for the proposed building. H [REDACTED] ls from the City of Bridgeport in 2006 for his development. Hersh planned the proposed building as a for-sale condominium but was not able to secure a construction loan. Market conditions necessitated reprogramming the building to a rental property. Hersh was still unable to access the necessary capital to complete the project, despite his owning the property debt-free and site work and foundation already completed.

Hersh has recently added [REDACTED]. Craft is a local developer who has completed several comparable residential buildings in Milford and other commercial buildings in Fairfield County. [REDACTED] as the property's "as complete" value (based upon an income valuation approach), would be substantially less than the project's budgeted cost. Investments do not bear sufficient returns in instances in which project costs exceeds fair market value.

Based upon NDC's review of the financial model, the development team will not be able to assemble a financial package to finish the project if the property were to be taxed at full assessment. With a [REDACTED] (PILOT) [REDACTED] 10% of effective gross i [REDACTED], the development structure would work for both the needs of the lender and development team. [REDACTED]. This annual would be a \$100,000 increase to what is



currently paid on the unfinished property. The proposed PILOT at 10% of EGI is consistent with other previous PILOTs approved to support residential and mixed-use developments. [REDACTED]

**SOURCES AND USES**

The development team is currently shopping the construction and permanent loan with a number of commercial lenders. It is expected that the loan will be sized at approximately \$9,000,000, or an estimated 70% of as-complete value, with the assumed PILOT in place. The development team proposes to fund the remaining project cost with equity.

USES OF FUNDS	Amount	% of
Land Acquisition	\$1,700,000	13%
Construction	\$9,816,474	74%
Contingency	\$200,000	2%
Architectural/Engineering	\$500,000	4%
Construction Interest	\$450,000	3%
Loan Fees	\$90,000	1%
Other Soft Costs and Carrying Costs	\$500,000	4%
TOTAL	\$13,256,474	100%
<i>Per Unit Cost</i>	<b>\$236,722.75</b>	
[REDACTED] FUNDS	Amount	% of
[REDACTED] ge	[REDACTED]	68%
[REDACTED] y	[REDACTED]	20%
[REDACTED] ty	[REDACTED]	12%
State of CT DOH CHAMP	\$0	0%
TOTAL	\$13,256,474	100%

The development team considered submitting an application the State of Connecticut Department of Housing (DOH) for a soft loan (debt without a structured repayment schedule) but decided against it because (a) the program is extremely competitive and (b) it would have resulted in the need to deed restrict more than half of the units as affordable, thereby changing the intended development product more so than desired.

**PROFROMA ANALYSIS**

The development team projects [REDACTED] 2BR. These rents are higher than comparable rents in Bridgeport, although there is little comparable properties in Bridgeport. The development team is confident in getting such rents due to the favorable location (Black Rock in near vicinity to the Fairfield Metro train station) and the superior quality of the units and common area amenities. In reality, the comparable properties are those newly constructed rental residential buildings located throughout the region in other communities besides Bridgeport.



Operating expenses considered reasonable for a comparable building, the real estate taxes aside. With the real estate taxes or PILOT being sized based upon the 10% of effective gross income (EGI) formula, it can be demonstrated that the property would have an equivalent "as complete" value as the development cost.

STABILIZED OP. PROFORMA	Amount		Comments
2BR Gross Income (market)	\$1,076,640	\$2,243	Unit
1 BR Gross Income (market)	\$307,200	\$1,600	Unit
Gross Income	\$1,383,840		
Less Vacancy	(\$138,384)	10.00%	Vacancy
Less Concessions	(\$41,515)	3.00%	
Effective Gross Income	\$1,203,941		
Less Operating Expenses	(\$210,000)	\$3,750	unit.
Less Utilities	(\$56,000)	\$1,000	
	(\$120,394)		
		\$2,150	Unit
Total Operating Expenses	(\$386,394)	\$6,900	
Net Operating Income	\$817,547		
Less First Debt Service	(\$579,767)		
Less Second Debt Service	\$0		
Cash Flow	\$237,779		

### RATIOS AND MEASUREMENTS

Even with the proposed tax schedule, the development is financially marginal. The financial ratios fall short of what is normally expected for a development in what is still considered an unproven market for the proposed residential product.

and normally seek out developments in which the net operating income (NOI) of the property is at least 7% of project costs.

with the proforma'd rents and expenses. The development team will proceed with the development because it believes that the product will be well absorbed by the market, allowing it to increase rents beyond what is profroma'd for the lenders. Nevertheless, there bears considerable risk for the development team for the project even with the PILOT.

RATIOS AND MEASUREMENTS	
Estimated "As Complete" Fair Market Value	\$13,206,524
Debt Coverage Ratio (DCR) on First Mortgage	1.41
Loan to Value (LTV) on First Mortgage	68.15%
Cash on Cash Return on All Equity	7%
Cash on Cost (NOI/Project Cost)	6%



## PILOT NEED

NDC has conducted considerable analysis of this proposed development. Based upon our review, we find that the proposed PILOT is an integral part of the financial structure in order to make the development financially feasible. Furthermore, we have determined that the developer has maximized other sources of funding for the development and that it has maximized debt and developer equity. It has not used other public sources of funds due to the affordability requirements of such programs. The proposed PILOT allows there to be near-market rates of return offered to both the developer and the outside investors. The PILOT is not a vehicle through which investors will be unduly enriched. Rather, it is a vehicle through which financial feasibility is achieved in order for the transaction to close and the long-delayed project completed.

## COMMUNITY BENEFITS

The following is a list of summarized community benefits resulting from the project;

- *Re-activating a long-dormant site* – [REDACTED] Other attempts at development have fallen short due to the economic imbalance of costs exceeding completed value. The redevelopment of this site is expected to strengthen the commercial strip and add buying power to the commercial strip along Black Rock Harbor.
- *Transit Oriented Development* – The project's prime location one block from the train station will allow residents to live in a desired community and commute via the transit system to jobs in the region.
- *Tax Increment* – Although not taxed at full assessment, the PILOT will result in a substantial tax increment for the City of Bridgeport, an increase above from what it currently collects on the vacant buildings with annual increases. The "[REDACTED] completed" [REDACTED] \$100,000 annually, is \$100,000 higher than [REDACTED] [REDACTED] The completion of such a vital piece of Black Rock's commercial corridor is also expected to catalyze additional private sector investment and development.



BILL FINCH  
Mayor

City of Bridgeport, Connecticut  
**CENTRAL GRANTS OFFICE**

999 Broad Street  
Bridgeport, Connecticut 06604  
Telephone (203) 332-5662  
Fax (203) 332-5657

ANDREW J. NUNN  
Chief Administrative Officer

CHRISTINA B. SMITH  
Director  
Central Grants

COMM. #132-13 Referred to ECD&E Committee  
on 7/7/2014

June 24, 2014

Office of the City Clerk  
City of Bridgeport  
45 Lyon Terrace, Room 204  
Bridgeport, Connecticut 06604

Re: **Resolution – State of Connecticut Department of Economic and Community  
Development Round 5 Brownfield Grant – 1564 Seaview Avenue, Bridgeport, CT**

Attached, please find a Grant Summary and Resolution for the **State of Connecticut  
Department of Economic and Community Development Round 5 Brownfield Grant  
– 1564 Seaview Avenue, Bridgeport, CT** to be referred to the **Economic and  
Community Development & Environment Committee** of the City Council.

If you have any questions or require any additional information please contact me at 203-576-7732 or  
[Renu.Gupta@bridgeportct.gov](mailto:Renu.Gupta@bridgeportct.gov).

Thank you,

Renu Gupta  
Central Grants Office

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2014 JUL -2 A 9:07  
ATTEST  
CITY CLERK



## GRANT SUMMARY

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**PROJECT TITLE: State of Connecticut Department of Economic and Community Development  
Round 5 Brownfield Grant – 1564 Seaview Avenue, Bridgeport, CT**

NEW  RENEWAL  CONTINUING

DEPARTMENT SUBMITTING INFORMATION: **Central Grants Office**

CONTACT NAME: **Renu Gupta**

PHONE NUMBER: **203-576-7732**

**PROJECT SUMMARY/DESCRIPTION:** The purposes of the Remedial Action and Redevelopment Municipal Grant Program and Targeted Brownfield Development Loan Program are to provide funds to eligible applicants to identify, assess, and conduct remediation related planning and other cleanup activities on priority Brownfield sites statewide.

This grant will allow for site clean-up and provide a local manufacturer (Prime Resource Corporation) to have a clean facility to expand manufacturing and current workforce by 200 employees. This project will assist the manufacturer to stay in Bridgeport with 320 employees. About 80% of these employees live and spend their earnings in Bridgeport. The 107,000 square facilities is owned by the city and is currently contaminated with PCB.

**CONTRACT PERIOD:** September 2014- August 2016

**IF APPLICABLE**

**FUNDING SOURCES (include matching/in-kind funds):**

Federal:

State: \$4,000,000

City:

Other:

**FUNDS REQUESTED**

Salaries/Benefits:

Supplies:

**A Resolution by the Bridgeport City Council**

**Regarding the**

**State of Connecticut Department of Economic and Community Development Round 5 Brownfield Grant – 1564 Seaview Avenue, Bridgeport, CT**

**WHEREAS**, the State of Connecticut Department of Economic and Community Development (DECD) is authorized to extend financial assistance to municipalities in the form of grants; and,

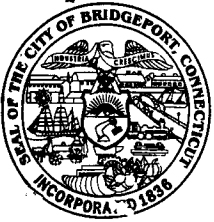
**WHEREAS**, this funding has been made possible through the Round 5 Brownfield Program; and,

**WHEREAS**, funds under this grant are intended to be lent and/or granted to third party borrower/recipients for the purpose of funding environmental remediation activities of targeted Brownfield sites in the City of Bridgeport and will be used to clean-up and provide a local manufacturer (Prime Resource Corporation) to have a clean facility and to expand manufacturing and current workforce by 200 employees.; and,

**WHEREAS**, it is desirable and in the public interest that the City of Bridgeport Central Grants Office and Office of Planning and Economic Development, submit an application to the State of Connecticut Department of Economic and Community Development (DECD) in the amount of \$4,000,000 to support the cleanup and expansion of 107,000 square facilities located at 1564 Seaview Avenue, Bridgeport, CT; and

**NOW THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL:**

1. That it is cognizant of the City's grant application to and contract with the State of Connecticut Department of Economic and Community Development (DECD) for the purpose of implementing the cleanup of 1564 Seaview Avenue, Bridgeport, CT; and,
2. That it hereby authorizes, directs and empowers the Mayor or his designee to execute and file such application with the State of Connecticut Department of Economic and Community Development (DECD) for the Round 5 Brownfield Grant Program and to provide such additional information and to execute such other contracts, amendments, and documents as may be necessary to administer this program.



BILL FINCH  
Mayor

City of Bridgeport, Connecticut  
**CENTRAL GRANTS OFFICE**

999 Broad Street  
Bridgeport, Connecticut 06604  
Telephone (203) 332-5662  
Fax (203) 332-5657

ANDREW J. NUNN  
Chief Administrative Officer

CHRISTINA B. SMITH  
Director  
Central Grants

COMM. #133-13 Referred to ECD&E Committee  
on 7/7/2014

June 27, 2014

Office of the City Clerk  
City of Bridgeport  
45 Lyon Terrace, Room 204  
Bridgeport, Connecticut 06604

Re: **Resolution – State of Connecticut Office of Policy & Management- Youth Services Prevention Grant for the Office of Neighborhood Revitalization Mentoring Program (#15433)**

Attached, please find a Grant Summary and Resolution for the **State of Connecticut Office of Policy & Management - Youth Services Prevention Grant for Office of Neighborhood Revitalization Mentoring Program** for the City Council.

Grant: **City of Bridgeport application to the State of Connecticut Office of Policy & Management- Youth Services Prevention grant for Office of Neighborhood Revitalization Mentoring Program**

If you have any questions or require any additional information please contact me at 203-576-7732 or [renu.gupta@bridgeportct.gov](mailto:renu.gupta@bridgeportct.gov).

Thank you,

Renu Gupta  
Central Grants Office

ATTEST  
CITY CLERK

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2014 JUL - 1 P 4: 04





## GRANT SUMMARY

PROJECT TITLE: **State of Connecticut Office of Policy & Management- Youth Services Prevention grant for Office of Neighborhood Revitalization Mentoring Program (#15433)**

NEW  RENEWAL  CONTINUING

DEPARTMENT SUBMITTING INFORMATION: **Central Grants Office**

CONTACT NAME: **Renu Gupta**

PHONE NUMBER: **203-576-7732**

**PROJECT SUMMARY/DESCRIPTION:** City of Bridgeport working with Office of Economic Development and Neighborhood Revitalization Zone Program is applying for funds from State of Connecticut Office of Planning and Management to implement a mentoring program for youth between 15-18 years of age. The selected group will participate in various activities that highlight and teach life skills, team building and violence prevention. The program will select 8 youth between the ages of 14-21, and assist them to prepare for the National Career Readiness Certificate (NCRC) test, a nationally-recognized credential that outlines and certifies the concrete skills, habits, and ability to learn that is demanded by employers.

**CONTRACT PERIOD:** July 2014- June 2015

### IF APPLICABLE

FUNDING SOURCES (include matching/in-kind funds):	FUNDS REQUESTED
Federal:	Salaries/Benefits: \$6,105
State: \$67,150	Supplies: \$ 2,045
City:	Training: \$39,000
Other:	Refreshments:\$2,000
	Contractual(job mentoring program): \$18,000

**A Resolution by the Bridgeport City Council**

**Regarding the**

**State of Connecticut Office of Policy & Management- Youth Services Prevention Grant for Office  
of Neighborhood Revitalization Mentoring Program  
(#15433)**

**WHEREAS**, the State of Connecticut Office of Policy & Management (OPM) is authorized to extend financial assistance to municipalities in the form of grants; and,

**WHEREAS**, this funding has been made possible through a Youth Service Prevention Grant Program; and,

**WHEREAS**, funds under this grant will be used for the Office of Neighborhood Revitalization Mentoring Program; and,

**WHEREAS**, it is desirable and in the public interest that the City of Bridgeport Central Grants Office with Office of Economic Development and Neighborhood Revitalization Zone Program, submits an application to the State of Connecticut Office of Policy & Management in the amount of \$67,150 to implement a Youth Services Prevention program focused on mentoring and developing job readiness skills:

**NOW THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL:**

1. That it is cognizant of the City's grant application to and contract with the State of Connecticut Office of Policy & Management in the amount of \$67,150 to implement a Youth Services Prevention program focused on mentoring and developing job readiness skills: and,
2. That it hereby authorizes, directs and empowers the Mayor or his designee to execute and file such application with the State of Connecticut Office of Policy & Management for the Youth Service Prevention Grant Program and to provide such additional information and to execute such other contracts, amendments, and documents as may be necessary to administer this program.



City of Bridgeport, Connecticut  
**CENTRAL GRANTS OFFICE**

999 Broad Street  
Bridgeport, Connecticut 06604  
Telephone (203) 332-5662  
Fax (203) 332-5657

**ANDREW J. NUNN**  
Chief Administrative Officer

**CHRISTINA B. SMITH**  
Director  
Central Grants

**BILL FINCH**  
Mayor

COMM. #134-13 Referred to ECD&E Committee  
on 7/7/2014

June 27, 2014

Office of the City Clerk  
City of Bridgeport  
45 Lyon Terrace, Room 204  
Bridgeport, Connecticut 06604

Re: Resolution – US Department of Agriculture Farmers Market Promotion Program- Bridgeport Farmer's Market Collaborative Incentive and Education Expansion

Attached, please find a Grant Summary and Resolution for the City Council.

**Grant:** City of Bridgeport application to the US Department of Agriculture Farmers Market Promotion Program- Bridgeport Farmer's Market Collaborative Incentive and Education Expansion

If you have any questions or require any additional information please contact me at 203-576-7732 or [renu.gupta@bridgeportct.gov](mailto:renu.gupta@bridgeportct.gov).

Thank you,

Renu Gupta  
Central Grants Office

ATTEST  
CITY CLERK

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2014 JUL - 1 P 4: 04



## GRANT SUMMARY

**PROJECT TITLE: US Department of Agriculture Farmers Market Promotion Program-  
Bridgeport Farmer's Market Collaborative Incentive and Education Expansion**

NEW  X  RENEWAL \_\_\_\_\_ CONTINUING

DEPARTMENT SUBMITTING INFORMATION: **Central Grants Office**

CONTACT NAME: **Renu Gupta**

PHONE NUMBER: **203-576-7732**

**PROJECT SUMMARY/DESCRIPTION:** The Bridgeport Farmers Market Collaborative is a group of 6 Farmers markets that support affordable, local food access in neighborhoods throughout the City of Bridgeport- Connecticut's poorest city. All six sites will work together to implement a citywide farmers market nutrition incentive program, through which the value of federal benefits spent on fresh produce at the markets will be doubled to \$6.00 per day. Collaborative members jointly advertise and conduct outreach for the markets, collect data on program usage, and raise funds for the nutrition incentive program. The project will be overseen by the Bridgeport Dept of Health and Social Services (BDHHS).

Requested funds will support community nutrition and culinary education provided by Cooking Matters - CT Health Network Foundation, as well as doubling efforts that will help expand SNAP use at 5 of the farmers markets by:

- Expanding awareness of farmers markets within food desert neighborhoods.
- Expanding financial benefit planning among SNAP recipients to better use their SNAP dollars- to buy locally and seasonally & expand SNAP use on healthy food at farmers markets. We will measure change in the awareness of farmer's markets through community surveys at both the markets and community events in the city of Bridgeport.

**CONTRACT PERIOD:** July 2014- June 2015

### IF APPLICABLE

FUNDING SOURCES (include matching/in-kind funds):	FUNDS REQUESTED
Federal:\$100,000	Salaries/Benefits: \$ \$28,000
State:	Supplies: \$ 2,600.00
City:	Coupon Doubling:: \$30,000
Other:	
	Contractual: Cooking Matters for Nutrition Education-: \$39,400

**A Resolution by the Bridgeport City Council**

**Regarding the**

**US Department of Agriculture Farmers Market Promotion Program- Bridgeport Farmer's Market Collaborative Incentive and Education Expansion**

**WHEREAS**, the US Department of Agriculture Farmers Market Promotion Program is authorized to extend financial assistance to municipalities in the form of grants; and,

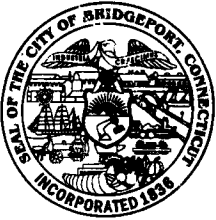
**WHEREAS**, this funding has been made possible through a Farmers Market Promotion Grant Program; and,

**WHEREAS**, funds under this grant will be used for - Bridgeport Farmer's Market Collaborative Incentive and Education Expansion; and,

**WHEREAS**, it is desirable and in the public interest that the City of Bridgeport Central Grants Office with the community partners, submits an application to the US Department of Agriculture Farmers Market Promotion Program in the amount of \$100,000 to implement a program for farmers market promotion, doubling of coupons and offering nutrition education to the families to increase fresh fruit and vegetable consumption:

**NOW THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL:**

1. That it is cognizant of the City's grant application to and contract with the US Department of Agriculture Farmers Market Promotion Program in the amount of \$100,000 to implement a Bridgeport Farmer's Market Collaborative Incentive and Education Expansion focused on increasing fresh fruit and vegetable consumption: and,
2. That it hereby authorizes, directs and empowers the Mayor or his designee to execute and file such application with the US Department of Agriculture Farmers Market Promotion Program for the Bridgeport Farmer's Market Collaborative Incentive and Education Expansion and to provide such additional information and to execute such other contracts, amendments, and documents as may be necessary to administer this program.



City of Bridgeport, Connecticut  
**CENTRAL GRANTS OFFICE**

999 Broad Street  
Bridgeport, Connecticut 06604  
Telephone (203) 332-5662  
Fax (203) 332-5657

BILL FINCH  
Mayor

ANDREW J. NUNN  
Chief Administrative Officer

CHRISTINA B. SMITH  
Director  
Central Grants

COMM. #135-13 Referred to ECD&E Committee on  
7/7/2014

July 2, 2014

Office of the City Clerk  
City of Bridgeport  
45 Lyon Terrace, Room 204  
Bridgeport, Connecticut 06604

Re: **Resolution – State of Connecticut Department of Economic and Community  
Development Round 5 Brownfield Grant – 837 Seaview Avenue, Bridgeport, CT**

Attached, please find a Grant Summary and Resolution for the **State of Connecticut  
Department of Economic and Community Development Round 5 Brownfield Grant  
– 837 Seaview Avenue, Bridgeport, CT** to be referred to the **Economic and  
Community Development & Environment Committee** of the City Council.

If you have any questions or require any additional information please contact me at 203-576-7732 or  
[Renu.Gupta@bridgeportct.gov](mailto:Renu.Gupta@bridgeportct.gov).

Thank you,

Renu Gupta  
Central Grants Office

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2014 JUL -2 P 12:43  
ATTEST  
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## GRANT SUMMARY

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**PROJECT TITLE: State of Connecticut Department of Economic and Community Development  
Round 5 Brownfield Grant – 837 Seaview Avenue, Bridgeport, CT**

NEW  X  RENEWAL                      CONTINUING

DEPARTMENT SUBMITTING INFORMATION: **Central Grants Office**

CONTACT NAME:                      **Renu Gupta**

PHONE NUMBER:                      **203-576-7732**

**PROJECT SUMMARY/DESCRIPTION:** The purposes of the Remedial Action and Redevelopment Municipal Grant Program and Targeted Brownfield Development Loan Program are to provide funds to eligible applicants to identify, assess, and conduct remediation related planning and other cleanup activities on priority Brownfield sites statewide.

The Bridgeport Port Authority and the City of Bridgeport are working jointly on preparing 837 Seaview Avenue, Bridgeport, CT site to be turned over to Seaview Bridgeport LLC., for further development. The requested funds will be used for site preparation and construction of engineered controls for isolation of contaminated soil. The site will be prepared for full service grocery store and a pharmacy and will continue as a public harbor walk. During construction, it is estimated to provide 288 jobs and later 500 full time permanent jobs while generating new tax revenue for the city.

**CONTRACT PERIOD:** September 2014- August 2016

**IF APPLICABLE**

**FUNDING SOURCES (include matching/in-kind funds):**

Federal:

State:        \$4,000,000

City:

Other:

**FUNDS REQUESTED**

Salaries/Benefits:

Supplies:

**A Resolution by the Bridgeport City Council**

**Regarding the**

**State of Connecticut Department of Economic and Community Development Round 5 Brownfield Grant – 837 Seaview Avenue, Bridgeport, CT**

**WHEREAS**, the State of Connecticut Department of Economic and Community Development (DECD) is authorized to extend financial assistance to municipalities in the form of grants; and,

**WHEREAS**, this funding has been made possible through the Round 5 Brownfield Program; and,

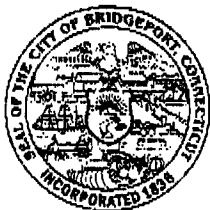
**WHEREAS**, funds under this grant will be used for site preparation and construction of engineered controls for isolation of contaminated soil. The clean site will be prepared for a full service grocery store and a pharmacy; and,

**WHEREAS**, it is desirable and in the public interest that the City of Bridgeport Central Grants Office, Office of Planning and Economic Development and Bridgeport Port Authority submit an application to the State of Connecticut Department of Economic and Community Development (DECD) in the amount of \$4,000,000 to support the cleanup and development of site located at 837 Seaview Avenue, Bridgeport, CT; and

**NOW THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL:**

1. That it is cognizant of the City's grant application to and contract with the State of Connecticut Department of Economic and Community Development (DECD) for the purpose of implementing the cleanup and development of 837 Seaview Avenue, Bridgeport, CT; and,
2. That it hereby authorizes, directs and empowers the Mayor or his designee to execute and file such application with the State of Connecticut Department of Economic and Community Development (DECD) for the Round 5 Brownfield Grant Program and to provide such additional information and to execute such other contracts, amendments, and documents as may be necessary to administer this program.





OFFICE OF THE MAYOR  
CITY OF BRIDGEPORT, CONNECTICUT  
MARGARET E. MORTON GOVERNMENT CENTER  
999 BROAD STREET  
BRIDGEPORT, CONNECTICUT 06604  
TELEPHONE (203) 576-7201  
FAX (203) 576-3913

BILL FINCH

MEMORANDUM

Mayor

COMM. #136-13 Ref'd to Public Safety & Transportation Committee  
on 07/07/2014.

TO: Fleeta Hudson - City Clerk

FROM: Mayor Bill Finch

DATE: July 1, 2014

RE: Boards & Commissions

Please place the following name on the July 7, 2014 City Council agenda for referral to the Public Safety Committee for the purpose of appointment to the Fire Commission:

Cynthia Saunders Maignan (D)  
518 North Summerfield Avenue  
Bridgeport, CT 06610

This will replace the seat held by Mary Lee. The term will expire on January 1, 2016.

BF/lac

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ATTEST  
CITY CLERK

# RESOLUTION

By Councilmember(s): Mary McBride-Lee

Richard Salter Sr.

District: 135<sup>th</sup>

Introduced at a meeting  
of the City Council, held:

July 7, 2014

Referred to:

Public Safety and Transportation Committee

Attest: \_\_\_\_\_

*City Clerk*

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2014 JUN 30 A 10:13

ATTEST \_\_\_\_\_  
CITY CLERK

WHEREAS, Willie Luke Phillips (W.L.) served as Alderman for the 135<sup>th</sup> District for six years and was involved in numerous community and social activities, including an organizer of the Beardsley Terrace Day; and

WHEREAS, he founded the W.L. Phillips Little League team and had a dream for all the boys and girls in the Beardsley Terrace area where he put in countless hours with friends cleaning the property below Cross School so the dream could become a reality and the W.L. Phillips Little League baseball field is named in his honor; and

WHEREAS, as a community role model he received numerous awards; among them the Connecticut Secretary of State's Public Service Award, the Bridgeport Housing Authority's Community Service Award, the Mayor's Beardsley Terrace Day Award, W.L. also received an award from the Al-Aziz Islamic Center recognizing him for being such a positive example in the community; and

NOW THEREFORE, BE IT RESOLVED to recognize the self-sacrificing work of W.L. Phillips and his devotion to his community that the stretch of Trumbull Avenue that runs from Chopsey Hill Road to Reservoir Avenue be given the honorary designation of W.L. Phillips Boulevard by adding his name above the street signage on the two corners where Trumbull Avenue intersects with Chopsey Hill Road and Reservoir Avenue (attachments).

*Referrals Made:*

Willie Luke Phillips

W.L. Phillips

W.L. Phillips passed away May 16, 2008. He was born in Mount Vernon Georgia. Came to Bridgeport Connecticut in 1950. He was an active member in his church. W.L. was involved in numerous of community and social activities. W.L. served as Alderman for the 135 District for six years, he served as the president of the N.E. C.C. Until his illness, and he was one of the organizer of the Beardsley Terrace Day. The W.L Phillip Little League baseball field (in Beardsley Terrace) is named in his honor. W.L. and the youth in Beardsley Terrace and the Surrounding areas had a dream. W.L. put in countless of hours along with his friends cleaning the property below Cross School so that the dream of many boys and girls could become a reality. He wanted them to have a place where they could play baseball and call home. W.L. is one of the founders and organizer of the W.L Phillips Little League Team. He received numerous awards; among them were: The Public Service Award from The Secretary of the State Of Connecticut, Community Service Award from The Bridgeport Housing Authority, Beardsley Terrace Day Award from The Mayor of the City Of Bridgeport. He received an award from the Al-Aziz Islamic Center for a positive example in the community.

We the community would like very much for Trumbull Avenue be name in honor of

W.L. Phillips. (W.L. Phillips Boulevard).

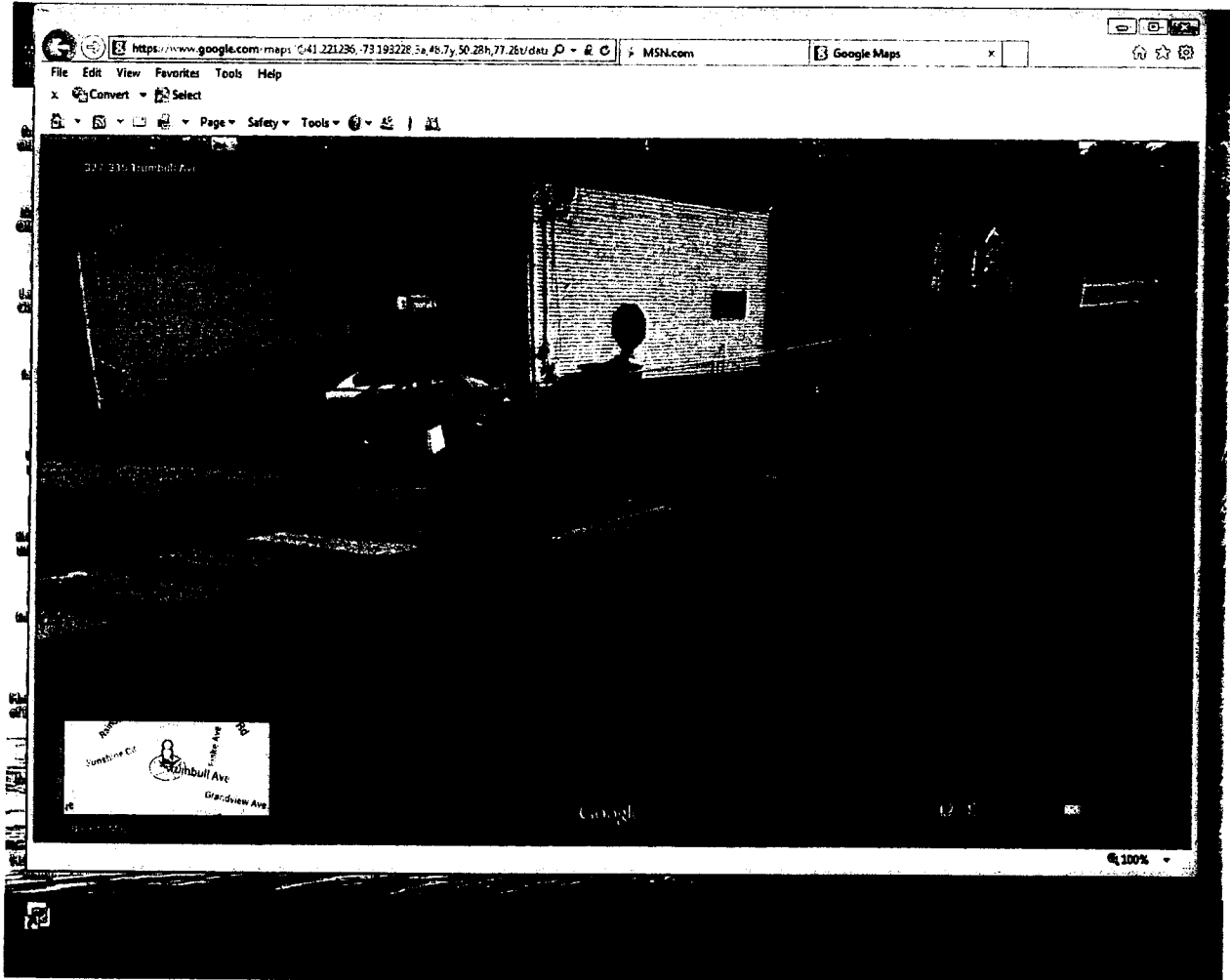
Thank you in advance for any consideration that you are able to give us.

Council Woman Reverend Mary McBride-Lee

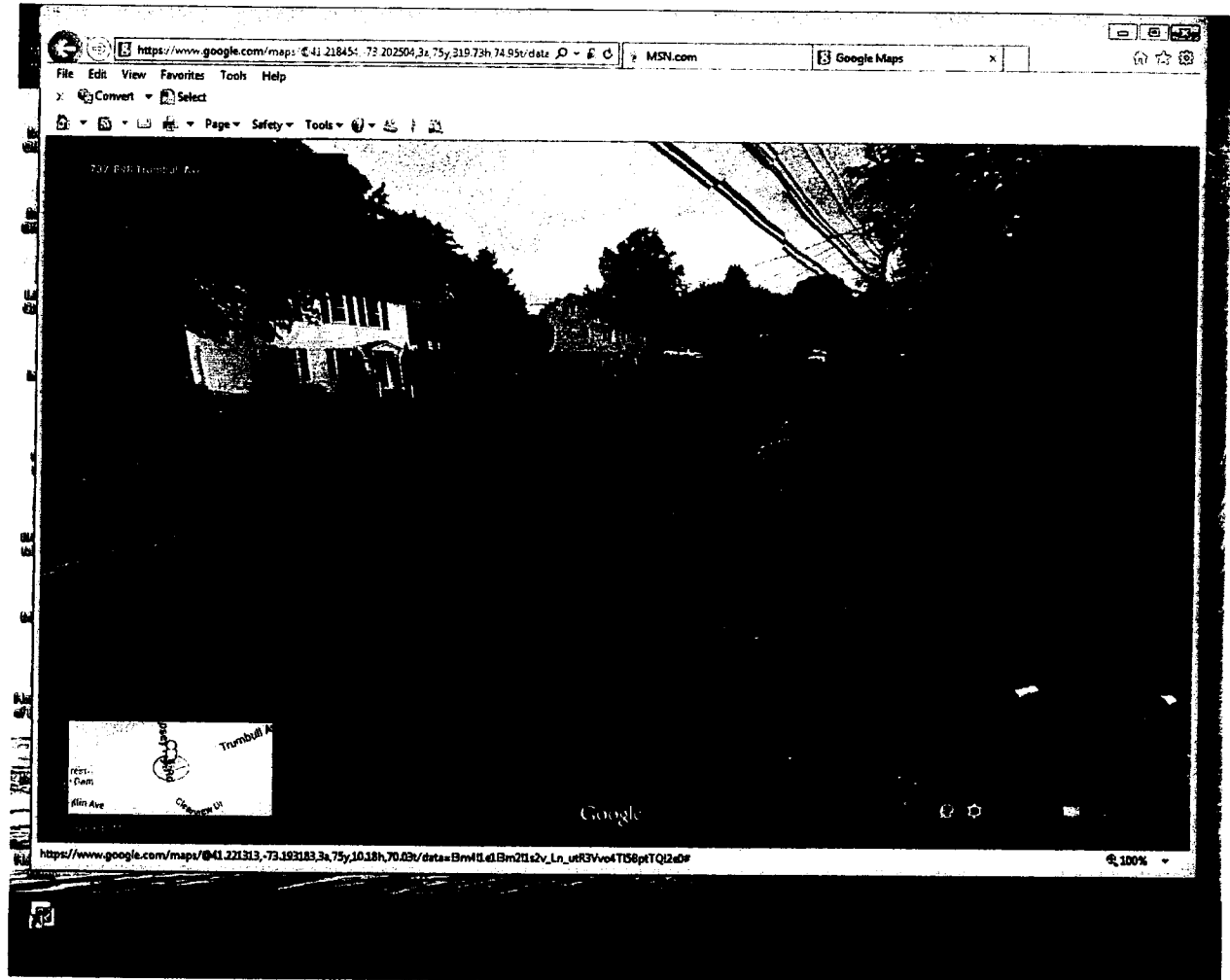
Councilman Richard Salter Sr.

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2014 JUN 26 A 11:10  
ATTEST  
CITY CLERK

# TRUMBULL AVENUE AND RESERVOIR AVENUE



# TRUMBULL AVENUE AND CHOPSEY HILL ROAD



**\*102-13 Consent Calendar**

Grant Submission: FY 2012 U.S. Department of Homeland Security, Federal Emergency Management Agency Port Security City of Stamford Grant Subrecipient Agreement.

**Report  
of  
Committee  
on**

**Public Safety and Transportation**

**Submitted: July 7, 2014**

Adopted: \_\_\_\_\_

*Fleeta S. Hudson*

Attest: \_\_\_\_\_

City Clerk

Approved \_\_\_\_\_

\_\_\_\_\_  
Mayor



# City of Bridgeport, Connecticut

*To the City Council of the City of Bridgeport.*

The Committee on **Public Safety and Transportation** begs leave to report; and recommends for adoption the following resolution:

## **\*102-13 Consent Calendar**

### **A Resolution by the Bridgeport City Council Regarding the FY 2012 U.S. Department of Homeland Security, Federal Emergency Management Agency Port Security City of Stamford Grant Subrecipient Agreement**

**WHEREAS**, the City of Stamford is authorized to extend financial assistance to other municipalities in the form of grants; and

**WHEREAS**, this funding is being reprogrammed from the City of Stamford's FY2012 U.S. Department of Homeland Security, Federal Emergency Management Agency Port Security Grant Program award; and

**WHEREAS**, funds under this grant will be used by the City of Bridgeport to install electrical power at the Bridgeport Port Authority First Responder docks to support port security; and

**WHEREAS**, it is desirable and in the public interest that the City of Bridgeport enter into a Subrecipient Agreement with the City of Stamford for an amount not to exceed \$15,000 to provide the installation of electrical power at the Bridgeport Port Authority First Responder docks to support port Security; and

#### **Now therefore, be it hereby RESOLVED BY THE CITY COUNCIL:**

1. That it is cognizant of the City's Agreement with City of Stamford for the purpose of the reprogramming of their FY 2012 U.S. Department of Homeland Security, Federal Emergency Management Agency Port Security Grant Program award; and
2. That it hereby authorizes, directs and empowers the Mayor or his designee to execute and file such Agreement with the City of Stamford for the reprogramming of their FY 2012 U.S. Department of Homeland Security, Federal Emergency Management Agency Port Security Grant Program award and to provide such additional information and to execute such other contracts, amendments, and documents as may be necessary to administer this program.

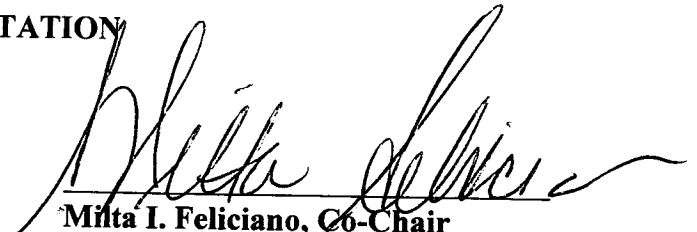


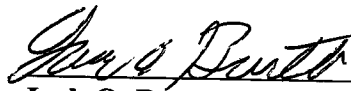
Report of Committee on Public Safety and Transportation  
\*102-13 Consent Calendar

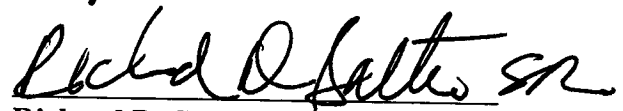
-2-


Respectfully submitted,  
**THE COMMITTEE ON PUBLIC SAFETY  
AND  
TRANSPORTATION**

\_\_\_\_\_  
Michelle A. Lyons, Co-Chair

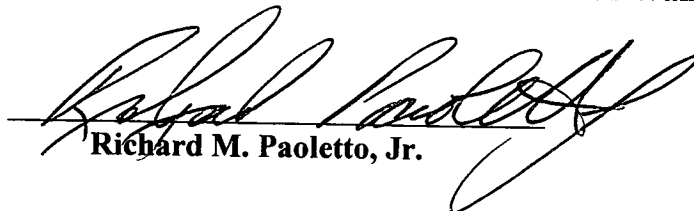
  
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Milta I. Feliciano, Co-Chair

  
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Jack O. Banta

  
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Richard D. Salter, Sr.

  
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Alfredo Castillo

  
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Eneida L. Martinez-Walker

  
\_\_\_\_\_  
Richard M. Paoletto, Jr.

City Council Date: July 7, 2014



**\*103-13 Consent Calendar**

Grant Submission: U.S. Department of Homeland Security, Federal Emergency Management Agency Port Security Grant Program.

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**Report  
of  
Committee  
on**

**Public Safety and Transportation**

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**Submitted: July 7, 2014**

Adopted: \_\_\_\_\_

*Fleeta C Hudson*

Attest: \_\_\_\_\_

City Clerk

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Approved \_\_\_\_\_

\_\_\_\_\_  
Mayor

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# City of Bridgeport, Connecticut

*To the City Council of the City of Bridgeport.*

The Committee on **Public Safety and Transportation** begs leave to report; and recommends for adoption the following resolution:

## **\*103-13 Consent Calendar**

### **A Resolution by the Bridgeport City Council Regarding the U.S. Department of Homeland Security, Federal Emergency Management Agency Port Security Grant Program**

**WHEREAS**, the U.S. Department of Homeland Security, Federal Emergency Management Agency is authorized to extend financial assistance to municipalities in the form of grants; and

**WHEREAS**, this funding has been made possible through the Port Security Grant Program; and

**WHEREAS**, funds under this grant are provided to aid in the implementation of the National Preparedness System by supporting the building, sustainment, and delivery of core capabilities essential to achieving the National Preparedness Goal of a secure and resilient Nation; and

**WHEREAS**, it is desirable and in the public interest that the City of Bridgeport Central Grants Office, submit an application to the U.S. Department of Homeland Security, Federal Emergency Management Agency for the purpose of committing to work toward implementation of the National Preparedness System by Supporting the building, sustainment, and delivery of core capabilities essential to achieving the National Preparedness Goal of a secure and resilient Nation; and

#### **Now therefore, be it hereby RESOLVED BY THE CITY COUNCIL:**

1. That it is cognizant of the City's grant application to and contract with the U.S. Department of Homeland Security, Federal Emergency Management Agency for the purpose of the Port Security Grant Program; and
2. That it hereby authorizes, directs and empowers the Mayor or his designee to execute and file such application with the U.S. Department of Homeland Security, Federal Emergency Management Agency Port Security Grant Program and to provide such additional information and to execute such other contracts, amendments, and documents as may be necessary to administer this program.



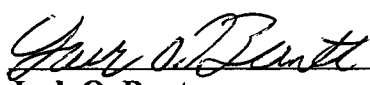
Report of Committee on Public Safety and Transportation  
\*103-13 Consent Calendar

-2-

Respectfully submitted,  
**THE COMMITTEE ON PUBLIC SAFETY  
AND  
TRANSPORTATION**

\_\_\_\_\_  
Michelle A. Lyons, Co-Chair

  
\_\_\_\_\_  
Mila I. Feliciano, Co-Chair

  
\_\_\_\_\_  
Jack O. Banta

  
\_\_\_\_\_  
Richard D. Salter, Sr.

  
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Alfredo Castillo

  
\_\_\_\_\_  
Eneida L. Martinez-Walker

  
\_\_\_\_\_  
Richard M. Paoletto, Jr.

City Council Date: July 7, 2014

**\*104-13 Consent Calendar**

Grant Submission: State of Connecticut Department of  
Emergency Services & Public Protection, Division of  
Emergency Management and Homeland Security State  
Homeland Security Grant Program.

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**Report  
of  
Committee  
on**

**Public Safety and Transportation**

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**Submitted: July 7, 2014**

Adopted: \_\_\_\_\_

Attest: \_\_\_\_\_

*Fleeta C. Hudson*  
City Clerk

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Approved \_\_\_\_\_

\_\_\_\_\_  
*Mayor*

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# City of Bridgeport, Connecticut

*To the City Council of the City of Bridgeport.*

The Committee on **Public Safety and Transportation** begs leave to report; and recommends for adoption the following resolution:

**\*104-13 Consent Calendar**

**A Resolution by the Bridgeport City Council  
Regarding the State of Connecticut Department of Emergency Services & Public  
Protection, Division of Emergency Management and Homeland Security  
State Homeland Security Grant Program**

**WHEREAS**, the State of Connecticut Department of Emergency Services & Public Protection, Division of Emergency Management and Homeland Security is authorized to extend financial assistance to municipalities in the form of grants; and

**WHEREAS**, this funding has been made possible through the State Homeland Security Grant Program; and

**WHEREAS**, funds under this grant are provided to build and sustain capacities at the state and local levels through planning, equipment, training, and exercises as well as support the implementation of state homeland security strategies and key elements of the national preparedness architecture; and

**WHEREAS**, the City of Bridgeport will act as fiduciary agent on behalf of the Connecticut Region 1 to administer the state allocation plus any additional administrative and planning dollars; and

**WHEREAS**, it is desirable and in the public interest that the City of Bridgeport act as fiduciary agent on behalf of the Connecticut Region 1 to administer the state allocation plus any additional administrative and planning dollars; and

**WHEREAS**, it is desirable and in the public interest that the City of Bridgeport Central Grants Office, submits an application to the State of Connecticut Department of Emergency Services & Public Protection, Division of Emergency Management and Homeland Security for the purpose of committing to build and sustain capacities at the state and local levels through planning, equipment, training, and exercises as well as support the implementation of state homeland security strategies and key elements of the national preparedness architecture; and



Report of Committee on Public Safety and Transportation  
\*104-13 Consent Calendar

-2-

Now therefore, be it hereby **RESOLVED BY THE CITY COUNCIL:**

1. That it is cognizant of the City's grant application to and contract with the State of Connecticut Department of Emergency Services & Public Protection, Division of Emergency Management and Homeland Security for the purpose of the State Homeland Security Grant Program; and
2. That it hereby authorizes, directs and empowers the Mayor or his designee to execute and file such application with the State of Connecticut Department of Emergency Services & Public Protection, Division of Emergency Management and Homeland Security for the State Homeland Security Grant Program and to provide such additional information and to execute such other contracts, amendments, and documents as may be necessary to administer this program.

Respectfully submitted,  
**THE COMMITTEE ON PUBLIC SAFETY  
AND  
TRANSPORTATION**

\_\_\_\_\_  
Michelle A. Lyons, Co-Chair

  
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Milta I. Feliciano, Co-Chair

  
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Jack O. Banta

  
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Richard D. Salter, Sr.

  
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Alfredo Castillo

  
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Eneida L. Martinez-Walker

  
\_\_\_\_\_  
Richard M. Paoletto, Jr.

City Council Date: July 7, 2014

**\*110-13 Consent Calendar**

Resolution Adopting The Greater Bridgeport Regional Council (GBRC) Multi-Jurisdiction Natural Hazard Mitigation Plan 2014 Update.

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**Report  
of  
Committee  
on**

**Public Safety and Transportation**

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**Submitted: July 7, 2014**

Adopted: \_\_\_\_\_

*Fleeta C Hudson*

Attest: \_\_\_\_\_

City Clerk

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Approved \_\_\_\_\_

\_\_\_\_\_  
Mayor

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# City of Bridgeport, Connecticut

*To the City Council of the City of Bridgeport:*

The Committee on **Public Safety and Transportation** begs leave to report; and recommends for adoption the following resolution:

**\*110-13 Consent Calendar**

## **A RESOLUTION OF THE CITY OF BRIDGEPORT ADOPTING THE GREATER BRIDGEPORT REGIONAL COUNCIL (GBRC) MULTI- JURISDICTION NATURAL HAZARD MITIGATION PLAN UPDATE, 2014**

**WHEREAS**, the City of Bridgeport has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of - only those natural hazards profiled in the plan (i.e. *flooding, thunderstorm, high wind, winter storms, earthquakes, and dam failure*), resulting in loss of property and life, economic hardship, and threats to public health and safety; and

**WHEREAS**, the City of Bridgeport has developed and received conditional approval from the Federal Emergency Management Agency (FEMA) for its Hazard Mitigation Plan under the requirements of 44 CFR 201.6; and

**WHEREAS**, public and committee meetings were held between December 6, 2012 and September 23, 2013 regarding the development and review of the Natural Hazard Mitigation Plan; and

**WHEREAS**, the Plan specifically addresses hazard mitigation strategies and Plan maintenance procedure for the City of Bridgeport and

**WHEREAS**, the Plan recommends several hazard mitigation actions/projects that will provide mitigation for specific natural hazards that impact the City of Bridgeport, with the effect of protecting people and property from loss associated with those hazards; and

**WHEREAS**, adoption of this Plan will make the City of Bridgeport eligible for funding to alleviate the impacts of future hazards; now therefore be it

**RESOLVED** by the City Council:

1. The Plan is hereby adopted as an official plan of the City of Bridgeport
2. The respective officials identified in the mitigation strategy of the Plan are hereby directed to pursue implementation of the recommended actions assigned to them;
3. Future revisions and Plan maintenance required by 44 CFR 201.6 and FEMA are hereby adopted as a part of this resolution for a period of five (5) years from the date of this resolution.
4. An annual report on the progress of the implementation elements of the Plan shall be presented to the City Council by **the Greater Bridgeport Regional Council**





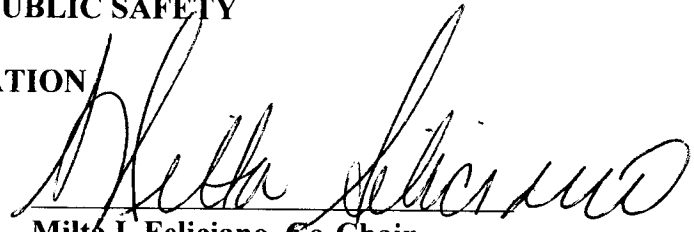
Report of Committee on Public Safety and Transportation  
\*110-13 Consent Calendar

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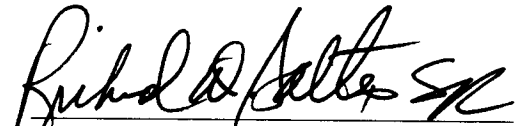
IN WITNESS WHEREOF, the undersigned has affixed his/her signature and the corporate seal of the City of Bridgeport this 7<sup>th</sup> day of July, 2014.

Respectfully submitted,  
**THE COMMITTEE ON PUBLIC SAFETY  
AND  
TRANSPORTATION**

\_\_\_\_\_  
Michelle A. Lyons, Co-Chair

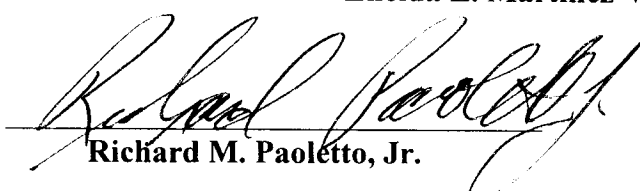
  
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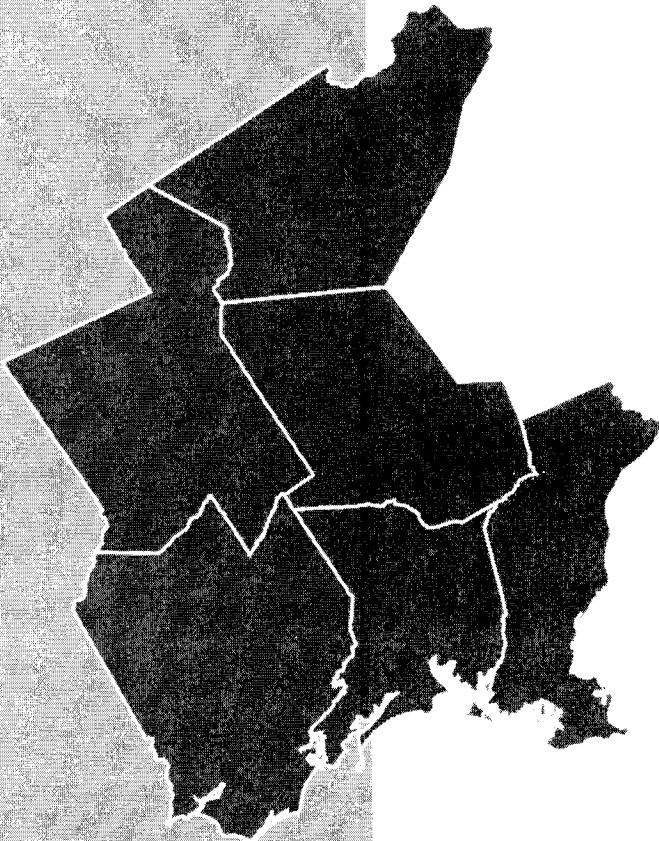
  
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Eneida L. Martinez-Walker

  
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Richard M. Paoletto, Jr.

City Council Date: July 7, 2014



# 2014 Natural Hazard Mitigation Plan Update



*Prepared on Behalf of the Municipalities  
of the Greater Bridgeport Region*

DRAFT - December 16, 2013

Revised: February 10, 2014

Update: May 2, 2014

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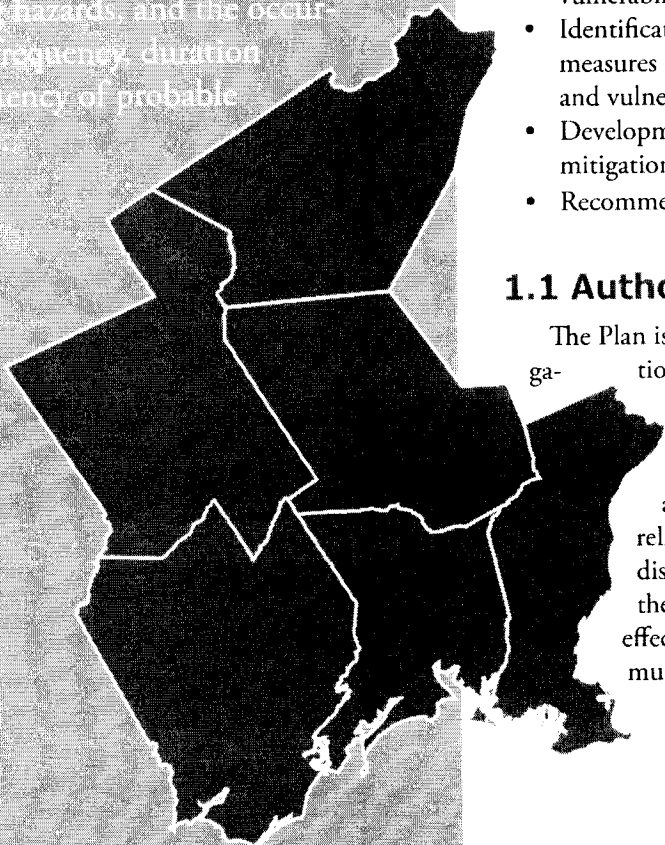
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# 1 Purpose & Regional Overview

The purpose of the multi-jurisdictional update to the Natural Hazard Mitigation Plan (NHMP) is to reduce the loss of life, personal injury and damage to property, infrastructure and natural, cultural and economic resources from a natural disaster in the Greater Bridgeport Region. The Plan emphasizes actions that can be implemented now to reduce or prevent damage from a future natural disaster. The assessments and evaluations are based on extensive data collection and outreach efforts to obtain information on the physical setting of the region, existing hazards, and the occurrence, frequency, duration and potency of probable hazards.



The components of the Plan include:

- Identification of natural hazards that could occur in the region – inland flooding, coastal flooding, hurricanes, sea level rise, summer storms, winter storms (ice and blizzards), tornadoes, earthquakes and dam failure;
- Evaluation of vulnerabilities to structures and populations;
- Assessment of current mitigation measures included in the 2006 NHMP and 2008 Stratford Annex to determine which have been implemented and whether or not they have been effective in reducing vulnerabilities and risks;
- Identification and evaluation of potential mitigation measures that could be implemented to reduce risks and vulnerability;
- Development of response strategies to address hazard mitigation; and
- Recommendations for future mitigation actions.

## 1.1 Authority

The Plan is authorized under the federal Disaster Mitigation Act of 2000 (DMA), also known as the 2000 Stafford Act amendments. The purposes of the DMA are to establish a national program for pre-disaster mitigation and streamline administration of disaster relief. The Act encourages the development of disaster preparedness and mitigation plans and the implementation of measures to reduce the effects of natural hazards. Under DMA, communities are required to develop and submit a

Natural Hazard Mitigation Plan as a condition of eligibility for certain funding opportunities offered by the Federal Emergency Management Agency (FEMA), including the Pre-Disaster Mitigation (PDM) Program and post-disaster Hazard Mitigation Grant Program (HMGP).

## 1.2 Background

This plan update builds on the 2006 Natural Hazard Mitigation Plan for the Greater Bridgeport Regional Planning Area, developed in cooperation with the City of Bridgeport and the Towns of Easton, Fairfield, Monroe and Trumbull. The Milone & MacBroom consulting firm was hired to provide technical assistance and conduct required vulnerability and risk assessments. The NHMP for the Greater Bridgeport area was adopted and approved by FEMA in January 2007. Subsequent to its adoption, the Plan was amended to include the natural hazard mitigation plan for the Town of Stratford (Annex, 2008). FEMA requires that all local and multi-jurisdictional (regional) plans be updated every five years to remain valid. The NHMP for the Greater Bridgeport Region expired on January 29, 2012.

FEMA provides grants to prepare and update hazard mitigation plans. Funds from the Hazard Mitigation Grant Program (HMGP) for the Federal Fiscal Year (FFY) of 2012 were available through the Connecticut Department of Energy and Environmental Protection (DEEP). The Council of Governments for the Greater Bridgeport Region, the Greater Bridgeport Regional Council (GBRC), on behalf of its member communities, submitted an application to DEEP and was provided a \$90,000 grant to update the region's natural hazard mitigation plan. All six member municipalities (Bridgeport, Easton, Fairfield, Monroe, Stratford and Trumbull) agreed to participate in the planning effort and committed the required non-federal share of the FEMA grant.

## 1.3 Natural Hazard Mitigation Plan (NHMP)

This NHMP is divided into five sections. Section One describes the purpose of the plan, the Greater Bridgeport Region and municipalities of the Greater Bridgeport Region. Section Two details the

planning process and the process of developing the NHMP. Section Three provides an identification and assessment of risks. Section Four describes and prioritizes regional and local mitigation strategies. Concluding the NHMP, Section Five addresses how mitigation actions will be implemented and the process of maintaining the plan.

The update of the NHMP:

- Reflects the standards contained within Section 322 of DMA 2000;
- Expands on the previous hazard identification and risk assessments;
- Incorporates FEMA's newest grant programs;
- Incorporates potential impacts due to climate change;
- Includes updated information; and
- Reassesses the goals, objectives, and activities presented in the 2006 NHMP.

The updated NHMP addresses only natural hazards and disasters and does not directly address terrorism, sabotage, human induced emergencies (fires, hazardous material spills, contamination and disease) or disaster response and recovery. However, efforts were undertaken to coordinate with the Region 1 Emergency Planning Team, a group under the State's Division of Emergency Management and Homeland Security (DEMHS), as well as the Region's emergency management directors.

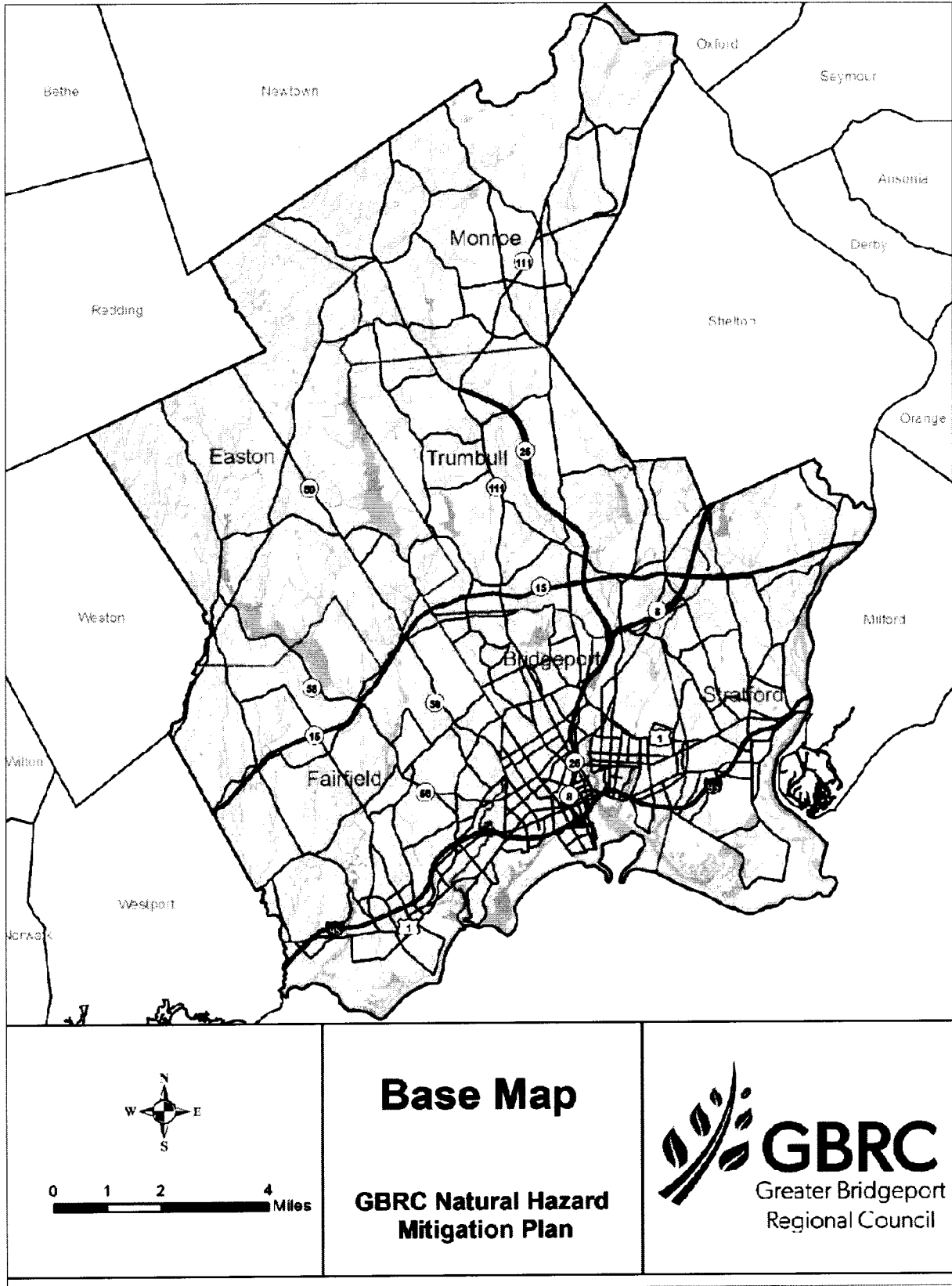
## 1.4 Profile of the Greater Bridgeport Region & Jurisdictions

This section updates Sections 2.1 and 2.6 from the 2006 NHMP with 2010 Census data and maps spatially representing the Region's demographics.

The Greater Bridgeport Region is located in Fairfield County, in Southwestern Connecticut, about fifty miles east of New York City and 150 miles west of Boston, Massachusetts. The NHMP is a multi-jurisdictional plan, encompassing the six municipalities of the region. Each community actively participated in the preparation of the Plan and the hazards likely to impact each were identified and assessed. The six municipalities are:

- City of Bridgeport
- Town of Easton

Section 1: Purpose and Regional Overview



Town of Fairfield  
 Town of Monroe  
 Town of Stratford  
 Town of Trumbull

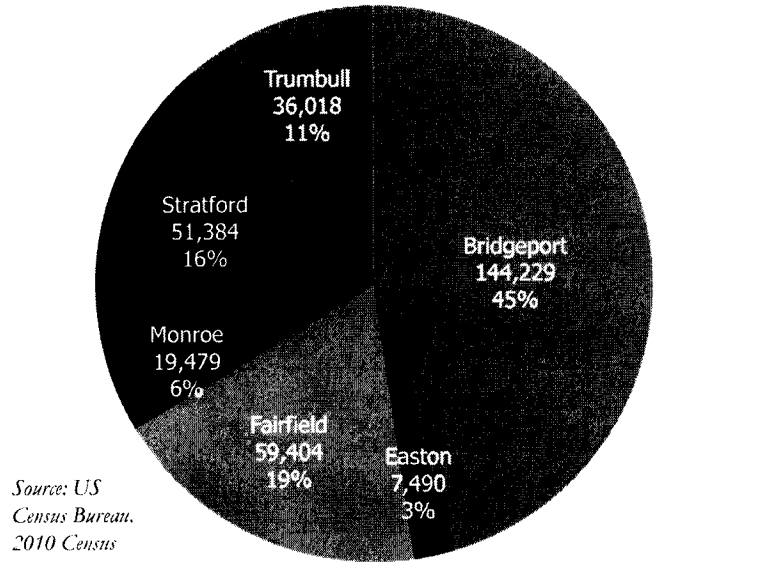
Together these communities encompass about 145 square miles with a combined population of over 318,000 people. The population density is the highest of any region in Connecticut. This density is reflected in the fact that almost all of the land lies within the designated urbanized area and about 98% of the residents live in the urban area. Bridgeport, Fairfield and Stratford are coastal communities, situated along Long Island Sound, and the inland communities to the north are Easton, Monroe and Trumbull (US Census Bureau, 2010 Census & 2007-2011 American Community Survey).

Despite the urban character of the Region, land use patterns vary. The coastal communities are more developed and urban in character. The inland communities and the northern part of Fairfield are more residential and exhibit rural characteristics.

The Region is ethnically diverse as about 34% of the population is estimated as belonging to an ethnic minority. Over half of the minority population is classified as African American. Persons of Hispanic or Latino ethnicity account for about 21% of the Region's population. Although this data suggests diversity throughout the Region, minority populations are concentrated in Bridgeport and parts of Stratford (2010 Census).

The median age of the Region's residents is about 37 years old. This is a younger population than the state-wide median age of

### Population Breakdown: Greater Bridgeport Region

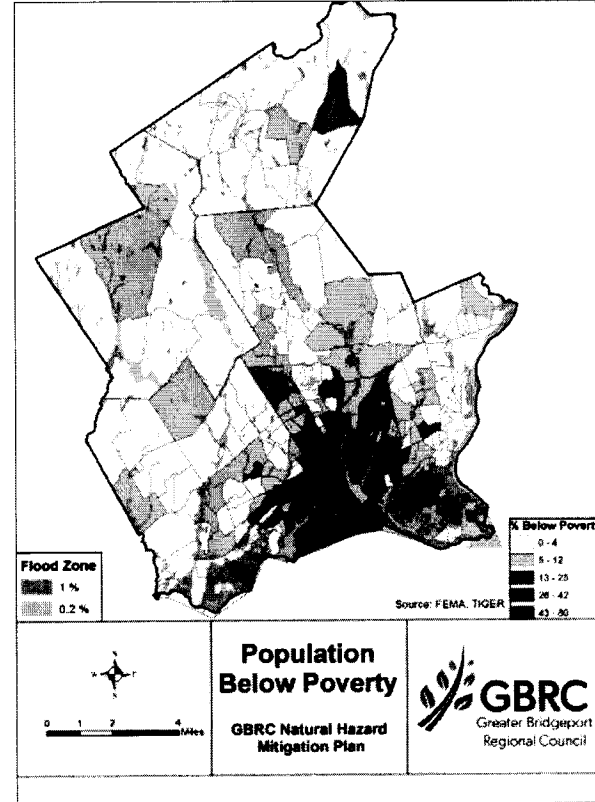
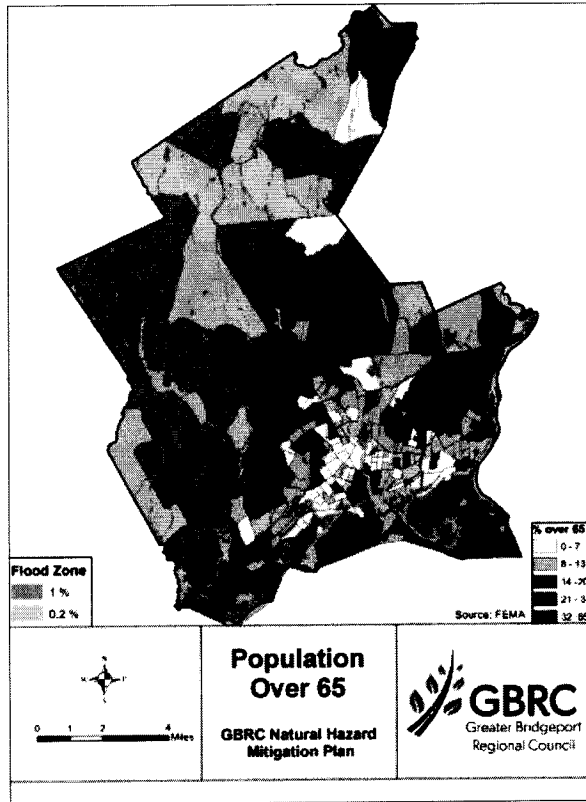
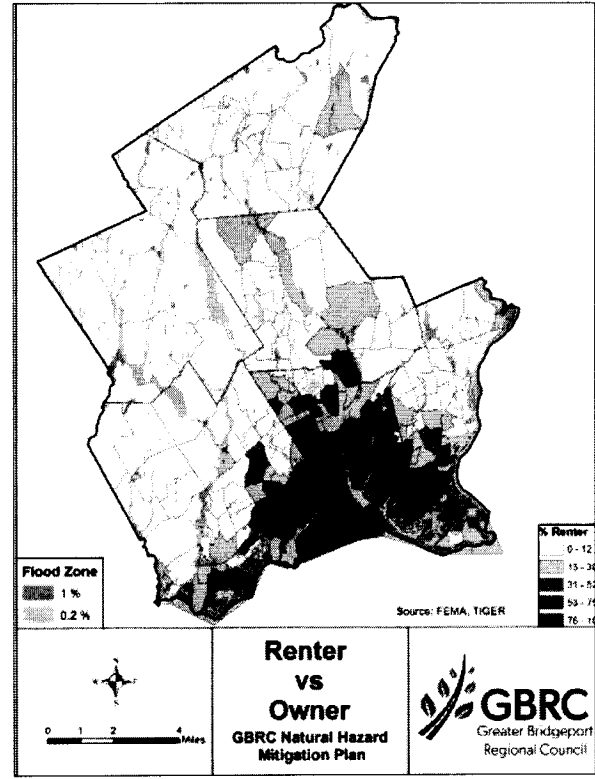
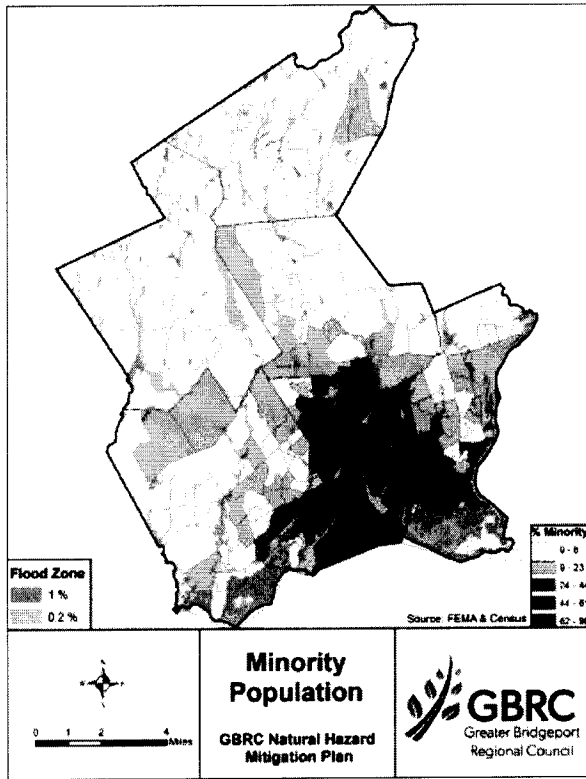


### Demographic Profile: Greater Bridgeport Region

Demographic Profile: Greater Bridgeport Region		
<b>Population</b>		
Total Population	318,004	100.0%
White	208,531	65.6%
African American	59,730	18.8%
Other Race	49,743	15.6%
Hispanic or Latino	68,420	21.5%
<b>Age</b>		
Median Age	37.7	
< 15 years old	64,991	20.4%
> 65 years old	42,697	13.4%
> 80 years old	14,393	4.5%
<b>Housing</b>		
Total Households	113,844	100.0%
Owner Occupied	74,624	65.5%
Renter Occupied	39,220	34.5%
Housing Units	122,541	100.0%
Vacant Units	8,697	7.1%
Seasonal Units	844	0.7%
<b>Income</b>		
Median Family Income	\$87,648	
Per Capita Income	\$34,988	
Households with Income <\$25,000	23,491	30.7%
Families Below Poverty Level	6,801	8.9%

Source: US Census Bureau, 2010 Census & 2007-2011 American Community Survey

Section 1: Purpose and Regional Overview





40.0 years. About 20% of the Region's population is younger than 15 years old and 13.4% are 65 years or older (2010 Census).

There are nearly 114,000 occupied housing units in the Region, with the majority (65.5%) owner occupied. About 7% of the Region's housing units are vacant. Seasonal or recreational units account for almost 10% of vacant units (2010 Census).

On average, the Region is a relatively wealthy area with an estimated annual median family income of \$87,648. This is slightly higher than the state-wide estimate of \$86,395. The per capita income is less than \$35,000 annually, as compared to the state-wide estimate of \$37,627. About 23,491 families or 30.7% of the total number of families in the Region earn less than \$25,000 per year. 8.9% of all families in the Region earn an income that is below the poverty level. State-wide, only about 17.6% of all families earn less than \$25,000 per year and the percentage of families that earn an income below the poverty level is about 6.7% (2007-2011 American Community Survey).

The following sections describe the physical setting, population, demographics and generalized land use of each jurisdiction involved in the NHMP.

### **City of Bridgeport**

The City of Bridgeport is the most populous city in Connecticut with a population of 144,229 people (2010 Census). Bridgeport is the central city in the Greater Bridgeport Region and is bordered by Fairfield to the west, Trumbull to the north and Stratford to the east. Long Island Sound is located along the city's southern border. The City has a land area of 16 square miles, a waterfront of 22 miles and an elevation that reaches to 310 feet in the northwest corner.

The City of Bridgeport is the most urban, densely populated and diverse municipality in the Region, as it accounts for about 45% of the Region's population. The City is home to the majority of the Region's non-white population and persons of Hispanic or Latino ancestry. African American residents make up 39% of the City's population and 25% of the City's population is another, non-white race. Persons of Hispanic or Latino descent comprise about 38.2% of Bridgeport's population (2010 Census).

The median age of people living in Bridgeport is about 32 years old, making the City a relatively young place. The proportion of residents younger than 15 years old is not significantly higher than the Region or state, indicating that the lower median age is partly due to a higher number of persons between the ages of 20 and 40 years old. The proportion of elderly living in Bridgeport is lower than that of the Region (2010 Census).

The City has a total of 57,012 housing units, with about 10% listed as vacant. The majority of these housing units are renter-occupied. Although owner-occupied housing accounts for only about 42% of the total, this proportion is higher than the cities of Hartford and New Haven. A total of 163 units, 0.3% of the total, are considered seasonal or recreational (2010 Census).

The entire City of Bridgeport meets the definition of an economically distressed area, due to both low per capita income and the high unemployment rate. The per capita income for Bridgeport workers is less than \$20,000 per year. About 52% of the City's households earn less than \$25,000 per year. The median family income for Bridgeport is about \$47,959 per year (2007-2011 American Community Survey).

While the economies of the Region are interdependent, there is a significant disparity between Bridgeport and the other towns of the Greater Bridgeport Region. The per capita income for the Region as a whole is about \$34,988 per year. When the Bridgeport population is subtracted, the Region's per capita income rises to \$47,445 annually, thus indicating that the City's per capita income is 40% of the rest of the Region. The disparity in median family income is also pronounced, with a regional estimate of \$120,588 per year without the inclusion of Bridgeport's median family income.

Historically, Bridgeport experienced rapid growth in the late nineteenth and early twentieth centuries, increasing from approximately 29,000 residents in 1880 to 143,000 residents in 1920. Population growth came primarily from immigration, with most immigrants coming from Europe before World War I and African American and Hispanic migrants coming from the Southern United States during later periods. The population peaked in the 1950s, but steadily decreased throughout the late twentieth century as a result of suburban growth and

the decline of industry in the area. This declining trend was reversed between 2000 and 2010, as the current population increased by about 3%.

Bridgeport was originally a part of the towns of Fairfield and Stratford and was incorporated in 1821. Because of access to Long Island Sound, shipbuilding and whaling were important early industries. Bridgeport has a rich history as a manufacturing center. With the construction of railroad lines and good harbor access, the City experienced rapid industrialization. The railroad lines connected Bridgeport to New York to the west, New Haven to the east and Pittsfield, Massachusetts to the north. Various goods were produced in Bridgeport and shipped around the world. Products included brass fittings, sewing machines, carriages, and ammunition.

The City has a rich diversity of housing styles

that were built to support the rise of the industrial sector. Much of this housing is typical of the mid-to-late Victorian era, including the Italianate Villa and Queen Anne styles. Colonial Revival and neo-classic styles are also well represented. Work force housing was provided in “workers” cottages, brick “Philadelphia style” row houses and triple deckers.

Today, land use in the City reflects its industrial past. While many of the industrial plants have been demolished or left vacant, remnants of this past endures. Residential neighborhoods are close-knit and retain historic configurations. Many residential areas were built in proximity to factories so as to attract and retain the workers needed by industry. Commercial activities are interspersed within neighborhoods. Downtown Bridgeport remains a banking center and is home to Federal, State, and County courthouses. Bridgeport is a major center of medical care due to the presence of St. Vincent’s and

Bridgeport hospitals. Two colleges are located in Bridgeport: the University of Bridgeport in the South End (just north of Seaside Park and Long Island Sound) and Housatonic Community College in the Downtown area.

The City of Bridgeport remains a major transportation hub. Commuter and intercity rail service is provided by the Bridgeport rail station, located in Downtown Bridgeport. Connected to the rail station by an overhead, covered walkway, Greater Bridgeport Transit’s main bus terminal is also located in the Downtown. Bus service radiates from the downtown terminal throughout Bridgeport and into Fairfield, Stratford and Trumbull. Interstate Route 95 (I-95) traverses the southern half of the region and has an interchange with the Route 8/25 Expressway in Bridgeport.

The Port of Bridgeport, classified as a Commercial harbor, is one of three deep water ports in Connecticut. Activities within

<b>Demographic Profile: City of Bridgeport</b>		
<b>Population</b>		
Total Population	144,229	100.0%
White	57,070	39.6%
African American	49,842	34.6%
Other Race	37,317	25.9%
Hispanic or Latino	55,100	38.2%
<b>Age</b>		
Median Age	32.6	
< 15 years old	29,977	20.8%
> 65 years old	14,487	10.0%
> 80 years old	4,386	3.0%
<b>Housing</b>		
Total Households	51,255	100.0%
Owner Occupied	21,822	42.6%
Renter Occupied	29,433	57.4%
Housing Units	57,012	100.0%
Vacant Units	5,757	10.1%
Seasonal Units	163	0.3%
<b>Income</b>		
Median Family Income	\$47,959	
Per Capita Income	\$19,979	
Households with Income <\$25,000	16,761	52.7%
Families Below Poverty Level	5,725	18.0%

Source: US Census Bureau, 2010 Census & 2007-2011 American Community Survey

the harbor include recreational boating and support facilities, commercial fishing, dry dock and boat repair facilities, tug boat docking and passenger and vehicle ferry service. The Bridgeport and Port Jefferson Steamboat Company operates the ferry service to Long Island and leases the Water Street Dock for loading and unloading. The Water Street Dock is strategically located in the downtown and is functionally connected to both the bus and rail stations.

Future land use in the City of Bridgeport is anticipated to reflect existing land uses, with potential mixed use development on large vacant parcels of land that had previously supported industrial uses.

### Town of Easton

The Town of Easton has the smallest population of all municipalities in the Region with a population of 7,490 people (2010 Census). The Town is located in the Region's northwest and is bordered by Fairfield to the south, Monroe and Trumbull to the east, the towns of Redding and Newtown (Housatonic Valley planning region) to the north and the towns of Weston and Westport (South Western planning region) to the west. Easton is one of the Region's three inland communities. With a land area of 28.8 square miles, the Town consists largely of rolling, hilly terrain. Elevations range from 110 feet at the Fairfield border to approximately 740 feet at the northern boundary with Newtown.

Easton is not ethnically diverse, as only 5.9% of the Town's residents report an ethnicity other than white and only 2.9% of residents are of Hispanic or Latino ancestry. Easton's population has the highest median age of the Region at 45.1 years old, but the proportion older than 65 is not significantly higher than the Region or other member communities (2010 Census).

The total number of occupied housing units in Easton is 2,577, with 93.4% of units occupied by the owner. Rental units account for 6.6% of the Town's housing. About 5% of the housing stock is vacant, with 50 units classified as seasonal or recreational, about 1.8% of total units (2010 Census).

Easton is a wealthy community, as indicated by the annual median family income of \$150,239. The Town's per capita income of \$63,439 per year is among the higher income levels in the state. 100 families in the Town of Easton were listed as having an income below the poverty line; 93 households earned less than \$25,000 per year (2007-2011 American Community Survey).

The Town is almost exclusively a residential community and is primarily composed of single-family houses on large lots. About 0.1% of land in Town is used for commercial purposes. The Town

<b>Demographic Profile: Town of Easton</b>		
<b>Population</b>		
Total Population	7,490	100.0%
White	7,048	94.1%
African American	52	0.7%
Other Race	390	5.2%
Hispanic or Latino	220	2.9%
<b>Age</b>		
Median Age	45.1	
< 15 years old	1,697	22.7%
> 65 years old	1,130	15.1%
> 80 years old	324	4.3%
<b>Housing</b>		
Total Households	2,577	100.0%
Owner Occupied	2,406	93.4%
Renter Occupied	171	6.6%
Housing Units	2,715	100.0%
Vacant Units	138	5.1%
Seasonal Units	50	1.8%
<b>Income</b>		
Median Family Income	\$150,239	
Per Capita Income	\$63,429	
Households with Income <\$25,000	93	4.4%
Families Below Poverty Level	105	5.0%

Source: US Census Bureau, 2010 Census & 2007-2011 American Community Survey

does not have a specific concentrated commercial area and no industry is located within the corporate limits. Over one third of Easton is preserved as either currently water company owned lands or former water company property. Four public supply reservoirs (Easton, Aspetuck, Hemlock and Saugatuck Reservoirs) are partially or wholly located in the town.

About 2,300 acres of the Centennial Watershed State Forest are located in Easton. The Centennial Watershed State Forest was formed in 2002, with the primary function and purpose to protect water quality, wetlands and woodlands. The State of Connecticut, in partnership with The Nature Conservancy (TNC), acquired ownership of roughly 6,000 acres of public supply watershed lands, as well as conservation and public access easements on an additional 9,000 acres. The Centennial Watershed State Forest is a patchwork of hundreds of scattered parcels throughout mostly Fairfield County of varying size.

As Easton is devoted to maintaining a pure water supply, future land development will be limited.

### Town of Fairfield

The Town of Fairfield has a population of 59,404 people (2010 Census). Fairfield is located on the western side of the Region and is bordered by Westport (South Western planning region) to the west, Easton to the north and Bridgeport and Trumbull to the east. Long Island Sound makes up the Town's southern border. The Town has a land area of 30.6 square miles, rising to the north from its shoreline to an elevation of approximately 450 feet at Hoyden Hill near the northern border with Easton.

Fairfield's population is predominately white, with 91% of residents reporting to be white. 8.4% of the Town's residents claim a race other than white. Persons of Hispanic or Latino descent comprise 5% of the population. The

median age of Fairfield residents is 40 years old, with the proportion older than 65 years old accounting for about 20% of the population (2010 Census).

The total number of occupied housing units is 20,457, with 82% owner-occupied. The 18% of renter occupied units account for a higher proportion of housing units as compared to Easton, Monroe and Trumbull. Vacant housing units comprise 5% of the total housing stock with 1.6% of the units classified as seasonal or recreational (2010 Census).

Fairfield is a wealthy community, as indicated by an annual median family income of \$145,504, only slightly less than the median family income in Easton. The per capita income is \$59,188 per year, a relatively high amount. About 347 families, or 2.4% of the total are estimated to have an income below the poverty line. Households earning less than \$25,000 per year accounted for 12.3% of all house-

<b>Demographic Profile: Town of Fairfield</b>		
<b>Population</b>		
Total Population	59,404	100.0%
White	54,409	91.6%
African American	1,089	1.8%
Other Race	3,906	6.6%
Hispanic or Latino	2,999	5.0%
<b>Age</b>		
Median Age	40.0	
< 15 years old	12,591	21.2%
> 65 years old	8,920	15.0%
> 80 years old	3,355	5.6%
<b>Housing</b>		
Total Households	20,457	100.0%
Owner Occupied	16,783	82.0%
Renter Occupied	3,674	18.0%
Housing Units	21,648	100.0%
Vacant Units	1,191	5.5%
Seasonal Units	353	1.6%
<b>Income</b>		
Median Family Income	\$145,504	
Per Capita Income	\$59,188	
Households with Income <\$25,000	1,784	12.3%
Families Below Poverty Level	347	2.4%

Source: US Census Bureau, 2010 Census & 2007-2011 American Community Survey

holds (2007-2011 American Community Survey).

Fairfield is a town with two distinct development patterns. Although the Town is a predominantly residential community, more intense development patterns are concentrated in the eastern and southern areas of the Town and along the New Haven rail line and the I-95 corridors. The major business and industrial areas are located along US Route 1 and the southern portion of Route 58 (Black Rock Turnpike and Tunxis Hill Road). The northwestern part of town is relatively rural with a concentration of large lot, single family homes. Residential distribution is denser in the eastern portion of the community. Coastal development is primarily residential and includes beaches and private marinas. Two colleges are located in Fairfield: Fairfield University and Sacred Heart University.

Fairfield is served by three commuter rail stations on the New Haven main rail line: Fairfield Metro Center, Fairfield Town Center and Southport. Local bus service, oriented to and from Downtown Bridgeport is provided along the US Route 1 and Route 58 corridors. In addition to I-95, the Merritt Parkway (Route 15) passes through the northern part of Fairfield.

### Town of Monroe

The Town of Monroe is the fastest growing community in the Greater Bridgeport Region, with a population of 19,479 people (2010 Census). Monroe is located in the northern part of the Region and is bordered by Easton to the west, Newtown (Housatonic Valley planning region) to the north, Trumbull to the south and Shelton (Valley planning region) to the east. On its northeast side Monroe shares a short border with the Town of Oxford (Central Naugatuck Valley planning region) along Lake Zoar and the Housatonic River. The land area of Monroe is 26.4 square miles and the Town has a high elevation

of approximately 600 feet.

The ethnic mix of Monroe's population is similar to that of other suburban communities in the Region. The population is predominately white with 94.1% of residents reporting to be white. 5.9% of the Town's residents report a race other than white. Persons of Hispanic or Latino descent comprise 4.7% of the population. The median age of Monroe's residents is 42.7 years old. The proportion of the population older than 65 accounts for about 16% of the population and is lower than other communities in the region (2010 Census).

The total number of occupied housing units in Monroe is 6,735, with 92.3% of units occupied by the owner. This percentage is comparable to other similarly sized towns in the Region, such as Easton and Trumbull. Rental units account for 7.7% of total occupied units. Vacant housing units comprise

<b>Demographic Profile: Town of Monroe</b>		
<b>Population</b>		
Total Population	19,479	100.0%
White	18,331	94.1%
African American	274	1.4%
Other Race	874	4.5%
Hispanic or Latino	919	4.7%
<b>Age</b>		
Median Age	42.7	
< 15 years old	4,063	20.9%
> 65 years old	2,599	13.3%
> 80 years old	709	3.6%
<b>Housing</b>		
Total Households	6,735	100.0%
Owner Occupied	6,218	92.3%
Renter Occupied	517	7.7%
Housing Units	6,918	100.0%
Vacant Units	183	2.6%
Seasonal Units	27	0.4%
<b>Income</b>		
Median Family Income	\$122,473	
Per Capita Income	\$45,908	
Households with Income <\$25,000	638	12.3%
Families Below Poverty Level	57	1.1%

Source: US Census Bureau, 2010 Census & 2007-2011 American Community Survey

2.6% of the all housing units. Only 27 units are classified as seasonal or recreational (2010 Census).

The annual median family income for Monroe is \$122,473, similar to the Region's average without considering income levels in Bridgeport. The per capita income is \$45,908 per year. About 57 families or 1.1% of all families earn an income below the poverty line and 12.3% of the households earn less than \$25,000 per year (2007-2011 American Community Survey).

Monroe is a predominantly residential community comprised of single family, detached units on one to three acre lots. Several condominium complexes provide a higher concentration of housing. Commercial activities are concentrated along the Route 25 and Route 111 corridors, and several industrial parks are located along Pepper Street in the northern part of town. Future land use in Monroe is anticipated to be consistent with existing development patterns.

### Town of Stratford

The Town of Stratford has a population of 51,384 people (2010 Census). Stratford is located on the east side of the Region and is bordered by Bridgeport and Trumbull to the west, Shelton to the north (Valley planning region) and Milford (South Central planning region) to the west. Long Island Sound makes up the town's southern border. The Housatonic River flows between Stratford and Milford. The land area of Stratford is 19.6 square miles. Rising north from the Town's shoreline, the Oronoque section of town has an elevation of approximately 240 feet.

The Town of Stratford's population is more ethnically diverse than the Greater Bridgeport Region's other suburban communities and is most similar to that of Bridgeport. Although the population is predominately white

at 76.4% of residents, 25.6% of the population is made up of ethnic minorities. Persons of Hispanic or Latino descent comprise about 13% of the population. The median age of Stratford's residents is 42.2 years old, similar to other communities in the Region and the state average. The proportion of the population older than 65 is higher than several other communities in the Region, accounting for about 23.7% of the population. Similarly, the percentage of younger age persons is the lowest, comprising 17.8% of the population (2010 Census).

The total number of occupied housing units in Stratford is 20,095, with 80.7% owner-occupied. This percentage is lower than the Region's northern communities but comparable with that of Fairfield. Rental units account for 19.3% of total occupied units. Vacant housing units comprised 4.7% of total units, with 172 units classified as seasonal or recreational (2010 Census).

<b>Demographic Profile: Town of Stratford</b>		
<b>Population</b>		
Total Population	51,384	100.0%
White	39,249	76.4%
African American	7,347	14.3%
Other Race	4,788	9.3%
Hispanic or Latino	7,144	13.8%
<b>Age</b>		
Median Age	42.2	
< 15 years old	9,166	17.8%
> 65 years old	8,974	17.5%
> 80 years old	3,176	6.2%
<b>Housing</b>		
Total Households	20,095	100.0%
Owner Occupied	16,216	80.7%
Renter Occupied	3,879	19.3%
Housing Units	21,091	100.0%
Vacant Units	996	4.7%
Seasonal Units	172	0.8%
<b>Income</b>		
Median Family Income	\$83,980	
Per Capita Income	\$33,716	
Households with Income <\$25,000	2,931	22.1%
Families Below Poverty Level	450	3.4%

Source: US Census Bureau, 2010 Census & 2007-2011 American Community Survey

The annual median family income for Stratford is \$83,980, the second lowest income in the Region. The per capita income is \$33,716 annually, lower than that of Fairfield County and slightly lower than the state-wide median family income. About 450 families, or 3.4% of the total were listed as having an income below the poverty line and 22.1% of households earned less than \$25,000 per year (2007-2011 American Community Survey).

Although Stratford is a predominantly residential community, the Town has significant commercial and industrial corridors. Commercial activities are concentrated along the US Route 1 and Route 113 corridors, as well as the vicinity of the US Route 1, Route 110 and Route 130 traffic circle. Prime industrial areas are located in the south end of Stratford in the Lordship area and near the Sikorsky Airport. The Sikorsky Aircraft plant is located along the northern section of Route 110. There is a wide range of housing types in Stratford. Medium density housing is prevalent in the central and southern areas of town, while the northern part has typical low density developments. Future land use plans include transit oriented and mixed use development, as well as light industrial and office park development.

Stratford is served by one commuter rail station on the New Haven main rail line, located in the Town Center. Local bus service is provided throughout the Town and provides access to most areas of activity. I-95 traverses the southern half of Stratford and the Merritt Parkway is located in the northern part. The Sikorsky Airport, the Region's only airport, is located in the Lordship section of town. The airport is classified as a General Aviation airport, serving primarily private aircraft.

### Town of Trumbull

The population of the Town of Trumbull is made up of 36,018 people (2010 Census). The Town is located in the center of the Region, bordered by Bridgeport to the south, Easton to the west, Shelton (Valley planning region) and Stratford to the east, and Monroe to the north. The land area of Trumbull is 23.3 square miles and consists of low hills and steep ridges that rise above well-defined valleys. The highest elevation in the Town is approximately 520 feet, recorded in both Tashua (located in the Town's northwest corner) and Booth Hill (located along the eastern border area).

The ethnic mix of Trumbull's population is similar to that of the Region's other suburban communities. The population is predominately white: 90.0% of residents report to be white and 10% of residents report a race other than white. Persons of Hispanic

<b>Demographic Profile: Town of Trumbull</b>		
<b>Population</b>		
Total Population	36,018	100.0%
White	32,424	90.0%
African American	1,126	3.1%
Other Race	2,468	6.9%
Hispanic or Latino	2,068	5.7%
<b>Age</b>		
Median Age	43.9	
< 15 years old	7,497	20.8%
> 65 years old	6,587	18.3%
> 80 years old	2,443	6.8%
<b>Housing</b>		
Total Households	12,725	100.0%
Owner Occupied	11,179	87.9%
Renter Occupied	3,674	12.1%
Housing Units	13,157	100.0%
Vacant Units	432	3.3%
Seasonal Units	79	0.6%
<b>Income</b>		
Median Family Income	\$124,473	
Per Capita Income	\$45,172	
Households with Income <\$25,000	1,284	13.2%
Families Below Poverty Level	117	1.2%

Source: US Census Bureau, 2010 Census & 2007-2011 American Community Survey

or Latino descent comprise 5.7% of the Town's population. The median age of Trumbull residents is 43.9 years, making the Town's population slightly older than other communities in the Region. The proportion of the population older than 65 is the highest in the Region, accounting for about 25% of the population. The number of residents younger than 15 years old accounts for about 20% of the population and is similar to other communities in the Region (2010 Census).

The total number of occupied housing units in Trumbull is 12,725, with 87.9% owner-occupied households. Renter occupied units make up about 12% of total occupied units. These rates are comparable to other similarly sized towns in the Region. 3.3% of all housing units in the Town are vacant. Seasonal or recreational housing units make up about 1% of the total housing stock (2010 Census).

The annual median family income for Trumbull is \$124,535, which is slightly higher than the average for the Region without considering income levels in Bridgeport. The per capita income is at \$45,172 per year. About 117 families or 1.2% of families earn an income below the poverty line and 13.2% of all households earn less than \$25,000 per year (2007-2011 American Community Survey).

Trumbull is a predominantly residential community, comprised mostly of single-family houses on one half to one acre lots, with the smaller lots sizes located in the older parts of town. Several condominium complexes are scattered throughout the town. Commercial, office and industrial activities are concentrated in large parks with single accesses from main road corridors. The two largest shopping malls in the Region are located in Trumbull. Future land use in Trumbull is expected to maintain and enhance the existing colonial New England, residential character of the Town with some limited and managed vertical growth in industrial areas.

Local bus service is provided along main road corridors and is oriented to and from the Trumbull-Westfield Shopping Mall. The Merritt Parkway and Routes 8 and 25 pass through Trumbull.

## 1.5 Land Use

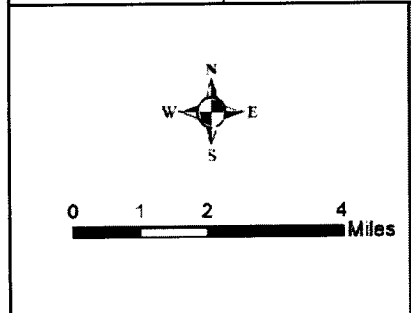
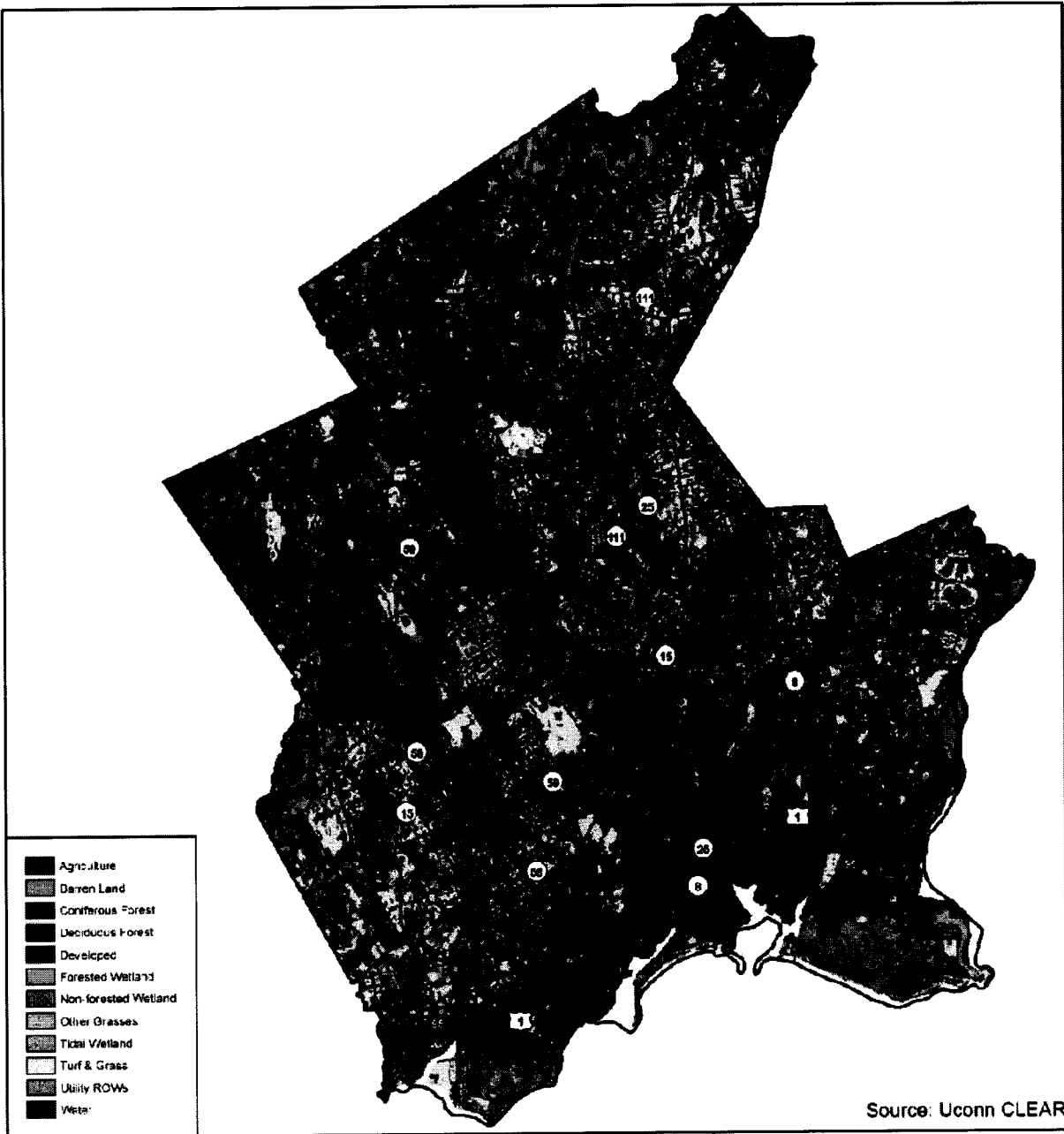
The land area of the region is approximately 145 square miles. Land cover statistics were derived from data provided by the Uconn Center for Land Use Education and Research (CLEAR). Unfortunately, their most current data was from 2006.

The coastal towns, especially along the I-95 corridor, are the most developed areas in the region. Overall, 40% of the region is developed. The inland communities, especially Easton and Monroe, are more forested. Overall, 35% of the region is forested. There is some agriculture but it is less than 2% of the entire region.

Source: Uconn, CLEAR  
2006 Land Cover

Land Cover	Area (acres)	%
Developed	37,494	40.47
Turf & Grass	12,219	13.19
Other Grasses	955	1.03
Agriculture	1,532	1.65
Deciduous Forest	31,338	33.83
Coniferous Forest	1,654	1.79
Water	3,297	3.56
Non-Forested Wetland	56	0.06
Forested Wetland	1,838	1.98
Tidal Wetland	991	1.07
Barren Land	1,121	1.21
Utility ROWs	149	0.16
<b>Total</b>	<b>92,647</b>	<b>100</b>





**Land Cover**

**GBRC Natural Hazard Mitigation Plan**



## 1.6 Development Trends

As mentioned in Section 1.4, the Greater Bridgeport Region has the highest population density in the State of Connecticut. The majority of the population (45%) lives in the City of Bridgeport. Since the 2006 NHMP, all towns have increased in population but the recession had a clear impact on development. The majority of new housing permits were in the coastal communities of Fairfield and Bridgeport which were the two towns hardest hit by previous coastal storms such as Superstorm Sandy. Thus an increase in development in these towns' likely results in more people exposed to natural hazards.

Source: Connecticut Department of Economic and Community Development  
**Housing Gain From 2006-2011**

Municipality	2006	2007	2008	2009	2010	2011	Total
Bridgeport	156	243	128	126	101	126	880
Easton	5	5	5	4	2	2	23
Fairfield	116	95	58	30	37	48	384
Monroe	20	20	16	3	6	7	72
Stratford	42	48	13	15	25	11	154
Trumbull	68	39	71	2	5	9	194
<b>Region</b>	<b>407</b>	<b>450</b>	<b>291</b>	<b>180</b>	<b>176</b>	<b>203</b>	<b>1,707</b>

The 2006 NHMP was updated from 2000 Census data to 2010 Census data to analyze demographic and population statistics. From 2000 to 2010 the Region's population increased by 10,397 people. Again, Bridgeport and Fairfield had the largest increase in population, while Monroe and Easton had the smallest. The towns of Stratford and Trumbull also grew by over 1,400 people. The coastal increase in population has put more people in danger of coastal storms which have been occurring regularly over the last couple of years.

Source: US Census Bureau, 2010 Census  
**Population Change**

Municipality	2000	2010	Change
Bridgeport	139,529	144,229	4,700
Easton	7,272	7,490	218
Fairfield	57,340	59,404	2,064
Monroe	19,247	19,479	232
Stratford	49,976	51,384	1,408
Trumbull	34,243	36,018	1,772
<b>Region</b>	<b>307,607</b>	<b>318,004</b>	<b>10,397</b>

## City of Bridgeport

The primary land use objective for the City of Bridgeport continues to be redevelopment. With the focus on infilling former manufacturing lots, of which many are Brownfield sites that have been left vacant. In addition, the city is working to develop Transit Oriented Development (TOD) on the East Site with emphasis on multi-modal transit.

## Town of Easton

The Town of Easton continues to preserve low residential character and ample amounts of public water supply watershed lands. It continues to encourage commercial and service growth in central areas while maintaining to preserve open space.

## Town of Fairfield

Since the 2006 NHMP there have been several completed developments in the Town of Fairfield. The Metro Center Train Station was constructed in December 2011. Fairfield University and Sacred Heart University constructed new dormitories and educational buildings. A Whole Foods Development and strip mall was completed as well as a Green Infrastructure "Delmar" mixed development project. There has also been construction of a joint Town and privately owned recreational complex. Finally, there has been "in filling" of vacant lots and construction of minor subdivisions.

While the majority of Fairfield is residential, the Commerce Drive area continues to represent the greatest opportunity for development. In May 2011, the Town Planning and Zoning commission adopted an amendment to the Town Plan of Conservation and Development to implement new zoning regulations for the Commerce Drive area surrounding the new Metro Station to guide new development.

The Town has also attempted to alleviate its vulnerability to natural hazards. There has been an increase in the number of houses being elevated after coastal storms Irene and Sandy. The Town of Fairfield has also continued to limit development on the Pine Creek side of Fairfield Beach Rd due to its vulnerability to coastal natural hazards such as hurricanes and storm surge.

## Town of Monroe

Since the 2006 NHMP there has been minor development in the Town of Monroe. Approximately 40% of the Pepper Street Industrial park was developed, leaving about 30% undeveloped (remaining) at this point. There has also been expected (typical) infilling and redevelopment along the Route 25 and Route 111 commercial corridors. There were no significant changes in residential development (subdivisions).

The Town completed an update of the POCD that recommended changes in priorities. These included sidewalks along the commercial corridors, recommendation of zoning amendments to allow retail in Limited Office zones (which was implemented via the adoption of new zoning regulations), highlighting of sanitary sewers as a vital need along the commercial corridors, a focus on low impact development and improved site development landscaping, reduction in pavement through alteration (re-writing) of zoning regulations, better buffers along riparian waterways, emphasis on storm water detention-retention-and/or storm water quality. The Town has also restructured the regulatory process to put more resources into inspection and follow up to assure that the final product matches approved conditions. Finally, the Town has reorganized its development departments (Zoning, Engineering, Building, and Inland Wetlands) to function as one "Land Use Group" to better coordinate functions and services.

## Town of Stratford

Since the 2008 Stratford NHMP, there have been several development projects completed. New apartment complexes designed by Forest City Enterprises have been completed on Stratford Avenue and are soon to be completed on Main St. The Stratford Avenue apartments completed in September, 2013 already have tenants. In addition, construction has begun on the Avalon Bay apartment complex located on Cutspring Rd in the northern section of the Town. The apartments are anticipated to be completed in August, 2014 and comprise of 130 units.

In addition to development, the Town has removed structures as well. Sixty-three cottages on Long Beach West were removed in 2010-2011.

These cottages were abandoned when the only vehicular bridge connecting the community to the mainland was lost to a fire. Instead of rebuilding the bridge, the Town opted to remove the structures to increase open space and environmental conservation. These structures were located on a barrier island, susceptible to coastal flooding, so their removal reduces the Town's overall risk to natural hazards.

The Town of Stratford remains for the most part, built out. The majority of development will be in-fill residential development and redevelopment of existing industrial and commercial areas. The Town has also developed a updated Open Space Inventory designed to highlight potential open space acquisitions over the next several years.

### Town of Trumbull

Changes in development since 2006 include significant new building construction on Monroe Turnpike and Quarry Road. There are two to three other places in town where existing commercial buildings were significantly expanded during that time. Also, new subdivisions were built between 2006 and 2009, primarily in the northwestern part of Town. Community priorities are delineated in the draft Plan of Conservation and Development including:

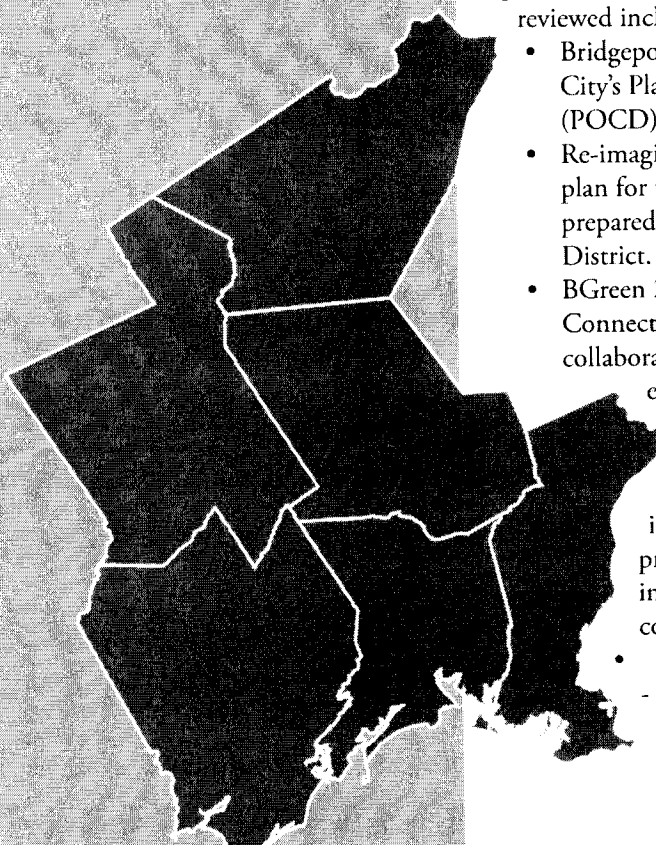
- Make it easier to bike and walk in Trumbull. Adopt a "complete streets" approach so that roads also accommodate pedestrians, bicycles, and transit.
- Address access management.
- Improve transit.
- Encourage village style, walk-able development patterns at the Town Hall area, Town Center and Long Hill Green.
- Promote campus-style development in the office parks.
- Consider allowing taller buildings in appropriate areas.
- Implement "green infrastructure" approaches (such as "low impact development" and other drainage practices) and promote "green" building practices.
- Promote greenway trails (such as the Pequonock River Trail) to interconnect parks and open spaces.
- Ensure there is adequate waste water capacity

to meet future development needs.

- Ensure a more reliable and resilient electrical system.
- Provide greater design guidance and a design review process.
- Encourage owners of historic structures to preserve and restore them.

# 2 Planning Process

Section Two documents the process of preparing the NHMP update and the involvement of each Greater Bridgeport Region municipality. Outreach to and engagement with neighboring communities, regional agencies and the public is described. Details of existing plans, policies, programs and government structures provides insight into the capacity of each community to plan for natural hazards and implement strategies that will mitigate the impacts of natural hazards.



## 2.1 Review of Existing Plans

The existing Plans of Conservation and Development for each of the six communities of the Greater Bridgeport Region were reviewed. In addition, other pertinent reports or plans were examined for their relevance to developing the natural hazard mitigation plan.

### City of Bridgeport

The City has prepared and adopted several master plans to guide future development and use of land. Plans reviewed include the following:

- Bridgeport 2020: A Vision for the Future - The City's Plan of Conservation and Development (POCD); adopted in March 2008.
- Re-imagining Downtown Bridgeport - A master plan for the revitalization of the downtown area; prepared in 2007 by the Downtown Special Services District.
- BGreen 2020: A Sustainability Plan for Bridgeport, Connecticut - The Plan was developed through a collaboration of city departments, community leaders and the business community to address the effects of climate change, encourage redevelopment that is sustainable, revitalize distressed areas of Bridgeport, implement renewable energy projects and programs, increase recycling and composting, and focus mobility on a transit first and complete streets policy.
- All Hazards Emergency Operations Plan - This plan was developed in 2011 and will be

updated in 2014.

- Pequonnock River Watershed Based Plan - The Pequonnock River watershed is located within the City of Bridgeport and the Towns of Trumbull and Monroe. The goal of the Plan is to identify actions that will address water quality impairments in the Pequonnock River and Bridgeport Harbor. While water quality is the primary focus of the plan, many recommendations to restore water quality will also mitigate flooding throughout the watershed. The Plan was adopted in 2011.
- Rooster River Watershed Based Plan (draft) - The goals and strategies of the Rooster River Plan are similar to those of the Pequonnock River Plan. The Rooster River flows from the Town of Trumbull to form the border between the Town of Fairfield and the City of Bridgeport. Via the Ash Creek Estuary, the River ultimately flows into Black Rock Harbor and Long Island Sound. The Plan is currently in draft, with adoption anticipated for 2014.
- Feasibility Study and Master Plan for Pleasure Beach Park - Pleasure Beach Park is located on the largest portion of a barrier beach that extends from Stratford to Bridgeport. The Plan balances active and passive recreation uses with the park's value as a habitat for native and endangered species.

### Bridgeport 2020: A Vision for the Future

The City's Plan of Conservation and Development focuses on the redevelopment and revitalization of Bridgeport and its component neighborhoods. Bridgeport is intensely developed with about 86% of the city's land in active use. This development has resulted in large areas of impervious surfaces and limited tree cover. Many of the streams and watercourses that pass through the City have been buried or channelized. Where watercourses have not been altered buffers are limited. The existence of combined storm water sanitary sewer systems is another critical problem that the City faces. During heavy rains, the combined system cannot handle the amount of flow and storm water runoff, causing an increase in flooding as well as the direct discharge of sewage into Long Island Sound.

A variety of coastal land and water resources are found within Bridgeport's coastal area, including

tidal waters and embayments, intertidal flats, tidal wetlands, beaches, floodplains and living marine resources such as finfish and shellfish. The Plan emphasizes the importance of these natural coastal resources in providing significant ecological functions. However, the ability of coastal resources to mitigate the effects of natural hazards has been compromised due to the history of heavy industries located along the harbor and waterfront.

The Plan recognizes that flooding and shoreline erosion are ongoing natural processes and recommends carefully planned development within the coastal area in order to reduce or avoid the potential impacts of flooding and erosion. The Plan also suggests that the departure of heavy industries provides an opportunity to reclaim former industrial areas with alternate uses. Although expanding public access to the waterfront was listed as an important objective in the Plan, the economic value of coastal properties suggests that future land use decisions will allow development to continue in areas vulnerable to coastal flooding, excessive storm surges and sea level rise. The City's most prominent waterfront redevelopment sites include Steel Point, the former Remington site in the South End, the Seaside Park landfill and properties along the Pequonnock River.

### Re-imagining Downtown Bridgeport

The Downtown Master Plan was incorporated as part of the Plan of Conservation and Development. The Plan's vision is to transform Downtown Bridgeport into an urban alternative for young adults through a dynamic mix of entertainment, recreation, restaurants, employment opportunities and housing. The key element of the Plan is to leverage the Downtown's assets, historic buildings and architectural qualities to attract real estate development and investment. The Plan's recommendations include the installation of green infrastructure to provide better storm water management and capacity, modified landscaping to reduce the amount of hard and impervious surfaces, and the creation of a greenway along the harbor and waterfront.

### The BGreen 2020: A Sustainability Plan for Bridgeport, CT

The BGreen 2020 plan was developed to guide the City's future development and land use policies. The BGreen Plan's intent is to establish goals and

objectives to promote and encourage development that would reduce the City's carbon footprint, rely on alternative energy sources and change how people move about the City. The plan's overriding theme stresses that climate change and rising sea levels are occurring and will continue in the future. The City will face long term consequences that include stronger storm surges and greater coastal flooding. These hazards will threaten the City's infrastructure and vulnerable populations. While the Plan does not specifically address natural hazard mitigation, it includes a number of actions and strategies to reduce storm water runoff, increase resiliency to climate change, sea level rise and storm surges, and encourage sustainable development. Recommended actions include:

- Increase waterfront access opportunities;
- Expand street tree planting and urban forest programs;
- Limit storm water flows into the waste water system;
- Maintain the storm water system to prevent and reduce flooding; and
- Develop green building guidelines and install green infrastructure.

#### Pequonnock River Watershed Based Plan

In 2010, a partnership between the City of Bridgeport and the towns of Monroe and Trumbull was formed to develop a watershed management plan for the Pequonnock River. The Pequonnock River flows through the three municipalities and the watershed covers about 29 square miles. While degraded water quality is a prime issue, flooding along the river is common. In Bridgeport, flooding occurs because of intense urban development along the river. Steep slopes and limited floodplain storage capacity worsens flooding in Trumbull, while lowlands adjacent to the upper reaches of the Pequonnock River in Monroe flood.

In general, the priority actions for the Pequonnock River watershed are intended to improve the water quality. However, many actions will have the secondary benefit of reducing flooding and the associated impacts. These include the installation of green infrastructure to increase the storage capacity of storm water runoff and efforts to protect, preserve and expand buffers and setbacks from wetlands and the river channel.

#### Rooster River Watershed Based Plan

The Rooster River Watershed Based Plan was developed through a partnership with the City of Bridgeport, the Towns of Fairfield and Trumbull, the Southwest Conservation District and the Connecticut Department of Energy and Environmental Protection. The watershed management goals, and supporting actions to restore the water quality of the Rooster River are similar to those of the Pequonnock River Plan. Actions that will mitigate flooding and possibly other hazards include:

- Reduce the impacts of storm water on hydrology and water quality through the use of Low Impact Development (LID) practices and Green Infrastructure approaches.
- Implement municipal storm water management programs to comply with state and federal permit requirements.
- Identify and remove illicit wastewater and non-storm water discharges into the Rooster River and its tributaries.
- Protect and enhance forested areas and urban tree canopy within the watershed.
- Address flooding issues through a coordinated, watershed-wide approach.
- Preserve and protect existing open space and continue to protect/acquire open space that meets resource protection and recreational goals.

#### Feasibility Study and Master Plan for Pleasure Beach Park

The Feasibility Study and Master Plan for Pleasure Beach Park includes a site analysis of this environmentally valuable barrier beach, as well as a vision plan and list of projects for the park. Recommendations related to hazard mitigation include:

- Reduce impervious surfaces.
- Support surface conveyance, infiltration and natural treatment of storm water.
- Remove invasive plant material and plant native and non-invasive species.

#### Town of Easton

The Easton Plan of Conservation and Development (POCD), adopted in 2006, was reviewed for the NHMP. While the Plan does not include specific natural hazard mitigation strategies, actions and

projects, it focuses on policies to protect wetlands, streambeds and surface and ground water resources. Easton is a low density residential community and a high proportion of land is set aside as public water supply watershed areas. This has resulted in a land pattern that provides substantial natural open spaces, buffers around wetlands and water courses and limited impervious surface land cover. Flooding problems are limited to certain areas along the Aspetuck River but existing land patterns limit the effects of flooding. The Plan includes recommendations for regulations that will increase oversight and the control of activities within buffer areas around wetlands and streams. These enhanced regulations will help to limit the possibility of flooding and related damage to property.

### **Town of Fairfield**

An update of the existing Plan of Conservation and Development for the Town of Fairfield is currently underway. As a coastal community with a substantial and diverse shore area, the possible consequences from sea level rise and more extensive storm surges are a concern to the Town. These concerns were incorporated into the Plan by integrating the recommendations of the Town's Shoreline Advisory Committee and its Shore Area Management Plan. The Plan recognizes the inherent dangers from flooding and erosion of beach areas. A long list of actions to help protect the shoreline and reduce damage to property and personal injury is included in the Plan. The key goals and objectives from the Plan relating to the shoreline area are preserving existing natural resources, limiting development in sensitive areas, protecting tidal and shoreline inland wetlands, acquiring sensitive parcels, and continuing participation in the National Flood Insurance Program. While the Plan recommends non-structural actions where possible, several physical systems have been installed to help stabilize beaches and to protect and stabilize waterfront properties. The Plan recognizes the value of these systems and recommends their maintenance.

### **Town of Monroe**

Monroe's Plan of Conservation and Development was drafted in March of 2010. The Plan

describes the Town as containing a large quantity of inland wetlands, streams, lakes and rivers. To designate the minimum regulatory jurisdiction of the Monroe Inland Wetlands Commission for any disturbances and alterations, a 100 foot buffer was added around these features. Any activity that might have an impact on wetlands, including excavation, filling, building, obstructions, potential pollution sources, clearing and grading is regulated, whether or not the activity occurs in the wetland itself or on land adjacent to the wetland.

One of the key goals of the Plan is to exercise stewardship over Monroe's natural features, such as wetlands, streams and Lake Zoar. The Plan recommends the protection and conservation of natural resources including wetlands, as they function as a natural storage basin for floodwaters. The responsibility for reviewing and regulating activities within and adjacent to these natural resources is vested in Monroe's Planning and Zoning Commission (P&Z) and Inland Wetlands Commission.

While the Plan focuses on actions to ensure the character of the Town and guide future land development, many of the recommendations also mitigate adverse impacts caused by extreme weather events. Establishing undisturbed buffers and setbacks along river edges and wetlands and discouraging impervious surfaces provides storage capacity for flood waters, limits damage to property and reduces the hazards and costs associated with flooding. In addition, the Plan recommends restricting the types of land uses that may be located within the designated 100 year flood elevation. Floodplains and wetlands would be retained in their natural state to the maximum extent possible so as to preserve water quality, protect water retention capabilities, and facilitate flood flow levels.

The Plan includes a section on sustainable development. While many of the suggested policies are not specifically targeted at mitigating natural hazards, they have a beneficial impact on Monroe and will help reduce flooding and storm damage.

### **Town of Stratford**

The Town of Stratford is currently updating its Plan of Conservation and Development and a draft version was reviewed for the NHMP. Reflecting



current perspectives and recent events, the draft Plan includes a chapter on “Climate Change Action & Preparedness.” With 14 miles of waterfront along the Housatonic River and Long Island Sound, the Town is concerned with the possible effects of sea level rise and excessive storm surges and is actively considering actions to lessen potential impacts. A recommended action step included in the draft Plan is to work with the GBRC and other regional entities on addressing climate change and hazard mitigation issues to ensure an environmentally sustainable region.

Inland and coastal flooding and impacts from storm surges are specifically addressed in the Town of Stratford’s draft Plan of Conservation and Development. The Plan indicates that flooding along the Housatonic River is generally limited to adjacent properties and does not extend far inland. Heavy rain events cause some flooding along Bruce Brook, Pumpkin Ground Brook and Raven Brook. The coastal area of Stratford experiences flooding from storm surges. However, the Lordship section is generally not impacted because of higher base elevations.

Several actions are included in the draft Plan to increase awareness of the potential impacts from climate change and to mitigate these impacts:

- Minimize impacts of development upon natural landscapes, habitats and watercourses;
- Protect and preserve the Great Salt Marsh, Long Beach, Short Beach and area between Stratford Point and Short Beach;
- Develop and adopt a town sustainability plan and identify critical areas at risk from the impacts of climate change;
- Prioritize acquisition of land and conservation easements for habitats most at risk from climate change;
- Acquire land and conservation easements to provide upslope “advancement zones” to accommodate rises in water levels adjacent to tidal marshes;
- Remove threatened structures from vulnerable shorelines, especially those exposed to the Long Island Sound;
- Implement the recommendations contained in the Natural Hazard Mitigation Plan; and
- Perform engineering studies to determine the best way to protect infrastructure subject to extreme flooding.

## Town of Trumbull

The Plan of Conservation and Development (POCD) for the Town of Trumbull was adopted in 2006. An update to the POCD is in draft form and is available for review. Similar to other municipal plans, the draft Trumbull POCD does not specifically address mitigation of natural hazards. Strategies discussed that are related to hazard mitigation include the importance of protecting wetlands, limiting development within buffers as a flood control measure, green infrastructure, low impact development and a more reliable and resilient electrical system.

The Plan describes the Town as a largely built-up, residential community. The main goal of the Plan is to preserve the current high quality of life valued by Town residents. As an inland community, Trumbull is more often affected by flooding caused by severe and extensive rain events. The Plan encourages the promotion of greenway trails (such as the Pequonnock River Trail) to interconnect parks and open spaces. Ensuring adequate waste water capacity to meet future development is also emphasized in the Plan.

The updated plan provides improved design guidance and an improved design review process. Property owners are encouraged to preserve and maintain historic structures. A village style and walkable development patterns at the Town Hall area, Town Center and Long Hill Green are emphasized. In office parks, a campus-style development is promoted and allowing taller buildings in appropriate areas may also be considered. A “complete streets” approach to accommodate pedestrians, bicycles, and transit, and to address access management and transit improvements is also recommended in the POCD.

## 2.2 Review of Municipal Websites

Each municipality of the Greater Bridgeport Region has developed and maintains a website highlighting their community, town services and other important information. The websites were examined to understand how residents are informed about natural hazards and disasters and about how to prepare for, plan for and endure an event. In general, each

municipality has established an office or department of emergency management with the responsibility for preparing and handling a wide range of emergencies, including natural hazards.

The webpages that describe emergency procedures vary in detail and are provided either as a direct link on the municipal website or as link to another department's website, usually the fire department.

### **City of Bridgeport**

The City of Bridgeport has a separate Department of Emergency Management and Homeland Security, headed by a Director of Emergency Management and Homeland Security. The main webpage for the department provides an overview of its mission and lists current alerts and updates. Additional links are provided for various emergency planning resources, including the following:

**BConnected Citizen Service System:** This system allows citizens and city employees to automatically and immediately contact the department responsible for an issue, such as to request a recycling bin, report a pothole or confirm a tax payment.

**City of BPT Hazards:** This webpage lists a series of links to one to two page pamphlets that explain how to prepare for a hazard and how to endure one. Among the natural hazards covered are:

- Earthquakes
- Extreme Heat
- Extreme Cold
- Flood Planning and Preparedness
- Severe Storms
- Thunderstorms and Lightning
- Tornadoes
- Winter Storm Planning and Preparedness
- Hurricane Storm Surge (SLOSH) Map
- Flood Zone Map

### **Planning Toolkits**

This webpage provides links to a series of one to two page pamphlets on how to prepare for a disaster, reasons to prepare and how to cope with a disaster. The webpage includes an emergency supply checklist.

### **Emergency Registration**

The City operates a Reverse 911 system that notifies residents of an emergency, including natural disaster alerts. The webpage explains why and how to register a home landline telephone number to receive notification. Registration is especially important for those with special needs.

### **Hurricane Preparedness**

This webpage provides links to various news and press releases by the Emergency Operations Center (EOC) and the Mayor's office in advance of, during and after a hurricane. Links are provided to the websites of the National Weather Service, United Illuminating Company and Southern Connecticut Gas Company.

The Emergency Management and Homeland Security webpage may be accessed under the listing of Departments.

### **Town of Easton**

The Town's Emergency Management Director is also a Police Officer. The Town's website does not provide information or links regarding hazard, emergency and disaster planning and response.

### **Town of Fairfield**

Emergency information for the Town of Fairfield is provided under the listing of Municipal Services. The "Fairfield Emergency Services Info" webpage lists information on "Who to Call" and provides links to emergency information from the Town's Fire Department:

#### **Who to Call**

This section provides contact telephone numbers for whom to call for updates on storm related incidents, both locally and from the Connecticut Department of Public Safety Division of Homeland Security.

#### **Emergency Information from the Fire Department**

This section provides links to the Fairfield Fire Department's website and various emergency information brochures and pamphlets on shelters,

evacuation notices, disaster kits, and emergency preparedness.

### Informational Web Sites

This section lists and provides links to several informational websites, including the Fairfield Police Department, FEMA's website on how to prepare, plan and stay informed for emergencies, the Connecticut Department of Public Health, the Centers for Disease Control, the American Red Cross, and the US Department of Health and Human Services.

### Town of Monroe

Webpages for Monroe's Emergency Management Department are accessed under the Other Town Departments navigation button on the Town's homepage. The webpage provides an overview of the Emergency Management Department and information on various emergency conditions that Town residents may encounter. A brief summary of actions on preparing for and coping with the emergency events is provided. Included in the list of possible emergency conditions are:

- Thunderstorms
- Hurricanes
- Winter Storms

### Town of Stratford

The Town's Emergency Operating Center (EOC) is located in the Fire Department. A direct link to an Emergency Management webpage is not listed under the Town Departments and Services menu. Instead, the link is listed under the Fire Department webpage. The EOC webpage provides an overview of the EOC and non-emergency contact telephone numbers to obtain information during an emergency event. If Stratford activates the EOC, an emergency management information line is also activated. The remaining information on the webpage lists items to include in a Basic Emergency Kit and provides a link to [www.ready.gov](http://www.ready.gov), the FEMA website on how to prepare, plan and stay informed for emergencies.

Other links are provided to access a series of emergency related brochures, pamphlets and reports on preparing for disasters and actions to take during

and after an event. Several of the links provide information on actions for preventing damage to homes and repairing damage to homes.

An additional link is provided to the NOAA (National Oceanic and Atmospheric Administration) Weather Radio. This website provides information on NOAA's special needs weather radio.

### Town of Trumbull

The Town of Trumbull's Office of Emergency Management (OEM), a department of the Trumbull Police Department, is listed on the website as a Town Hall department. The OEM webpage provides an overview of the OEM and its primary function. Contact information includes telephone numbers for local utilities (gas, electric and phone) and the American Red Cross. Additional links are provided to other local, regional and state agencies involved in responding to an emergency and other websites related to emergency preparedness.

## 2.3 Government Structure

The government structure of each Greater Bridgeport Region jurisdiction varies, as the structure typically relates to the respective size and complexity of the community.

### City of Bridgeport

The City of Bridgeport has a Mayor-Common Council form of government. The Mayor is the Chief Executive Official, while the twenty members of the City Council act as the legislative body for the City. The two major responsibilities of the Council are enacting ordinances necessary to govern the City and adopting the annual budget. Members of the City Council serve and are elected for two-year terms, while the Mayor is elected for a four-year term.

The Chief Administrative Officer, appointed by the Mayor is responsible for coordinating department management and operational policies. The following departments have jurisdiction and responsibility for ensuring the health, safety and welfare of the City's residents:

## Building Department

The Building Department issues permits and inspects work done to all buildings and other structures. Applications for permits are reviewed for conformance to all applicable laws, codes and ordinances. Permits and inspections ensure public safety, health and welfare insofar as they are affected by building construction, through structural strength, adequate exit facilities, fire safety, light and ventilation and sanitary equipment.

## Emergency Management & Homeland Security

The mission of the Office of Emergency Management is to protect the lives and property of citizens in the City of Bridgeport. This is accomplished through providing 24-hour emergency assistance by mobilizing and deploying personnel and resources, updating emergency operations plans and strategies, training emergency personnel, managing the emergency operations system, and warning and informing the public of emergencies and disasters.

## Engineering Department

The Engineering Department provides engineering services to the City's Departments and Commissions to ensure a safe and efficient traffic system. The Engineering Department makes recommendations, administers public improvement projects, provides technical data, assistance, survey, and design and prepares and maintains City record maps.

## Health Administration & Social Services

The mission of the Health Administration is to promote and protect the health of the people of Bridgeport through the provision of essential health services, monitoring of programs, enforcement of laws and ordinances, and collection of health information. Social Services provides for the social and economic well-being of Bridgeport's indigent and working poor residents.

## Land Use & Construction Review

The Department of Land Use Construction Review (LUCR) consists of the planning and zoning authorities, the building department and other agencies responsible for historic preservation and land use regulation activities. The LUCR provides professional staff assistance to the city's planning and zoning authorities.

The LUCR is one of eight divisions under the auspices of the Department of Planning and Economic Development (OPED). The role of LUCR is to provide preliminary review and coordination of development proposals prior to formal submission to the City's land use boards and commissions.

## Parks & Recreation Department

The Parks Department provides well-maintained, enjoyable park grounds and facilities to enhance the quality of life for City residents and visitors. The department's goals are to preserve and protect open spaces, provide opportunities for active and passive recreation, and maintain the landscapes, structures, streams, and woodlands within these areas.

## Office of Planning & Economic Development

The Office of Planning & Economic Development (OPED) is a multi-disciplinary organization responsible for economic development, neighborhood revitalization, business development, planning and zoning, historic districts, local film and TV productions, land use, design review, building permits and inspections and related issues.

## Public Facilities Administration

The mission of Public Facilities is to provide residents with the services that are required to ensure a clean, safe and healthy environment for the City of Bridgeport.

## Office of Sustainability

The Office of Sustainability was the result of a public-private partnership between the City of Bridgeport and the Bridgeport Regional Business Council, a consortium of local business groups. By building on Bridgeport's existing strengths, the goal of this office is to modernize the city's infrastructure, create wealth, intensify urban amenities, enhance environmental quality, enable revitalization without gentrification, and retain Bridgeport's historic character.

## Planning & Zoning Commission & Zoning Board of Appeals

The mission of the Planning and Zoning Commission and the Zoning Board of Appeals is to promote health, safety, quality of life and the overall

general welfare of the community through the enforcement of Bridgeport's Zoning Regulations.

#### Bridgeport Housing Authority

The Bridgeport Housing Authority (BHA) was created in 1936 to address poor housing conditions in Bridgeport and to develop and maintain affordable housing. The BHA provides nearly 2,600 public housing equivalent units that serve low income families, seniors, and people with disabilities. The BHA is diversifying its housing stock by developing new housing for low and moderate income residents.

#### Water Pollution Control Authority

The Water Pollution Control Authority (WPCA) operates Bridgeport's two wastewater treatment facilities and maintains the City's sewer system.

#### Town of Easton

The Town of Easton is governed by a Board of Selectmen, made up of three Selectmen elected together for two-year terms. The Board is responsible for the administration of town affairs. The First Selectman serves as the Town's Chief Administrative Officer and highest elected official. Easton does not have a town charter and is governed by the Connecticut General Statutes. An annual Town Meeting is held to decide legislative matters. The annual budget, prepared by the Board of Finance, is adopted at the Annual Town Meeting. Special town meetings may be called throughout the year by the Board of Selectmen or by petition of town residents.

Various town departments and commissions have jurisdiction and responsibility for ensuring the health, safety and welfare of its residents:

#### Building Department

The Building Department issues permits and inspects work done to all buildings and other structures. All types of new construction are reviewed and permitted by the Building Department. The Building Department ensures buildings are constructed in conformance to all applicable laws, codes and ordinances.

#### Public Works Department

The mission of Public Works Department is to maintain and improve the town's road system and

perform responsibilities that include snow and ice removal, street sweeping, roadside mowing, tree and brush removal, drainage installation and catch basin cleaning.

#### Planning & Zoning Commission & Planning Department

The Planning and Zoning Commission enforces the Town's Zoning and Subdivision Regulations and studies and debates proposed revisions to the regulations.

#### Conservation Commission

The Conservation Commission acts as the Town's Inland Wetlands and Watercourses Agency and enforces the State's regulations pertaining to wetlands and watercourses. The Conservation Commission reviews applications to conduct activities in regulated areas.

#### Parks & Recreation Commission

The Parks and Recreation Commission oversees and manages parks and open spaces. The goals of the Commission are to preserve and protect open spaces and provide opportunities for active and passive recreation.

#### Town of Fairfield

The Town of Fairfield operates under a Representative Town Meeting (RTM) form of government. RTM members are elected to two year terms by the residents of the Town's voting districts. There are ten voting districts and each district elects five members to the RTM. The Board of Selectmen is Fairfield's executive policy board and is comprised of three members. The First Selectman serves as the Chief Elected Official for a four year term. The other two members are elected to two year terms.

Various town departments and commissions have jurisdiction and responsibility for ensuring the health, safety and welfare of residents:

#### Fairfield Citizen Corps Council

The Citizen Corps Council is comprised of volunteer residents and representatives from the Police, Fire, and Health departments, as well as from the First Selectman's Offices. The Council was established as part of ongoing homeland security plans to

educate the public on public safety procedures, help citizens take active roles in protecting themselves during events and provide information on what to do in an event. The Council will also work with the American Red Cross. A partner group of the Citizen Corps is the Community Emergency Response Team (CERT). This team is a group of volunteers who have completed basic FEMA training on how to assist and support emergency personnel and participate in the response to a major event or disaster.

#### Office of Emergency Management

The Office of Emergency Management coordinates resources for Fairfield's first responders and plans and trains for response to extended situations. The Office prepares local emergency plans.

#### Conservation Department

The Conservation Department addresses the Town's broad environmental quality goals through work to enhance and restore Fairfield's natural resources, as well as to educate the public concerning the natural environment. Efforts include the restoration of stream water flows, water polluted by industrial wastes, and public trust lands. The Conservation Department cooperates with community groups in removing debris and trash from coastal waters and establishing outreach projects.

#### Public Works Department

The Public Works Department maintains and improves the town's road system and performs other responsibilities that include snow and ice removal, street sweeping, roadside mowing, tree and brush removal, drainage installation and catch basin cleaning.

#### Office of Community & Economic Development

The Office of Community & Economic Development develops and administers programs to stimulate and encourage economic development, revitalize and strengthen neighborhoods, facilitate and promote affordable housing and preserve and enhance the overall wellbeing of the community.

#### Engineering Department

The Engineering Department provides engineering services to other Town Departments and Commissions to ensure a safe and efficient traffic system

by making recommendations, administering public improvement projects, providing technical data, assistance, survey and design and the preparation and maintenance of Town record maps.

#### Parks & Recreation Department

The Parks Department manages and maintains various recreational facilities, including 170 acres of active parks and five miles of beaches. The Department's facilities provide enjoyable park grounds that enhance the quality of life for Town residents.

#### Town Plan & Zoning Department

The Town Plan and Zoning Department works with the development community to guide them through the Town's regulatory processes, neighborhood and redevelopment plans, and other siting issues associated with investment opportunities. The Department is responsible for preparing and maintaining the Town's Plan of Conservation and Development.

#### Town of Monroe

The Town of Monroe is governed by a nine member Town Council and a First Selectman, all of whom serve two year terms. The Town Council is responsible for the administration of town affairs. The First Selectman serves as the town's Chief Administrative Officer and highest elected official.

Various town departments and commissions have jurisdiction and responsibility for ensuring the health, safety and welfare of Monroe's residents:

#### Building Department

The mission of the Building Department is to maximize building safety for the general public and uphold the State Building Code, efficiency and public relations. The Building Department conducts plan reviews, issues permits and Certificates of Occupancies, performs inspections and coordinates all Town department approvals to achieve the maximum building safety for the general public.

#### Economic Development Commission

The Monroe Economic Development Commission (EDC) develops goals, strategies and plans for attracting and retaining the appropriate mix of businesses to Monroe. The Commission reviews and

evaluates proposed projects and ensures they are consistent with the Town's development goals.

#### Emergency Management Department

The Emergency Management Department coordinates resources for Monroe's first responders and plans and trains for responding to extended situations. The Emergency Management Department also prepares local emergency plans.

#### Public Works Department

The mission of Public Works Department is to enhance the quality of life of Monroe residents and maintain and improve the town's road system.

#### Planning & Zoning Commission & Planning Department

The Planning and Zoning Commission is responsible for the physical, social and economic planning and coordinated development of Monroe. The Commission prepares, adopts, and implements a Plan of Conservation and Development, reviews and recommends municipal improvements, and adopts and amends both zoning and subdivision regulations.

#### Engineering Department

The Engineering Department provides technical assistance to the public and other town departments relating to development within the town, traffic issues, drainage and utility work.

#### Inland Wetlands Commission

The Inland Wetlands Commission enforces the provisions of the State's Wetlands and Watercourses Act pertaining to wetlands and watercourses. The Commission reviews applications to conduct activities in regulated areas, issues permits and considers amendments to the Town's regulations.

#### Conservation Department

The Conservation Department addresses the Town's broad environmental quality goals through its work to enhance and restore Monroe's natural resources.

#### Parks & Recreation Department

The Parks Division oversees and manages parks and open spaces. The Department's goals are to pre-

serve and protect open spaces and provide opportunities for active and passive recreation.

### Town of Stratford

Stratford has a Mayor-Town Council form of government, with the Mayor designated as the Chief Executive Officer. The Town Council acts as the Town's legislative body and is comprised of ten members whom serve two year terms. The Mayor is elected to a four-year term.

Various town departments and commissions have jurisdiction and responsibility for ensuring the health, safety and welfare of Stratford's residents:

#### Building Division

The Building Division is responsible for the enforcement of all construction and building codes and issues building permits and Certificates of Occupancies. Flood zone information is available through this office.

#### Office of Economic Development

The Office of Economic Development promotes goals, strategies and plans for attracting and retaining businesses to Stratford. The Office reviews and evaluates proposed projects.

#### Office of the Mayor/Chief Administrative Officer

The Chief Administrative Officer heads mitigation efforts and is responsible for coordinating with the Emergency Management Director in the Emergency Operations Center (EOC), which opens during major events to coordinate resources and response. The Emergency Management Director acts as the liaison between the Chief Administrative Officer/Office of the Mayor, first responders, local businesses, other cities and towns and the State.

#### Public Works Department

The mission of the Public Works Department is to maintain and improve the infrastructure of the Town of Stratford. The Department includes several offices and divisions, including engineering, highways, conservation, parks, and inland wetlands.

#### Planning & Zoning Department

The Planning and Zoning Department has the primary responsibility for managing land use in

Stratford. The office handles applications for zoning compliance, changes and waivers, reviews plans for the subdivision of land, coastal site plan reviews, erosion and sedimentation control actions, and special case approvals. The office is involved in long-range planning and prepares the Town's Plan of Conservation and Development.

#### Health and Community Services Departments

The Stratford Health and Community Services Departments are responsible for health emergency preparedness and planning efforts, and coordinates these efforts with state, regional and local agencies responsible for emergency planning.

#### Engineering Division

The Engineering Division is responsible for construction administration and the management of municipal capital improvement projects, plan reviews, map record keeping, permitting and inspection for work relating to sewers, roads, sidewalks and curbs.

#### Highway Division

The Highway Division is responsible for maintaining the Town's highway system, including the pavement structure, storm drains, drainage inlets and outlets, and sanitary sewers.

#### Inland Wetlands and Watercourses Agency

The Inland Wetlands and Watercourses Agency enforces the provisions of the State's Wetlands and Watercourses Act pertaining to wetlands and watercourses. The Agency reviews applications to conduct activities in regulated areas, issues permits and considers amendments to the Town's regulations.

#### Parks Division

The Parks Division provides clean, safe and aesthetically pleasing areas where the public can enjoy outdoor activities. The mission of the Parks Department is to improve the appearance and the functionality of park facilities, fields, playgrounds and beaches. The Division has responsibility for maintaining all town trees.

#### Stratford Public Schools

Several Stratford Public School facilities are used as shelters, in the event residents have to evacuate an area.

#### Stratford Housing Authority

The Stratford Housing Authority is independent of the Town of Stratford. This quasi-public corporation owns and manages 514 family and elderly apartments, and, through the Federal Housing Choice Voucher Program, assists another 280 families residing in private apartments in the Town of Stratford.

#### Town of Trumbull

The Town of Trumbull is governed by a Town Council and a First Selectman, each serving two year terms. The administration of town affairs lies with the twenty-one elected members of the Town Council. The First Selectman is Trumbull's Chief Administrative Officer and highest elected official.

Various town departments and commissions have jurisdiction and responsibility for ensuring the health, safety and welfare of Trumbull's residents:

##### Building Department

The Building Department reviews construction documents for compliance with State Building Codes and issues building permits.

##### Economic and Community Development

The Economic and Community Development Department promotes goals, strategies and plans for attracting and retaining businesses to Trumbull and strengthens the Town's economic base in a manner with the Town's goals and vision.

##### Office of Emergency Management

The Office of Emergency Management (OEM) develops plans for preparing for and responding to natural and man-made emergencies. Responsibilities include documenting emergency response plans and procedures, training personnel, acquiring equipment, and coordinating with other departments. In the event of an emergency, the OEM mobilizes and deploys personnel and resources, notifies the public and manages the emergency event to maximize resources and minimize any negative impact.

##### Public Works Department

The mission of the Public Works Department is to maintain and improve the infrastructure of the Town of Trumbull.



### Planning & Zoning Department

The Planning and Zoning Department handles all administrative functions of the Planning and Zoning Commission and the Zoning Board of Appeals and has the primary responsibility for managing land use in the Town. The Department is involved in long-range planning and prepares Trumbull's Plan of Conservation and Development.

### Engineering Department

The Engineering Department is the technical service advisory division of the Public Works Department and provides adequate controls to ensure responsible construction within the Town. The Department designs projects carried out by the Highway Department, provides technical advice to the Planning and Zoning Commission and Inland Wetlands and Watercourses Commission (IWWC), and provides engineering services and advice to other Town departments.

### Inland Wetlands and Watercourses Commission

The Inland Wetlands and Watercourses Commission evaluates Trumbull's wetlands and acts on any permit requests that affect designated wetlands. The Commission conducts field investigations of all properties in question and enforces the provisions of the State's Wetlands and Watercourses Act.

### Conservation Commission

The Conservation Commission is a science-based advisory commission that oversees the protection and supervision of natural resources in Trumbull. The Commission acts in an advisory capacity to the Town's regulatory land use boards and makes recommendations regarding open-space, watershed plans, and natural resource preservation.

### Parks Department & Commission

The Trumbull Parks Commission and Department are responsible for the care, management and control of all parks and grounds used for park and recreational purposes and all structures thereon. Together with other municipal departments, their mission is to maintain and enhance park and recreational facilities.

## 2.4 Planning Teams

The Greater Bridgeport Regional Council (GBRC) is the regional planning organization for the Greater Bridgeport Metropolitan Region. The Council is composed of six member municipalities:

- City of Bridgeport
- Town of Easton
- Town of Fairfield
- Town of Monroe
- Town of Stratford
- Town of Trumbull

At the outset of the planning process, the GBRC established four separate planning teams to coordinate and provide direction in the development of the regional NHMP and to provide local input into the Plan. Because of the higher vulnerabilities and increased risks associated with the coastal area, separate planning teams were assembled for Bridgeport, Fairfield and Stratford. A combined inland planning team was organized with representatives from

#### City of Bridgeport Planning Team

Name	Title
Andrew Nunn	Chief Administrative Officer
Charlie Carroll	Director, Public Facilities & Parks
Ted Grabarz	Director, Sustainability
David Kooris	Director, Office of Planning & Economic Development (OPED)
Ben Henson	City Planner
Bill Coleman	OPED, Neighborhood Development
William Minor	OPED, Land Use & Construction Review
Steve Tyliczszak	OPED, Senior Economic Development
Scott Appleby	Emergency Management Director
Bill Robinson	General Manager Water Pollution Control Authority
Jon Urquidi	City Engineer
Terron Jones	Emergency Preparedness Coordinator
Davey Ives	Environmental Projects Coordinator
Peter Paajanen	Building Official
Kristin duBay Horton	Director of Health & Social Services
Peter Hance	Deputy Director, Bridgeport Housing Authority

Easton, Monroe and Trumbull.

The planning teams were comprised of the following individuals. They provided information, data, studies, reports, and observations; and were involved in the development of the Plan:

An extensive data collection, evaluation, and outreach program was undertaken to compile information about existing hazards and mitigation efforts in the Region. Direct input from the Planning Teams was essential to identifying priority areas for hazard mitigation.

The initial step in reaching out to municipal stakeholders was a stakeholder survey, which served as a means to collect information on recent events. The survey was developed using an electronic/internet format to facilitate response. Ten questions were asked:

1. In your opinion, which of the following categories are most susceptible to natural hazards in your community? (Please rank the community assets in order of vulnerability, 1 being most vulnerable and 6 being least vulnerable.)

- People: Loss of life and/or injuries
- Economic: Business interruptions/closures, job

**Town of Fairfield Planning Team**

Name	Title
Jennifer Carpenter	Deputy Chief of Staff
Art Reid	Emergency Management Director-Deputy Fire Chief
Joe Devonshuk	Town Planner
Jim Wendt	Assistant Town Planner
Bill Hurley	Manager, Engineering
Mark Barnhart	Director, Community & Economic Development
Joseph Michelangelo	Director, Public Works
Thomas Stienke	Conservation Director
Annette Jacobson	Conservation Office
Scott Bartlett	Superintendent of Public Works
Teresa Giegengack	Director of Senior and Social Services
Edward Jones	Open Space Manager

losses, etc.

- Infrastructure:
- Damage/loss of roads, bridges, utilities, schools, etc.
- Cultural/Historic: Damage or loss of libraries, museums, historic properties, etc.
- Environmental: Damage, contamination or loss of forests, wetlands, waterways, etc.
- Governance: Ability to maintain order and/or provide public amenities and services

2. What specific institutions in your community are vulnerable to natural hazards (such as schools, hospitals, senior centers or nursing homes)?

3. What specific natural features in your community are vulnerable to natural hazards (such as beaches, salt water marshes, wetlands, forests)?

**Town of Stratford Planning Team**

Name	Title
Stephen Nocera	Chief Administrative Officer
Jonathan Gottfried	Emergency Management Director
Gary Lorentson	Planning and Zoning Administrator
Karen Kaiser	Director, Economic Development
John Casey	Town Engineer
Maurice McCarthy	Director, Public Works
Brian Donovan	Building Official
Brian Carey	Conservation Administrator
Andrea Boissevain	Director, Health
Tamara Trojanowski	Community Services Administrator

**Town of Easton Planning Team**

Name	Title
Thomas Herrmann	First Selectman
Ed Nagy	Director, Public Works/Engineer
Capt. Rich Doyle	Emergency Management Director
Phillip Doremus	Wetland Enforcement Officer
John Hayes	Planner

4. What specific critical infrastructure in your community are vulnerable to natural hazards (such as roads, bridges, rail line, fire stations, police stations or sewage treatment plants)?

5. What is the capability of your community to shelter residents during a severe storm? Do you know where the shelters are located?

6. What are some of the natural hazards that have impacted your community in the past, currently impact the community or have the potential to impact your community in the future? (Please indicate whether you feel the future impact is definite, likely or remote).

- Coastal flooding
- Inland flooding
- Hurricane
- Snow storms
- Ice storms
- Severe heat
- Drought
- Tornadoes
- Earthquake
- Dam Failure
- Other (please specify)

7. What information is available to residents that describe these hazards, their current impact and the past and possible future impacts on your community? How are residents informed about hazards and preparation for hazards? How does your community currently reach out to residents? Are there existing plans that address these hazards?

8. Natural hazards can have a significant impact on a community, but planning for these types of events

**Town of Monroe Planning Team**

Name	Title
Steve Vavrek	First Selectman
Scott Schatzlein	Town Engineer/Wetlands Agent
Chris Nowacki	Deputy Director, Public Works
Dave York	Emergency Management Director
William Agresta	Planning & Zoning Administrator
Tanya Bombero	Land Use Coordinator
James Sandor	Chief Building Official

can help lessen the impacts. The following statements will help us determine your priorities regarding planning for natural hazards in your community. Please tell us how important each statement is to you by checking the appropriate box for each: very important, somewhat important, neutral, not very important, or not important.

- Protecting private property
- Protecting critical facilities (for example, transportation networks, hospitals, fire stations, etc.)
- Preventing development in hazard areas
- Enhancing the function of natural features (for example, streams, wetlands, etc.)
- Protecting historical and cultural landmarks
- Protecting and reducing damage to utilities
- Strengthening emergency services (for example, police, fire, ambulance)
- Promoting cooperation among public agencies, citizens, non-profit organizations, and businesses

9. Who are the experts, commissions or other stakeholders that plan for natural hazard response in your community? Have any of these people developed models that can be used in a plan (such as identifying priority hazards, effects of events, spatial data on possible locations and statistics about frequency)?

10. What strategies has your community adopted or implemented to mitigate natural hazards or reduce severity. Who is responsible for implementing these mitigation actions? What are some additional steps

**Town of Trumbull Planning Team**

Name	Title
Elaine Wang	Chief of Staff, Trumbull
Ed Lavernoch	Director, Economic & Community Development, Trumbull
John Marsilio	Director, Public Works, Trumbull
Jamie Bratt	Town Planner, Trumbull
Frank Smeriglio	Town Engineer, Trumbull
Dmitri Paris	Parks Superintendent, Trumbull
William Maurer	Inland Wetlands & Watercourses Agent
Graham Bisset	Chief Building Officer
Bill Chiarenzelli	Deputy Director, Office of Emergency Management, Trumbull
Mary Ellen Lemay	Chair, Conservation Commission, Trumbull

that should be taken to reduce or eliminate the risk of future natural hazard damage?

Specific surveys (attached as Appendix B) were prepared for each municipality to reflect their location and geography.

## 2.5 Conservation Technical Advisory Committee

The Conservation Technical Advisory Committee (CTAC) is an advisory body to the Greater Bridgeport Regional Council. The primary responsibility of the CTAC is to serve as the regional forum for consideration of any activity related to the enhancement of the natural environment within the region. These include the maintenance and implementation of the recommendations within the Pequonnock River Watershed Management Plan, guidance on brownfield projects, monitoring of coastal resilience initiatives and other activities as they relate to the protection and conservation of the natural environment within the region. Each Greater Bridgeport municipality is formally represented on the CTAC with a member of the local Conservation Commission and a staff member with responsibilities related to conservation. Meetings of the CTAC are held monthly and are open to the public. In addition to the appointed members, meeting attendees typically include local conservation organizations, residents, staff of the Connecticut Department of Energy and Environmental Protection and other regional stakeholders.

The CTAC's role in the development of the Natural Hazard Mitigation was to provide comments and guidance as the plan was being drafted. Throughout 2013 the group was updated at monthly meetings of the progress of the plan. Members could then comment on the progress and suggest points of contact or areas of specific concern. Once the report was drafted, mitigation strategies were presented to the CTAC at the November 25, 2013 meeting. At that time members provided feedback and suggested other possible mitigation strategies.

## 2.6 Hazard Mitigation Workshops

In response to recent extreme events, the need to increase resilience and adapt to these events has become more apparent, especially for coastal communities. As part of the update of the Natural Hazard Mitigation Plan, the GBRC partnered with The Nature Conservancy (TNC) to sponsor and conduct coastal/community mitigation and resilience and natural hazards profile workshops. The focus of the workshops was on increasing awareness of the risks associated with extreme weather and natural and climate-related hazards and to assess the risks, strengths and vulnerabilities of the Region's communities. Municipal staff and key stakeholders were invited to participate in the workshops for each respective community. A series of initial presentations, individual interviews and outreach was held to build stakeholder willingness and engagement in preparation for the workshops. The focus was on engaging those most involved in planning for and responding to natural hazards in conversations about risks and vulnerabilities. Through this effort, concerns and challenges facing the municipalities were discussed and vulnerable populations and locations were identified. By focusing on the concerns and challenges that face each community, workshop participants identified and prioritized actions to mitigate the impact of natural hazards. Both the outreach process and the STAPLE+E review method were utilized to prioritize mitigation actions. The 2006 plan primarily used the STAPLE+E review method to prioritize mitigation actions. Common themes expressed by participants in most of the workshops included effective public education, the utilization of green infrastructure and adequate power generation for evacuation facilities.

The central objectives of the workshops were to:

- Define extreme weather and local natural and climate-related hazards;
- Identify existing and future vulnerabilities & strengths;
- Develop and prioritize actions for the communities and a broad stakeholder network;
- Identify opportunities for the community to advance actions that address natural hazard issues and problems.

The workshops utilized the National Oceanic and Atmospheric Administration (NOAA), Coastal Services Center's Roadmap for Adapting Coastal Risk as a framework which was coupled with TNC's risk matrix approach to engage participants in a discussion on natural hazards. The key element of the workshop was breaking participants into small groups to facilitate discussions and the exchange of ideas, concerns and perspectives. This approach was successful in producing rich information and experiences on recent natural events and recommendations to improve resilience to natural hazards.

A series of four, one and two day workshops were held:

- Bridgeport: November 16, 2012 and December 6, 2012
- Fairfield: June 21, 2013 and June 28, 2013
- Stratford: October 4, 2013
- Easton-Monroe-Trumbull: September 24, 2013

### City of Bridgeport

The first workshop was held in the City of Bridgeport. A total of 71 people attended one or both days of the workshops. These participants represented a wide range of elected officials, city departments, state departments and agencies, non-government organizations and private sector interests, including:

#### Elected Officials

- Mayor Bridgeport
- US Congressman Jim Himes's FEMA staff
- Bridgeport City Council members
- City of Bridgeport Departments and Offices:
  - Emergency Management & Homeland Security
  - Environmental Health Department
  - Finance Department
  - Fire Department
  - Health & Social Services Department
  - Land Use, Construction & Review Department
  - Neighborhood Revitalization Department
  - Office of Planning & Economic Development
  - Office of Small & Minority Business Resource
  - Police Department
  - Port Authority
  - Public Facilities Department
  - Zoning Department

#### Non-Government and Non-Profit Organizations

- American Society of Landscape Architects – Connecticut Chapter
- Barnum Museum
- Beardsley Zoo
- Bridgeport Public Library
- Norwalk Community College
- Save the Sound/Connecticut Fund for the Environment
- Sierra Club – Connecticut Chapter
- SKEO Environmental Stewardship
- Trust for Public Land
- University of Bridgeport

#### State and Federal Departments

- Connecticut Department of Energy & Environmental Protection – Forestry Office
- Connecticut Department of Energy & Environmental Protection – Watersheds
- US Fish & Wildlife Service

#### Utilities

- Aquarion Water Company
- Bridgeport Housing Authority
- Bridgeport Water Pollution Control Authority
- Public Service Electric & Gas
- United Illuminating
- Tradition Energy

#### Business Community and Private Sector

- Bridgeport Regional Business Council
- EarthRise Design
- Fairfield County Community Foundation
- GHD Environmental Consultants
- Sikorsky Aircraft
- Stantec Consultants
- Steelpointe Development/Bridgeport Landing
- CBRE Commercial Real Estate
- Vita Nuova Consultants
- Wayne Clarke Landscape Architects

*A list of attendees is attached in Appendix A.*

The participants were asked to identify natural hazards that impact and affect Bridgeport. The hazards identified were based on the experiences and knowledge of recent events. Recent events influenced the discussions and most spoke about the impacts from the tornado that passed through the Downtown and the East Side (June, 2010), Tropical Storm

Irene (August, 2011) and the late October snow storm in 2011. The top hazards were:

Frequency and severity of coastal and inland flooding;

- Storm surge from tropical storms and hurricanes;
- Sea level rise and rising groundwater;
- Extreme weather from snow, ice, rain and wind storms;
- Drought and excessive heat; and
- Tornadoes and earthquakes.

These events have had direct and severe impacts on several neighborhoods and natural areas of the City. Neighborhoods most vulnerable to natural disasters were the Black Rock, South End and Chopsey Hill sections of the City. Impacts to natural features and ecosystems were mostly found along the shoreline, including Ash Creek, Johnson's Creek, Seaside Park and Pleasure Beach. Because of the urban and built-up character of Bridgeport, various facilities and infrastructure are at risk from the effects of extreme storms. Concerns were raised about damage to cultural facilities, such as museums, libraries and schools, vital infrastructure, such as oil tank farms, transportation systems, marinas and waste water treatment plants, and critical care facilities, such as hospitals, nursing homes, low income housing and shelters.

Because of recent experiences, many attendees voiced concerns related to the potential impacts from extreme events. A key concern identified by the group was the ability of the City to respond effectively. Access to certain areas of the City is limited or restricted due to flooding of major transportation routes. The issue presents a particular challenge to emergency responders evacuating at-risk populations, including the high proportion of disabled persons and elderly living in vulnerable neighborhoods. The issue is further complicated by the diversity of the City's population and the need to communicate in different languages.

While the City faces challenges during extreme weather events, it has addressed these challenges and benefits from a highly professional and skilled emergency response team. The City of Bridgeport has been recognized by the National Weather Service as a "Storm Ready Community," the first in Connecticut, and has rigorous protocols and operations

plans in place that are activated and followed from the first indication of an approaching storm. The City's new, state-of-the-art Emergency Operations Center (EOC) is capable of monitoring the response to any event and directing resources effectively and efficiently. At the neighborhood level, strong social service networks, including faith-based institutions, provide resources and communication that can assist at-risk population with awareness, sheltering and vital supplies.

The focus of the second day of the workshop was on how the City can enhance preparation for and response to a natural disaster. Priority recommendations included:

- Continue and expand pre-disaster planning;
- Develop evacuation routes;
- Sign and mark public shelters;
- Increase education and communication; and
- Strengthen communication systems to ensure widespread and rapid notification of approaching extreme weather.

Improve and expand existing infrastructure:

- Reassess existing flood control structures across the City;
- Expand separation of combined sewers;
- Promote new building base elevations well above FEMA's 1% flood elevations; and
- Create and integrate building and zoning codes and regulations to prevent development in flood prone areas.

Improve preparedness and resiliency:

- Reassess current sheltering capacity and needs;
- Protect and restore natural systems and features to better withstand and absorb storm surges and flooding; and
- Install strategically placed green infrastructure to improve storm water retention and infiltration.

Many of the recommendations made by workshop participants addressed coastal and inland flooding; both were identified as having regular (and sometimes significant) impacts in the 2006 NHMP. Unlike the 2006 NHMP, the priority actions identified in the workshop place a greater emphasis on pre-disaster planning and effective public education to ensure that the public has the information to adequately prepare (and recover) in the event of a

disaster. While improvements to and expansion of infrastructure remained a priority action, as in the 2006 NHMP, green infrastructure and low impact development solutions were also recommended as actions that could mitigate the impact of natural hazards.

**Town of Fairfield**

The two-day workshop in the Town of Fairfield took place on June 21st and June 28th of 2013. Staff from TNC facilitated the workshops and ensured interactive discussions about the natural hazard risks facing the Town. A total of 36 people attended one or both days of the workshops. These participants represented a wide range of elected officials, town departments, boards and commissions, community organizations and private sector interests, including:

- Elected Officials & Commissions:
- First Selectman of Fairfield
- Selectman of Fairfield
- Fairfield Representative Town Meeting members
- Board of Finance
- Community & Economic Development Commission
- Harbor Management Commission
- Historic District Commission
- Flood & Erosion Board
- Forestry Committee

**Town of Fairfield Departments and Offices**

- Emergency Management & Homeland Security
- Conservation Department
- Finance Department
- Fire Department
- Health Department
- Community & Economic Development Department
- Senior & Social Services Department
- Public Works Department
- Town Plan & Zoning Department
- Office of Engineering
- Police Department
- Zoning Department

**Community Organizations**

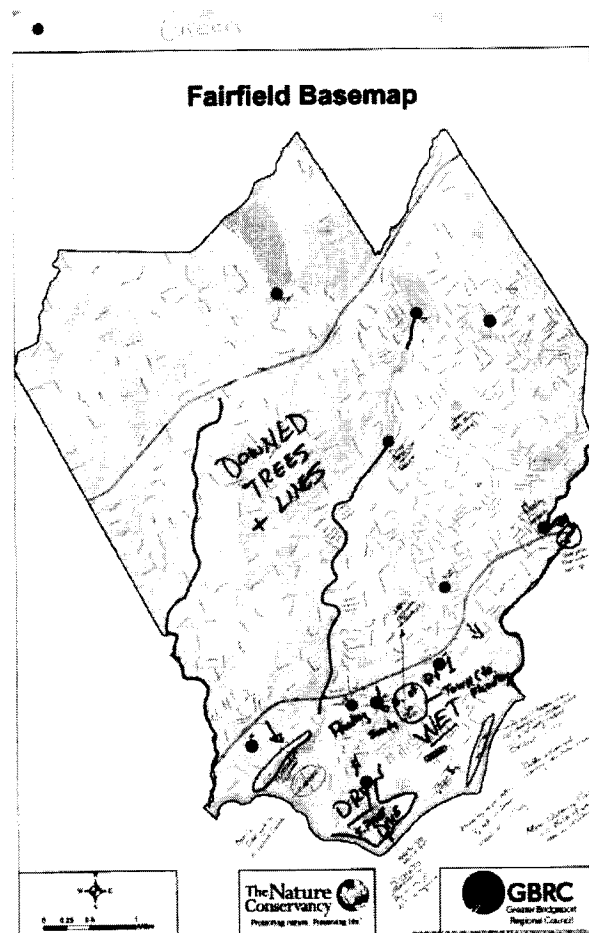
- Fairfield Beach Association
- Pine Creek Association

- Pequot Yacht Club
- Fairfield Clergy Association
- Fairfield CERT and Citizen Corps
- Fairfield YMCA
- Meadow Condominium Association
- Trinity Episcopal Church
- Fairfield Museum & History Center

*A list of attendees is attached in Appendix A.*

The participants were asked to identify the natural hazards that most frequently impact Fairfield. The answers were influenced by experiences and knowledge of recent events. The two events that had the most impact on the Town were Tropical Storm Irene (August, 2011) and Super-storm Sandy (October, 2012). The top hazards related to these events were:

- Severity and extent of storm surge flooding along the shoreline, especially the Fairfield Beach, Southport Center and Town Center areas;



- Inland flooding along the Mill River and Ash Creek related to tropical storms and hurricanes;
- Power outages from downed trees and power lines;
- Storms including wind, rain, ice and snow;
- Sea level rise;
- Extreme precipitation events; and
- Extreme temperature events, both excessive heat and extreme cold.

These events have had direct and severe impacts on several neighborhoods and natural areas of the Town. Fairfield has two different and distinct areas. The coastal areas are prone to coastal flooding from storm surges. The most significant concerns in the rural and suburban northern sections of the Town are downed trees and power outages. Neighborhoods most vulnerable to a storm surge are the Town Center, Southport and Fairfield Beach. The Greenfield Hills area north of the Merritt Parkway is substantially affected by downed trees and power lines, causing extensive power outages. Isolation was a great concern as the downed trees prevented or severely restricted access into and out of the area. Residents experienced difficulty in obtaining necessary supplies and recovery crews were hindered in their efforts to clear blocked streets and restore power.

Impacts to natural features and ecosystems were mostly found along the shoreline, including Ash Creek, Mill River, Marina Channels and the Fairfield, Jennings and Penfield Beaches. Various facilities and infrastructure were at risk from the effects of these extreme storms, including the police headquarters, fire station, sewage treatment plant and public works garage, all of which are located in flood prone areas. Concerns were also raised about the vulnerability of at risk populations. Several senior centers, long term care facilities and affordable housing complexes are also located in areas susceptible to a high storm surge.

Some coastal areas are protected by a system of Army Corps of Engineers (ACOE) dikes and berms. These barriers help prevent flood waters from reaching the South Pine Creek neighborhood. However, erosion is evident along the creek side of the dikes, indicating a need to improve and repair the structures. Attendees also suggested that the height of some dikes need to be increased to handle higher

than expected flood elevations and wave runup.

Workshop attendees identified a small section of the Town located along Ash Creek and bounded by US Route 1 and I-95 as a flood prone area. The flow of Ash Creek is restricted as it flows under I-95, causing flood waters to overflow into the neighborhood.

While the Town faces challenges during extreme weather events, a highly professional and skilled emergency response team has addressed these challenges. Evacuation orders are issued in advance of an approaching tropical storm predicted to cause severe coastal flooding. Attendees noted that in advance of Tropical Storm Irene, only about half of residents heeded the evacuation order. Before Superstorm Sandy almost everyone in vulnerable areas left. Attendees felt that the experiences of Tropical Storm Irene greatly influenced decisions to evacuate. The Town of Fairfield also moves vital equipment to higher ground and the Emergency Operations Center (EOC) can be relocated to an alternate site at Fairfield University, if the facility is threatened by high water.

The 2006 NHMP recommended the adoption of advanced building codes and free board requirements in tidally influenced floodplains. Workshop participants found that adopting and following advanced building codes was effective in reducing damage. As a result of Super-storm Sandy, a number of homes in the Fairfield Beach area were severely damaged and were demolished. However, houses built to a higher base flood elevation were not impacted as severely and did not require replacement. Since 2006, elevating homes, infrastructure, municipal facilities and utilities above the base flood elevation has received increased support and become a higher priority in the Town of Fairfield.

The focus of the workshop's second day was on actions that could enhance the Town's preparation for a natural disaster and the subsequent response. The recommendations of the workshop's attendees fell into three categories: 1) Mobility, Communications and Preparedness; 2) Planning, Maintenance, and Mitigation; and 3) Improvements to the Wastewater Treatment Facility.

A common theme throughout the workshop was the recognition that the mobility of residents and



emergency services is limited by downed trees and standing floodwaters during and after an extreme weather event. The recommendations focused on strategies to limit flooding and tree damage, to improve the delivery of emergency and relief services, and to restore critical community functions, including restoration of electrical power.

Communication before and during an event is a critical area for additional attention. The Emergency Operations Center (EOC) and Emergency Communications Center (ECC) are located in the Police Headquarters, which is within a flood hazard area. Alternative backup locations for the EOC and ECC are at Fairfield University. In addition to relying on the Code Red reverse-911 system, the Town can make greater and systematic use of community groups. Attendees recommended that the Town create a network of neighborhood emergency teams that educate residents about specific local hazards, procedures, and neighborhood support services. Additional efforts should be made to station supplies and generators in these neighborhoods prior to the arrival of an event so that the teams can be effective and, to some degree, self-reliant in the first hours after an event. Lastly, communications with utility providers needs to be improved before, during, and after an event. The recommendations that address improved communications and pre-disaster preparation are new for Fairfield in this update, as the 2006 NHMP's recommendations regarding Fairfield were most focused on structural and regulatory actions.

Pre-disaster planning, maintenance, and mitigation were key areas of focus for attendees. Existing open space, town beaches, and privately-owned undeveloped properties should be further protected and managed to improve the overall flood buffering and storm defense capacity provided by these natural infrastructure features throughout the Town. While some discussion of natural infrastructure occurred in the 2006 plan, the importance of natural infrastructure as a mitigation measure received greater emphasis during the workshop. As mentioned earlier in this section, participants recommended that stricter building codes in the floodplain be implemented to improve building survivability and limit longer-term costs. Suggested enhancements of building codes included increasing the building elevation and treating structures in coastal A zones the same as those

in coastal V zones. More robust maintenance plans for public and private trees should be undertaken to reduce the number of downed trees that block roads and bring down power poles and lines was also recommended by participants, further reinforcing recommendations made in the 2006 plan.

Attendees also suggested that the Town adopt an improved maintenance and upgrading plan for tide gates, culverts, and dikes to protect against storm surge and allow floodwaters to recede quickly after an event. Pump stations or other means of drainage should be explored for underpasses along the New Haven rail line, which tend to flood easily and limit access to neighborhoods south of the rail line. Lastly, attendees recommended raising the Pine Creek berm to at least the 100-year flood level and closing any existing gaps. These recommendations were consistent with those of the 2006 plan.

The 2006 plan did not mention the Town's wastewater treatment facility. However, workshop participants emphasized the need for further protection. The facility is located within a flood hazard area and there was consensus that the berm surrounding the facility needs to be raised to improve protection against storm surge and sea level rise. A second new recommendation was to waterproof the manhole covers in key places around town where runoff currently enters the sewer network and overwhelms the treatment system's capacity. Finally, participants suggested that the facility should be "dewatered" in advance of a major storm in order to increase its capacity.

Other recommendations included:

- Continue and expand pre-disaster planning;
- Develop evacuation routes;
- Increase education and communication;
- Implement a tree removal and maintenance program to reduce trees susceptible to high winds; and
- Strengthen communication systems to ensure widespread and rapid notification of approaching extreme weather.

Improve and expand existing infrastructure:

- Consider increasing the height of existing dikes and address erosion problems;
- Promote new building base elevations well above FEMA's 1% flood elevations;

- Protect vital municipal facilities, such as libraries, shelters and emergency response centers;
- Repair and maintain tide gates and expand the flow of the As Creek under I-95;
- Create and integrate building and zoning codes and regulations to prevent development in flood prone areas.

Improve preparedness and resiliency:

- Reassess current sheltering capacity and needs;
- Protect and restore natural systems and features to better withstand and absorb storm surges and flooding; and
- Install strategically placed green infrastructure to improve storm water retention and infiltration and install porous pavement as appropriate.

As many residents in the Town of Fairfield were impacted by recent weather events, the impacts of coastal and inland flooding as well as downed tree limbs (from wind or ice) received a significant amount of attention from workshop participants. Most of the recommendations from the 2006 NHMP for Fairfield also addressed coastal and inland flooding and wind/ice damage, but were oriented to structural and regulatory actions. However, the scope of mitigation activities has broadened to include natural infrastructure, public education, enhanced communications and pre-disaster planning.

### Town of Stratford

The one day hazard mitigation workshop held in the Town of Stratford took place on October 4th. Staff from TNC facilitated the workshops and ensured interactive discussions about the risks facing the Town. A total of 17 people attended the workshop. These participants represented a wide range of town departments, boards and commissions, including:

Town of Stratford Departments and Offices:

- Emergency Management & Homeland Security
- Conservation Department
- Fire Department
- Health Department
- Environmental Health Services
- IT Department
- Community Services
- Community Development Department

- Economic Development Department
- Public Works Department
- Highway Department
- Recreation Department
- Building Department
- Planning & Zoning Department
- Engineering Department

*A list of attendees is attached in Appendix A.*

The participants were asked to identify the natural hazards that most frequently impact and affect the Town. There was general consensus that coastal and inland/riverine flooding are major issues facing Stratford. The top hazards identified by participants were:

- Coastal flooding, especially in the South End area bounded by Surf Avenue, South Avenue, Main Street, Access Road and Lordship Boulevard. This area is home to the more vulnerable populations and includes housing operated by the Stratford Housing Authority.
- Inland flooding along Bruce Brook, Tanner's Brook and Ferry Creek. Sections of water-courses through the Town Center area have been channelized or buried. This exacerbates flooding potential as the infrastructure cannot handle large volumes of runoff during heavy rain events.
- Ice storms create problems related to power outages, frozen pipes, and mobility, which causes difficulty traveling on I-95. Ice build-up on the electrical wires along the New Haven rail line disrupts train service.
- Wind causes tree limbs to fall and can cause power outages.

While the Town of Stratford was less severely impacted by the recent storm events, widespread flooding resulted from both Tropical Storm Irene and Super-Storm Sandy. The South End was affected by both storms and is vulnerable to coastal flooding, even from a moderate storm surge or during a storm that produces heavy rain. Access is limited to the South End and flooding on these routes essentially cuts off the area from the rest of the Town. A sizeable vulnerable population lives in the South End which includes seniors, disabled persons and low income families. Flooding of the South End also impacts operations at the Sikorsky Memorial Airport. Base elevations at the airport are approximately 10 feet,



*Workshop for the town of Stratford*

which makes the area susceptible to flooding from a major event. In addition, the Lordship Boulevard area is the location of one of the Town's main commercial-enterprise districts. Several industrial buildings are located in the district and are adjacent to the Great Salt Marsh and Lewis Gut.

By contrast, the Lordship area, located in close proximity to Long Island Sound, lies on an upland bluff and is at a high enough base elevation that it is not prone to flooding. However, the access routes into the area are subject to closure during a storm, which isolates the area.

The workshop attendees discussed inland flooding in the Town Center. The Town Center is susceptible to flooding because it lies in a low, flat area that had historically been made up of wetlands and crossed by several streams and creeks. Channelization projects from the 1930s to the 1950s altered the flow of these watercourses and the infrastructure is unable to handle rapid increases in runoff.

Potential impacts to the town's infrastructure were also identified. The wastewater treatment plant is located within the recently modified flood hazard area. A berm was built in the 1970s to protect the plant from flood waters but there is a concern that the berm's height is insufficient to accommodate more intense coastal flooding. In addition, the Town

operates 16 pump stations; seven of these are located in flood prone areas, including one at the end of Oak Bluff Road near Long Beach and the Great Salt Marsh and one on Sniffens Lane, close to the Housatonic River. Flooding is a concern at underpasses for the New Haven rail line especially at Bruce Avenue, King Street, West Broad Street, Main Street and East Main Street. The I-95 underpass on Surf Avenue also regularly floods.

Workshop attendees suggested actions to address the vulnerabilities and risks facing Stratford. The recommendations focused on infrastructure improvements as well as better information and communications, as the 2008 Annex had. However, the vulnerability of the waste water treatment plant, pumping stations in flood prone areas and the need for adequate generators in shelters received a significant amount of attention from attendees – three areas of concern that were not detailed in the 2008 Annex. Like the workshops in neighboring communities, participants also emphasized the importance of the natural environment as a mitigation measure and a tree management plan, two shifts in focus when compared with the 2008 Annex.

Key recommendations included:

- Improve and expand existing infrastructure:
- Consider increasing the height of the berm surrounding the wastewater treatment plant.
- Harden pump stations or set up barriers to protect from flood waters.
- Reconstruct New Haven rail line underpasses to eliminate flooding either by raising the road or installing pumps to handle the runoff.
- Ensure community shelters have up-to-date and adequate alternate electrical power generation. Attendees mentioned that the generator at Bunnell High School (the Town's main

- public shelter) is undersized and inadequate.
- Provide adequate generators for the housing authority.
- Enhance building codes and encourage homeowners to flood proof their houses and if possible, increase the base elevation.

Enhance and improve the natural environment:

- Prepare a natural resources management plan or an urban forest canopy study to address the existence of Norway Maples throughout town and in Roosevelt forest. This species is especially susceptible to damage from high winds.
- Implement a tree removal and maintenance program to reduce trees susceptible to high winds.
- Long Beach acts as a barrier between Long Island Sound and the South End. The beach is separated from the mainland by Lewis Gut and the Great Salt Marsh.
- Conduct a cost benefit analysis for beach replenishment of the engineered beach at Short Beach. The beach is susceptible to coastal erosion from an excessive storm surge.
- Increase the stream channel along flood prone watercourses, especially Bruce Brook, to better manage water flow.

### Towns of Easton, Monroe and Trumbull

A combined hazard mitigation and resilience workshop was held for the towns of Easton, Monroe and Trumbull. Because these communities are inland, they are less vulnerable to the effects of tropical storms and hurricanes. The workshop took place on September 24th. Staff from TNC facilitated the workshops and ensured interactive discussions about the risks facing the three communities. A total of 23 people attended the one-day workshop: one attendee from the Town of Easton; four attendees from the Town of Monroe; and 18 attendees from the Town of Trumbull. Workshop attendees represented a wide range of elected officials, town departments, boards and commissions, community organizations and private sector interests, including:

Town of Easton Departments and Offices

- Emergency Management

Town of Monroe Departments and Offices

- First Selectman
- Emergency Management
- Engineering Department
- Conservation Commission

Town of Trumbull Departments and Offices

- First Selectman's Office
- Emergency Management
- Emergency Medical Services (response)
- Conservation Commission
- Fire Department
- Social Services
- Senior Center
- Economic and Community Development Department
- Public Works Department
- Highway Department
- Parks and Recreation Department
- Building Department
- Planning & Zoning Department
- Engineering Department

*A list of attendees is attached in Appendix A.*

The participants were divided into groups by town affiliation; stakeholders from the Town of Trumbull were further split into two groups. Each group was asked to identify the natural hazards that most frequently impact and affect their town. As these towns are inland from Long Island Sound and do not suffer as severe effects from hurricanes, tropical storms or storm surges, the primary hazard impacting the area is inland flooding caused by excessive rain events. Wind damage was also a common hazard identified.

The following are the principle hazards identified by participants:

Inland flooding:

- Monroe: along Route 25 adjacent to the West Branch of the Pequonnock River.
- Trumbull:
  - Long Hill drainage corridor parallel to Route 111 (Main Street) between Lake Avenue and the Merritt Parkway.
  - Along the Pequonnock River in Trumbull Center, especially at Daniels Farm Road, in the Twin Brooks Park neighborhood, and in the vicinity of Quarry Road and



*Workshop for the towns of Easton, Monroe and Trumbull*

the residential neighborhood west of Route 127 (White Plains Road).

- Because of the land use patterns and the fact that much of Easton is either water company owned lands or former water company lands that have been permanently preserved, inland flooding is not a special concern in Easton. Watercourses susceptible to flooding lie within large areas of undeveloped land.

Wind, ice and winter storms:

- Ice storms and freezing rain create problems related to downed trees and result in power outages and inaccessible roads. Easton, Monroe and Trumbull are susceptible to these problems due to the extensive tree coverage and age of the urban forest. The hazard potential is greater when leaves are still on the trees.
- Wind was identified as a critical hazard as it can cause trees to fall which then cause power outages and closed streets. The problems in these communities are exacerbated by the age of trees and extensive tree cover. As a result of Super-Storm Sandy, about 130 acres of forested lands of predominantly white pine owned by the Aquarion Water Company were severely damaged and required emergency timber removal. These lands were located along Route 58 in the vicinity of the Aspetuck

and Hemlock Reservoirs. Because of the extensive damage, the Aquarion Company worked with the DEEP on conducting an emergency timber cutting and salvage program.

- Winter storms: The February 2013 blizzard resulted in snow accumulations of up to 36 inches. In general, the towns were able to adequately handle the event and clear roads in a reasonable time period. The primary concern during the storm was access to vital emergency services, especially hospital facilities in Bridgeport.

While the three communities have a lot of common experiences, there were several specific hazards that participants identified. The principal concern in the Town of Easton is maintaining the supply of public drinking water, as the Town is home to three public supply reservoirs that are the primary source of drinking water in the Region. A large filtration plant, located at the base of the Easton Lake Reservoir dam, was built several years ago to ensure clean and safe water. The Easton Emergency Management Director's primary concern is to ensure the plant remains operational during any hazard. In the 2006 NHMP, most of the recommendations for Easton were oriented to infrastructure projects so as to mitigate the impacts of flooding. Since 2006, the public drinking water supply and tree management have become priorities to the community, in addition to preparing for and mitigating the impacts of floods.

Maintaining access and power to the Jockey Hollow and Chalk Hill Middle School complex is a special concern in the Town of Monroe. The Chalk Hill School is being used as the temporary site for Sandy Hook Elementary school and the town has committed to ensuring the site remains accessible and open. Monroe's elderly population was identified as the primary vulnerable population in the Town. Several long term care facilities are located in

Monroe and the Town operates a senior center and senior housing facility. During past events, evacuations have not been necessary and the facilities have been able to remain self-sufficient. However, if evacuation were required, a severe strain would be placed on the Town's resources and there would be some difficulty in accommodating facility residents. Ensuring that these facilities have sufficient back-up generating power was recommended as a mitigation strategy and action.

All properties in Monroe are served by on-site septic systems. During heavy rains and subsequent flooding, on-site septic systems close to the Pequonnock River and the river's branches may fail, resulting in increased pollutants entering the river. Increased water may not cause flooding or property damage but could be sufficient to prevent septic systems from operating properly. There was some discussion on the need to install public sewers to serve the main parts of town, especially along Route 25 and Route 111.

In Trumbull, undersized culverts at several locations prevent adequate flow during heavy rain events. Locations that consistently flood include Daniels Farm Road near Trumbull Center, Lake Avenue near the north end of Canoe Brook Lake and Melrose Avenue. Culverts under the Merritt Parkway (Route 15), Route 8 and Route 25 also create "pinch" points of stream flows and cause flooding upstream of the culverts.

The Trumbull Public Works staff voiced concern that several of the town's sewer pump stations are located in flood hazard areas. Attendees from Trumbull also expressed a concern regarding the potential hazard posed by dam failures. Pinewood Lake is privately owned and the Pinewood Lake Association is responsible for maintaining the lake's dam. While the Association has permission to release water prior to a storm, the flood gate on the dam is broken. Failure of the dam has the potential to devastate approximately 100 homes downstream. Attendees felt that this potential dam failure poses a high risk to the safety of residents.

Attendees agreed that pre-disaster planning and good communication during a natural disaster were key to mitigation. Most residents are unaware that they live in a watershed or flood hazard area. Better education and outreach is needed. Coordination and

communication with utility companies and crews is essential. Improved coordination between public works crews and electrical power crews is needed to make safe areas with downed trees and allocate resources to priority locations. Attendees agreed that some improvement has occurred since the difficulties and problems experienced after Tropical Storm Irene and Super-storm Sandy, but more needs to be done. Discussions with the Aquarion Water Company should be held about possibly increasing the diversion of the Pequonnock River to the Easton Lake Reservoir in advance of a storm, as well as the release of water from reservoirs to provide storage capacity.

All three communities have had past problems from downed trees because of high winds, ice or heavy wet snow. Tree maintenance programs need to be implemented that remove dead and diseased trees and branches on an on-going basis. Residents should be educated about maintaining trees on their property. The towns also need to coordinate with utility-tree trimming programs. Proper tree maintenance on public and private land, enhanced communications with utilities and access to emergency services (on roads blocked by downed trees, as well as snow) have received increased attention from these three communities since the 2006 NHMP.

Back-up and alternate power generation was voiced as a concern by all groups. Participants recommended purchasing new generators at key facilities, including at primary public shelters such as Helen Keller Middle School (Easton), Masuk High School (Monroe), Trumbull High School, emergency operations centers, and long term care and senior housing facilities. Like communities throughout the Greater Bridgeport Region, ensuring that community facilities have adequate generators to serve impacted residents has become a high priority since the 2006 NHMP.

Other recommendations included:

- Implement various strategies included in the Pequonnock River Initiative, Watershed Management Plan, including: increasing buffers, installing green infrastructure (rain gardens, bio-swales, storm water planters), and repairing stream channels.
- Improve and /or replace undersized culverts.
- Strengthen communication systems to ensure widespread and rapid notification of ap-

- proaching extreme weather.
- Build on the strengths of existing plans and technology to assist medically vulnerable populations.
- Adequately staff shelter facilities.
- Acquire or elevate Severe Repetitive Loss (SRL) properties.
- Consider culvert enlargement / (State) road elevation and/or installing a flood control structure on the Pequonnock River near Daniels Farm Road in Trumbull.
- Improve and upgrade the Pinewood Lake dam.

## 2.7 Community Outreach

In an effort to develop a more comprehensive and publicly supported Natural Hazard Mitigation Plan, the GBRC followed a proactive public involvement process. This process included creating a page on the GBRC website, developing an online survey and holding a series of public information meetings. The web-page presented an overview of the purpose of the NHMP and summary of the plan development process.

*Screen shots of the webpage are included as Appendix B.*

### Web-based Survey

The web-based survey solicited public input and comments on natural hazards likely to impact the Greater Bridgeport Region. The survey was used to ascertain the public opinions on whether respondents had been impacted by a past or recent event and whether a future occurrence of the natural event was definite, likely or remotely possibility.

Respondents were asked to rank how susceptible various community “assets” were to natural hazards and extreme weather. Community assets included:

- People: loss of life and personal injury;
- Economic: business interruptions and closures and job losses;
- Infrastructure: damage and/or loss of roads, bridges, utilities and schools;
- Cultural/historic: damage and/or loss of libraries, museums and historic properties;
- Environmental: damage, contamination and/ or loss of natural resources, such as, forests,

- wetlands, marshes and water courses; and
- Governance: loss of the ability to maintain order and/or to provide public amenities and services.

Several questions were asked about the awareness of community provided resources so as to better cope with the effects of a natural disaster and prepare for extreme weather. This included asking whether or not the respondent knew where shelters were located.

*The survey is attached in Appendix C.*


### Public Outreach

Public participation also provided an opportunity to educate the public about natural hazards and the value of mitigation planning. In addition to the web-based approach, four public information forums were held for Bridgeport, Fairfield, Stratford and a combined event for Easton, Monroe and Trumbull.

The Greater Bridgeport  
Regional Council

*requests your participation at a series of public  
information meetings on the:*

## Regional Natural Hazard Mitigation Plan



<p>For Easton, Monroe &amp; Trumbull: Tuesday, September 17, 2013 At 6:00 pm Council Chambers Trumbull Town Hall 5866 Main Street, Trumbull, CT</p>	<p>For Stratford: Wednesday, September 18, 2013 At 6:00 pm Birdseye Municipal Complex 468 Birdseye Street, Stratford, CT</p>
<p>For Fairfield: Thursday, September 19, 2013 At 6:00 pm Board of Education's Conference Room (2nd floor) 501 King's Highway East, Fairfield, CT</p>	<p>For Bridgeport: Monday, September 23, 2013 At 6:00 pm Morton Government Center Conference Room A&amp;B (1st floor) 999 Broad Street, Bridgeport, CT</p>

- Learn how recent events have impacted your community
- Understand connections between community issues & hazard mitigation planning
- Express your ideas on how to reduce impacts from natural hazards

Please join us at one of the community meetings.  
Your voice is important!

*Workshop Notice*

## Advertising and Promotion

To advertise and promote the series of public information meetings, a display advertisement was prepared and published in the Connecticut Post newspaper (CT Post). The CT Post has a wide, regional circulation and is the primary source for printed news and information in the region. The display ad was in the Friday, September 13, 2013 edition of the newspaper and was shown on page A11 in the Opinion section.

Notices of these public meetings were sent to the municipal representatives of the NHMP planning teams. Representatives were asked to post the display ad on municipal websites and place the flyer announcing the meetings at visible locations in the respective town and city halls.

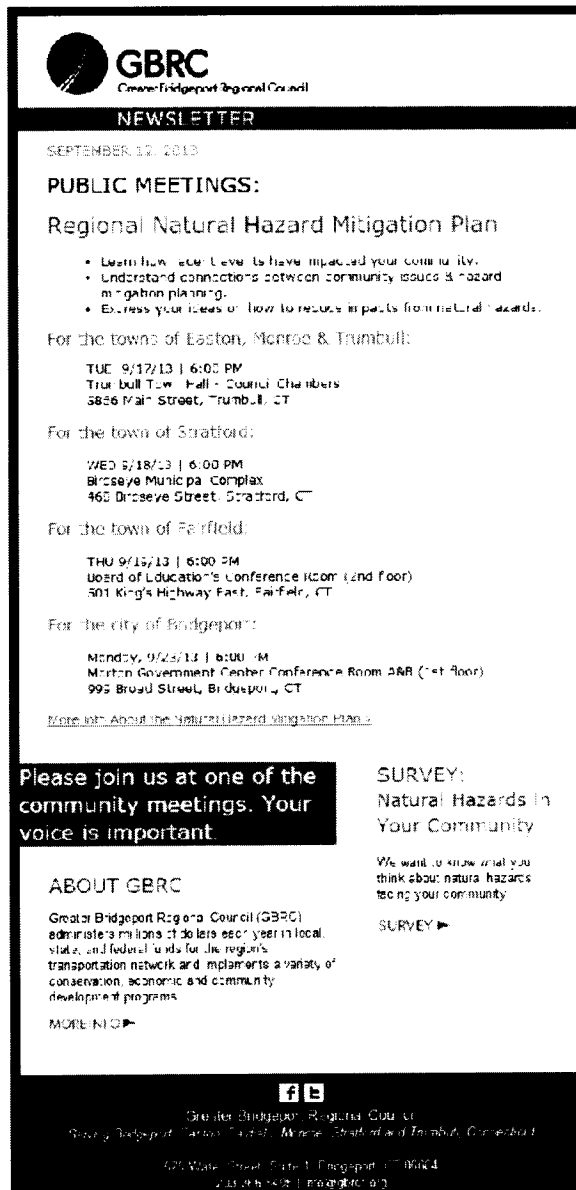
Web-based advertising was also undertaken. The times, dates and locations of the public meetings were listed in a sidebar on the main GBRC News webpage and featured on the GBRC Events page. Links for more information were embedded. A brief article was included in the GBRC's newsletter as well. Social media was utilized by posting public meeting information on the GBRC Facebook page.

For each forum, a member of the GBRC staff presented on the process of updating the Regional Natural Hazard Mitigation Plan, as well as the impacts from recent events. Hazard profiles and the likelihood of events happening in the future were also discussed. The primary focus of the public meetings was to solicit information and comments from the public on how the community should address natural hazards and what actions, strategies and projects should be implemented to reduce the effects of future natural hazards. Attendees were directed to the GBRC website to access and complete the community natural hazard survey. The survey was also made available to those attending the public forums.

## Public Information Forums

for Easton, Monroe and Trumbull  
Tuesday, September 17, 2013 – Town of Trumbull

The meeting was held in the Town Council Chambers, located in the Trumbull Town Hall and was targeted at residents of Easton, Monroe and Trumbull. Seven people attended and participated



**GBRC**  
Greater Bridgeport Regional Council

**NEWSLETTER**

SEPTEMBER 12, 2013

**PUBLIC MEETINGS:**  
Regional Natural Hazard Mitigation Plan

- Learn how recent events have impacted your community.
- Understand connections between community issues & hazard mitigation planning.
- Express your ideas on how to reduce impacts from natural hazards.

For the towns of Easton, Monroe & Trumbull:  
TUE 9/17/13 | 6:00 PM  
Trumbull Town Hall - Council Chambers  
5856 Main Street, Trumbull, CT

For the town of Stratford:  
WED 9/18/13 | 6:00 PM  
Briarcliff Municipal Complex  
465 Briarcliff Street, Stratford, CT

For the town of Fairfield:  
THU 9/19/13 | 6:00 PM  
Board of Education's Conference Room (2nd floor)  
501 King's Highway East, Fairfield, CT

For the city of Bridgeport:  
Monday, 9/23/13 | 6:00 AM  
Morton Government Center Conference Room 208 (1st floor)  
995 Broad Street, Bridgeport, CT

[More info: About the Natural Hazard Mitigation Plan](#)

**Please join us at one of the community meetings. Your voice is important.**

**SURVEY:**  
Natural Hazards In Your Community

We want to know what you think about natural hazards facing your community.

**SURVEY ►**

**ABOUT GBRC**

Greater Bridgeport Regional Council (GBRC) administers millions of dollars each year in local, state, and federal funds for the region's transportation network and implements a variety of conservation, economic and community development programs.

**MORE INFO ►**

**fb**

Greater Bridgeport Regional Council  
Greater Bridgeport, Fairfield, Monroe, Stratford and Trumbull, Connecticut

424 Main Street, Suite 1, Bridgeport, CT 06604  
203.336.1400 | [www.gbrc.org](http://www.gbrc.org)

## Email Newsletter

in the discussion (attendance list is attached in Appendix B). GBRC staff presented an overview of the purpose and need for updating the Regional Natural Hazard Mitigation Plan. At the conclusion of the presentation, the discussion focused on answering questions and addressing concerns expressed by attendees. While GBRC staff emphasized that the plan will consider all natural hazards that may impact the region, the main concern expressed by residents was recurring flooding from heavy rains, regardless if caused by a tropical storm, nor'easter or summer thunder storm. Based on FEMA flood and



storm inundation maps, several areas of Trumbull are susceptible to periodic flooding. Several residents suggested actions to address recurring flooding and asked whether these projects could be included in the NHMP and thus eligible for FEMA grant funds. Suggested actions included:

- Dredging or removing sediment from several small ponds in Twin Brooks Park that have filled in over the years. The result of this action would be an increase in storage capacity during heavy rain events. (Note: The channel had been relocated as part of the construction of the Route 25 Expressway).
- Adjusting the channel of the Pequonnock River through Twin Brooks Park to improve flow and prevent water from overflowing the banks during heavy rain events.
- Installing weirs on the Pequonnock River in the Pequonnock Valley State Wildlife Preserve north of Daniels Farm and upstream of neighborhoods susceptible to recurring flooding. The result of this action would be to regulate or control the flow of water during heavy rain events. The Pequonnock Valley area is more capable of functioning as a water retention area than the Twin Brooks Park area.

A discussion ensued on the Community Rating System (CRS) and its applicability to the Town of Trumbull. Participating in the CRS program could reduce flood insurance premium rates for town residents required to purchase coverage. As part of this discussion, the consequences of the Biggerts-Waters Flood Insurance Reform Act of 2012 were brought up. A resident mentioned that subsidies and discounts on flood insurance premiums would be phased out under the Act and that homeowners were likely to experience sizeable increases in flood insurance rates.

for Bridgeport

Monday, September 23, 2013 City of Bridgeport

Several residents attended the workshop for the City of Bridgeport.

for Fairfield

Thursday, September 19, 2013 – Town of Fairfield

The meeting was held in the conference room of the Fairfield Board of Education (located in the BOE's office) and was targeted to residents of Fair-

field. Six people attended and participated in the discussion (attendance list is attached in Appendix B). GBRC staff presented an overview of the purpose and need for updating the Regional Natural Hazard Mitigation Plan. At the conclusion of the presentation, the discussion focused on answering questions and addressing concerns expressed by attendees. The Town of Fairfield experienced severe flooding from Super-Storm Sandy, especially in the Fairfield Beach and shoreline areas, with several homes destroyed. Because of this recent event, residents in attendance were most focused on actions to prevent a recurrence of flood water inundation.

Attendees of the public meeting expressed similar concerns as those expressed at the workshops – such as the need to protect the wastewater treatment plant and raise the dike along Pine Creek. The Town's Code Red system and the institutional knowledge of Town Staff were highlighted as assets. Experience and knowledge gained during Super-storm Sandy will inform responders and stakeholders during future events.

Other issues identified included:

- The generator at Ludlowe did not heat the gyms.
- Checkpoints are needed to keep people out of flooded neighborhoods.

The impact of natural hazards on the Town of Fairfield varies by location. The coastal area is susceptible to coastal flooding from elevated storm surges due to tropical storms or hurricanes, while the northern part of the town is susceptible to isolation because of downed trees.

for Stratford

Wednesday, September 19, 2013 – Town of Stratford

The meeting was scheduled in the Birdseye Municipal Complex and was targeted to residents of Stratford. No one from the public attended the meeting.

### Contact with Adjacent Communities

The involvement of other communities and regions was accomplished by direct contact with the municipal staff of adjacent cities and towns. The Greater Bridgeport region is bordered by seven municipalities:

#### City of Milford

Borders Stratford along the Housatonic River.

#### Town of Newtown

Borders Easton and Monroe. The watersheds of the Aspetuck River, Halway River and Pootatuck River overlap the town boundaries. The Housatonic River forms the eastern border of Newtown.

#### Town of Oxford

Borders Monroe along the Housatonic River.

#### Town of Redding

Borders Easton. The watersheds of the Aspetuck River and Saugatuck River overlap the town boundaries.

#### City of Shelton

Borders Monroe, Trumbull and Stratford. The watersheds of the Booth Hill Brook, Farmill River, Means Brook, and Pumpkin Ground Brook overlap the town boundaries. The Housatonic River forms the eastern border of Shelton.

#### Town of Weston

Borders Easton. The watersheds of the Aspetuck River and Saugatuck River overlap the town boundaries.

#### Town of Westport

Borders Fairfield. The watersheds of the Aspetuck River and Sasco Brook overlap the town boundaries.

A survey, similar to the one developed for the general public, was prepared and emailed to appropriate municipal staff. These included: city/town planners, inland wetlands and watercourses officers/agents, public works directors, conservation planners, city/town engineers and emergency management directors. A copy of the survey and the list of recipients are attached as Appendix C.

In addition, Regional Planning Organizations (RPO) adjacent to the Greater Bridgeport Region were contacted and asked about their efforts to mitigate the impacts of natural hazards. Similar to the outreach efforts described above, a survey was prepared and electronically transmitted to each RPO. The Greater Bridgeport region is bordered by:

- South Western Regional Planning Agency (SWRPA) to the west.
- Housatonic Valley Council of Elected Officials (HVCEO) to the northwest.

- Council of Governments of the Central Naugatuck Valley (COGCNV) to the northeast.
- Valley Council of Governments (VCOG) to the northeast.
- South Central Region Council of Governments (SCRCOG) to the east.

*The survey sent to the RPOs is attached in Appendix C.*

# 3 Hazard Identification and Risk Assessment

## 3.1 Overview

This risk assessment provides sufficient information to enable each jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards. The natural hazards that have the potential of affecting the region were identified through the planning process via respective planning teams. The location and extent of

the natural hazards was described. Information on previous occurrences of hazard events was collected through a review of NOAA databases, interviews with municipal staff and research of historical records and archives. Based on this research, the probability of future hazard events was determined.

## 3.2 General Description of Region

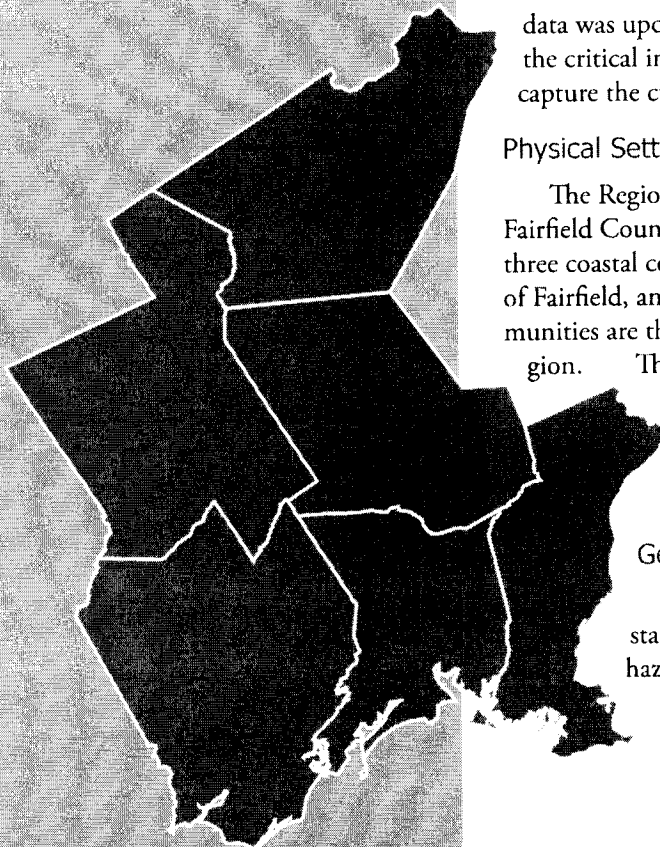
This section updates Sections 2.2 through 2.9 from the 2006 NHMP. In particular, the Geology section was updated with more information regarding glacial impact and concern over Radon prevalence in the Region. It was also updated to include the human impact of dam development and wetland filling on the natural landscape. The climate data was updated with data from 2006-2012. Finally, the critical infrastructure and facilities were updated to capture the current capacity and number of shelters.

### Physical Setting

The Region consists of six communities located in Fairfield County, in Southwestern Connecticut. There are three coastal communities; the city of Bridgeport, the town of Fairfield, and the town of Stratford. These coastal communities are the most populated communities in the Region. The inland towns in the Region are Trumbull, Monroe and Easton. Easton is the least developed of all the communities. Figure 3.1 shows the Region and corresponding road network.

### Geology

Geology has an important role in understanding the occurrence and severity of natural hazards such as earthquakes, coastal flooding



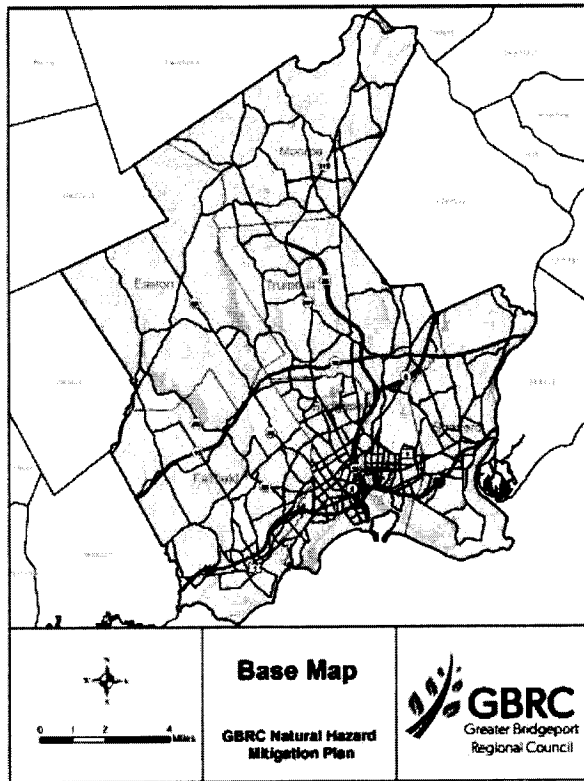


Figure 3.1: Base map of the Region.

and inland flooding. There are four main geologic forces that have shaped the terrain within the Greater Bridgeport Region: tectonic, volcanic, glacial and human activity. Glacial and human activities have significant impacts on large scale and natural hazards. Tectonic and volcanic activity, discussed in the Bedrock Geology section below, have minor significance as natural hazards, as the only hazard of importance can be easily mitigated.

### Bedrock Geology

The region is currently within a stable portion of the North American tectonic plate. This means that at present time, the region does not experience significant earth moving events that generate earthquakes or volcanic activity. In the geologic history of the region, this is not the case. Evidence of this is seen in the bedrock geology of the region which consists of two major geologic terranes. The primary terrane is the Iapetos Terrane which consists of Ordovician Silurian and Devonian (360-500 million year old) metamorphic shists and gneiss created during a period of tectonic activity. The majority of these metamorphic rocks have a sedimentary and igneous

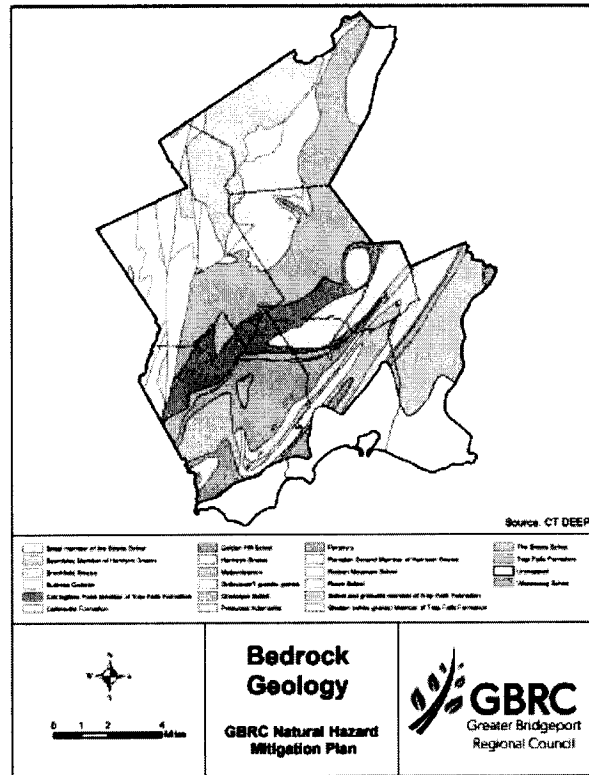


Figure 3.2: Bedrock Geology. Source: CTDEEP.

beginnings indicating near shore formation prior to deformation into metamorphic rocks. The predominant direction of faults, bedrock contacts and rock cleavage trends northeast to southwest. These faults are no longer active and thus pose little earthquake hazard. There is one bedrock outlier within the predominantly gneiss/shist Iapetos Terrane: the Pinewood Adamelite formation in Trumbull. This is a light-gray, medium-grained granite with a chemical makeup that tends to produce high levels of Radon. The other terrane is the product of volcanic activity that formed the large trap rock ridges of central Connecticut. The Buttress Diorite dike is a northeast to southwest trending Jurassic age (140-205 million years ago) formation created by the remnants of the cooling magma that once fed the major volcanic activity occurring in the present central Connecticut valley. The bedrock in the Region can be seen in Figure 3.2. Town maps of bedrock can be found in Appendix D.

In terms of natural hazards, the occurrence of Radon bearing rocks has a significant risk factor over long periods of exposure but can be easily mitigated. Radon (chemical symbol Rn) is a colorless, odor-

less, heavy gas that seeps up to the surface out of the rocks of the earth. Radon is a product of the decay of uranium (U), which is present in most rocks in small amounts, but U is also fairly concentrated in some areas of granite, pegmatites, and mineral veins in Connecticut. Although radon is quite radioactive, it is not very dangerous itself because it has a neutral electromagnetic charge (not ionic), so it does not stick well to other molecules. You breathe it into your lungs, but you also breathe it back out again. However, radon has a short half-life (3.8 days), meaning it rapidly breaks down into other radioactive elements, which are ionic and do stick to your lung cells. Some of these “daughter” ions are radioactive isotopes of lead, bismuth, and polonium. Being so close up to your lung cell DNA, the radioactive particles can and do cause damage that eventually leads to tumors.

We need to pay more attention to radon, because it probably causes most of the lung cancer deaths that are not directly due to smoking. The National Academy of Science concluded in 1998 that

about 15,400 to 21,800 lung cancer deaths per year in the United States are caused by breathing high levels of indoor radon, meaning hundreds of deaths in Connecticut every year. In addition, there may be other problems such as stomach and esophagus cancer leading to years of pain and misery or death. Figure 3.3 shows potential indoor risk levels from radon in various areas of our state, based on many measurements of radon in water wells and in the air of our buildings. No matter where you are on the map, you will not know if your house has high radon until you test for it, which is pretty cheap and easy.

Over the course of geologic history, glaciers and the polar ice caps have grown and contracted with changes in climate and geologic conditions. The glacial history of the region is evident to only the last 100,000 years or so. The advance and retreat of the continental glaciers often create new glacial landforms and erase the evidence of previous glacial epochs. The glaciers that have formed have a core in eastern Canada and over a period of several thousand

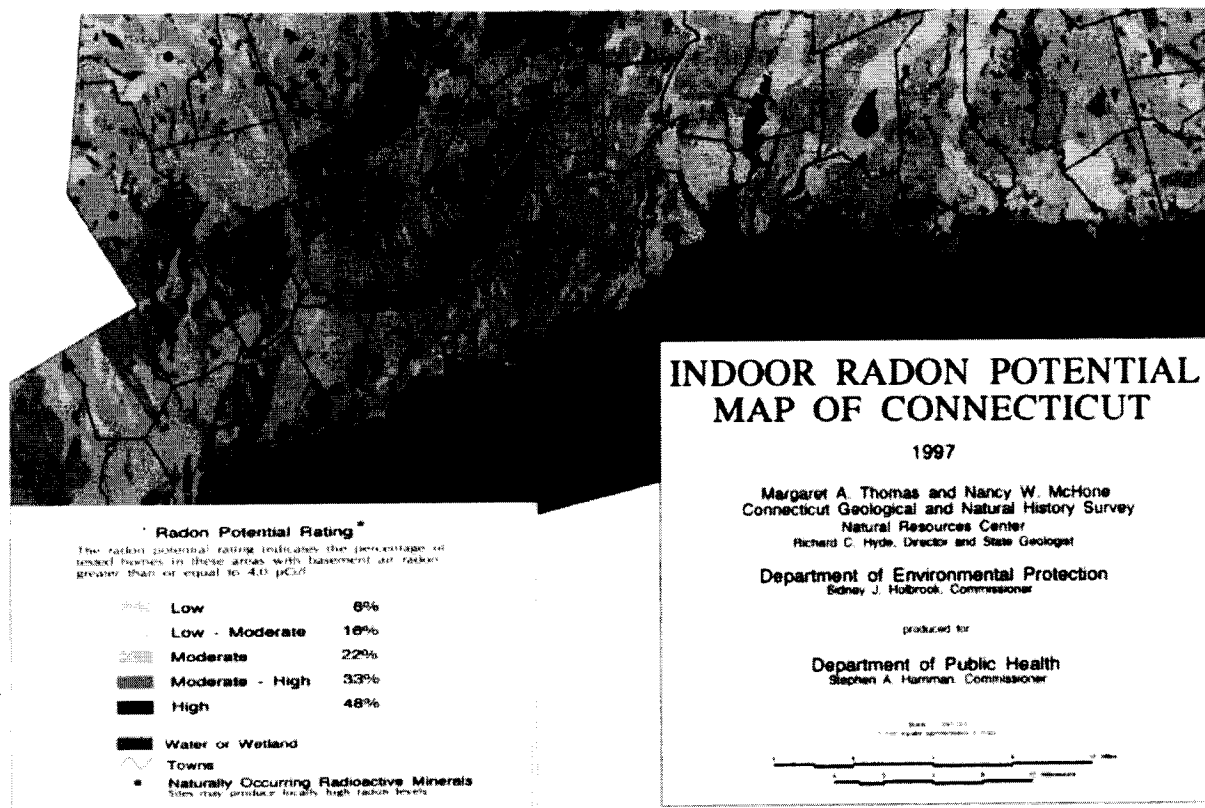


Figure 3.3: Radon in Connecticut. Source: <http://www.ct.gov/deep/lib/deep/geology/radon/RadonPotential.pdf>

years, the glaciers grew and extended southward into New England and other northern states. The glacier acts as a bulldozer, breaking down bedrock and pushing debris on its forward moving side but unlike a bulldozer, some debris is incorporated into a flowing glacier. Beneath the glacier, bedrock is plucked and scraped, then the debris is broken down into finer and finer material. When combined with melting glacial water, the debris smears the remaining bedrock with a variable thickness veneer of hard-pan or glacial till. Some glacial till formations are larger and thicker, creating spoon shaped hill formations oriented in the direction the glaciers flowed, called drumlins. There are drumlins throughout the region, with prominent examples along the shoreline such as Sasco Hill in Fairfield and Grover Hill in Bridgeport. The drumlins keep those areas out of harm's way from rising tides and storm surges. After a glacier reaches its peak size and begins to retreat back north, glacier melt-waters, gush out of the glacier from below, above and from the interior of the glacier. The melting waters contain the glacial debris that form stratified sand and gravel formations commonly found along current rivers and waterways. These

outwashes led to present day Long Island Sound, once a fresh water lake called Glacial Lake Connecticut. There are underwater formations in Long Island Sound that attest to this history. Once Glacial Lake Connecticut transitioned to Long Island Sound, tidal action reworked existing glacial deposits and outgoing fluvial sediments, forming post-glacial beach deposits at Southport Harbor, Fairfield Beach, Black Rock Harbor, and Pleasure Beach. Important Salt Marshes developed in conjunction with the post-glacial beach building activities. Figure 3.4 shows the surficial geology of the Region. Town maps of surficial geology can be found in Appendix D.

### Human Activity

We have shaped our environment and terrain since we have inhabited the region beginning the early 1600's. These have included constructing dams for mill operations, filling in salt marshes, wetlands and other low-lying areas to allow increases in the amount of developable land and constructing homes in areas that will be most likely be wiped out in the next major storm. Unfortunately, these feats of engineering have come at a price, whether it was compromised fisheries with the closure of spawning habitat from dam construction or the loss of valuable flooding buffers salt marshes provide. We have a record of these filling activities through the USGS Topographic Quadrangles, starting with the initial set produced around 1893 through versions in 1950s, 1960s, 1970s, 1980's and current GIS information. These show salt marshes and open water being transformed into land for development purposes. Much of the filling occurred prior to the 1970's and the National Flood Program.

### Climate

Climate is defined as the expected frequency of specific states of the atmosphere, ocean, and land including variables such as temperature (land, ocean, and atmosphere), salinity (oceans), soil moisture (land), wind speed and direction (atmosphere), current strength and direction (oceans), etc. Climate encompasses the weather over different periods of time and also relates to mutual interactions between the components of the earth system. Weather, on the other hand, is defined as the state of the atmosphere at a given time and place, with respect to variables such as temperature, moisture, wind speed and di-

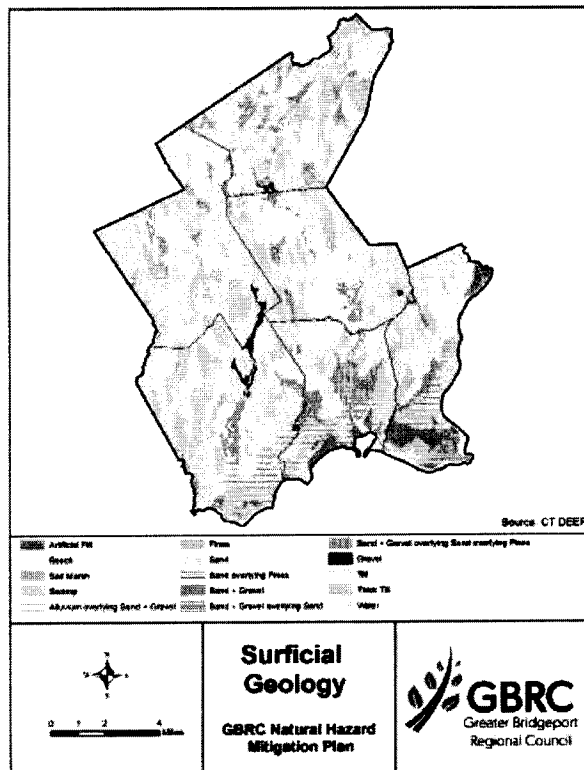


Figure 3.4: Surficial Geology for the Region. Source: CT DEEP

rection, and barometric pressure.

The Region has a moderate climate with distinct seasons. Based on observations at the weather station located at Bridgeport/Sikorsky Airport, the average temperature between 1980 and 2012 was approximately 52.5 degrees Fahrenheit (F), with summer temperatures averaging nearly 72 degrees and winter temperatures in the low 30s. Extreme conditions may raise summer temperatures to near 100 degrees and winter temperatures to below zero. However, the Region averages only about eight days a year with temperatures over 90 degrees and one day a year with temperatures below zero degrees.

Figure 3.5 plots the annual average temperature from 1980 to 2012 and shows an increasing temperature trend. Figure 3.6 plots the average maximum and minimum temperatures over the same period.

By comparison, the statewide annual average temperature over the same time period was 49.5 degrees, or three degrees cooler on average. The range in annual temperatures was between 48.1 degrees and 52.5 degrees. As is the case with the data from the Bridgeport-Sikorsky Airport, annual average temperatures for Connecticut are trending upwards.

Over the course of a year, the region receives, on average, 43 inches of precipitation. Annual totals have ranged from a low of 33 inches in 1995 to a high of almost 59 inches in 2006. Mean snowfall amounts are approximately 27 inches per year, with a high total recorded in 2005 of 62 inches. Figure 3.7 charts the annual precipitation.

The average precipitation total for Connecticut was 50.5 inches per year or over seven inches more precipitation

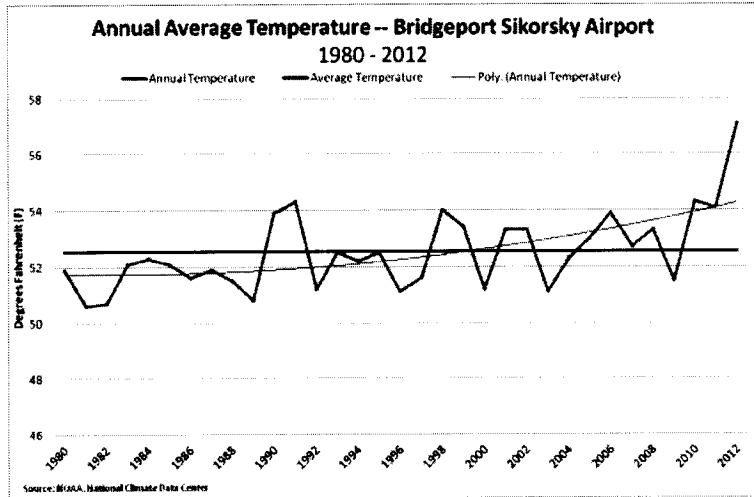


Figure 3.5: Average annual temperature at Bridgeport Sikorsky Airport. Source: NOAA

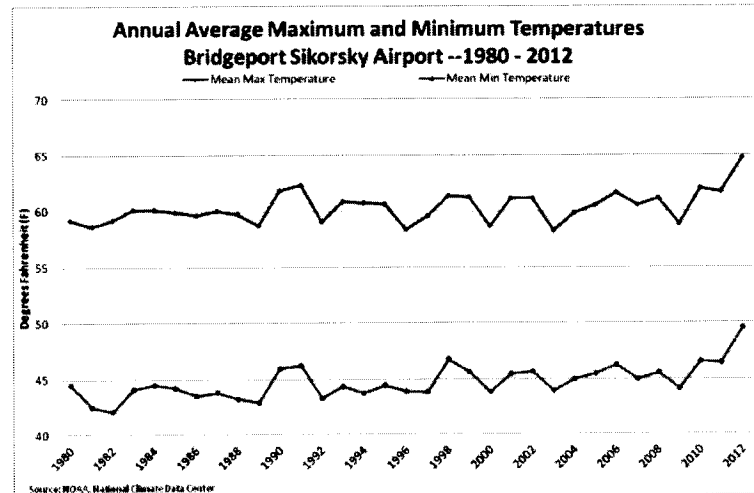


Figure 3.6: Average annual maximum and minimum temperatures. Source: NOAA

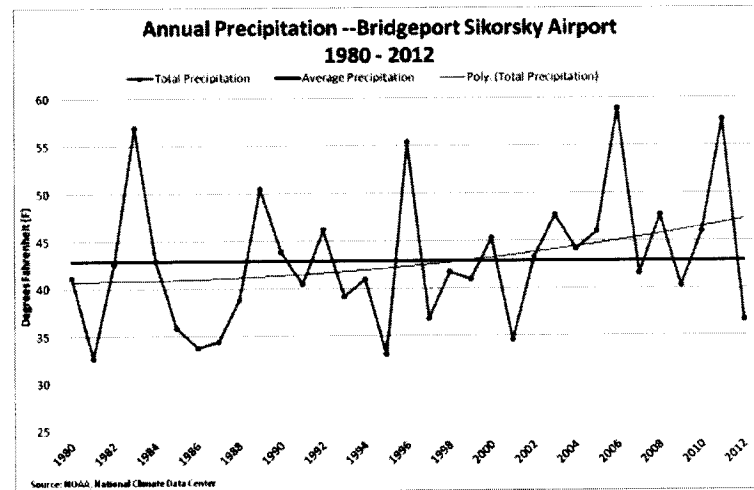


Figure 3.7: Annual precipitation at Bridgeport/Sikorsky airport. Source: NOAA

fell state-wide than on the Region. Total annual precipitation in Connecticut, as well as for the Region, has increased over time.

### Hydrology

The Greater Bridgeport region lies within four regional drainage basins; the Housatonic River, the Saugatuck River, the Southwest Shoreline and the Southwest Eastern basin. The basins drain the numerous rivers and streams that flow through the Region, primarily in a north-to-south direction, and eventually empty into Long Island Sound.

Four sub-regional drainage basins cover the City of Bridgeport, relating to the Ash Creek/Rooster River, Pequonnock River, the Yellow Mill Channel and Bruce Brook/Johnsons Creek. In addition, Bridgeport's coastal areas lie within the direct drainage basin of Long Island Sound, referred to as the Southwest Shoreline sub-regional drainage basin. It includes the Cedar Creek inlet, Black Rock Harbor, Bridgeport Harbor, Lewis Gut and Johnsons Creek.

The Town of Easton lies primarily within three sub-regional drainage basins corresponding to the

Aspetuck River, Saugatuck River and Mill River. In addition, very small areas of the town are within the drainage basins of the Pootatuck River, in the north part of town, and Sasco Brook, in the southwestern part.

The Town of Fairfield is drained by the Saugatuck River, Sasco Brook, Mill River, and Ash Creek/Rooster River. In addition, coastal areas of Fairfield are within the direct drainage basin of Long Island Sound. This area includes Pine Creek.

Seven sub-regional drainage basins flow through parts of the Town of Monroe. The river systems include the Pootatuck River, Halfway River, Mill River, Pequonnock River, Farmill River, Means Brook, and Housatonic River. A large portion of Monroe (approximately 8.4 square miles) is drained by the Pequonnock River, comprising much of the developed part of the Town.

Much of the land area of the Town of Stratford drains towards the Housatonic River, including the sub-regional drainage corresponding to the Farmill River and Pumpkin Ground Brook. The other drainage basins are associated with Bruce Brook, the

Table 3.1: Drainage basins. Source: CT DEEP  
**REGIONAL AND SUB-REGIONAL DRAINAGE BASINS  
 GREATER BRIDGEPORT PLANNING REGION**

Regional Basin	Sub-Regional Drainage Basin	Towns	Size (Square Miles)
Housatonic Main stem	Farmill River	Monroe & Trumbull	15.09
Housatonic Main stem	Halfway River	Monroe	10.68
Housatonic Main stem	Housatonic River	Monroe & Stratford	623.54
Housatonic Main stem	Means Brook	Monroe	10.95
Housatonic Main stem	Pootatuck River	Monroe & Easton	20.78
Housatonic Main stem	Pumpkin Ground Brook	Trumbull & Stratford	5.94
Saugatuck	Aspetuck River	Easton & Fairfield	71.60
Saugatuck	Saugatuck River	Easton & Fairfield	71.60
Southwest Coastal Eastern	Ash Creek/Rooster River	Bridgeport & Fairfield	15.33
Southwest Coastal Eastern	Booth Hill Brook	Trumbull	5.09
Southwest Coastal Eastern	Bruce Brook/Johnsons Creek	Stratford & Bridgeport	3.44
Southwest Coastal Eastern	Lewis Gut	Stratford & Bridgeport	3.98
Southwest Coastal Eastern	Mill River/Cricker Brook	Monroe, Easton & Fairfield	32.02
Southwest Coastal Eastern	Pequonnock River	Monroe, Trumbull & Bridgeport	24.03
Southwest Coastal Eastern	Sasco Brook	Fairfield	10.21
Southwest Coastal Eastern	Yellow Mill Channel	Trumbull, Stratford & Bridgeport	4.52
Southwest Coastal Shoreline	Pine Creek (Local)	Fairfield	2.00
Southwest Coastal Shoreline	Southwest Shoreline	Fairfield, Bridgeport & Stratford	7.80



Yellow Mill Channel, and Lewis Gut. The immediate shoreline along Long Island Sound is part of the Southwest Shoreline basin.

The Town of Trumbull lies within seven sub-regional drainage basins corresponding to the Mill River, Ash Creek/Rooster, Pequonnock River and its tributaries, the unnamed tributaries of Yellow Mill Channel, Booth Hill Brook, Farmill River, and Pumpkin Ground Brook.

The regional drainage basins are comprised of sub-regional and local basins. These are described in Table 3.1 and shown in Figure 3.8. Town maps of drainage basins can be found in Appendix D.

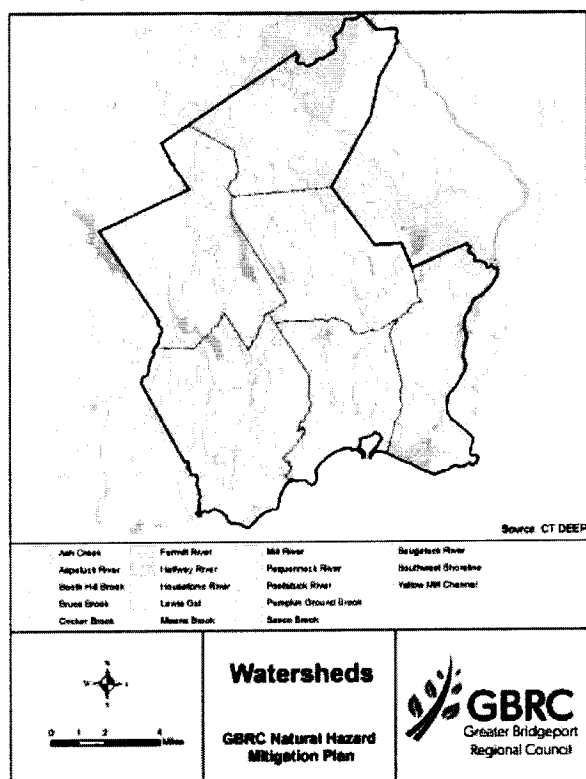


Figure 3.8: Watersheds (Drainage Basins). Source: CT DEEP

### Housatonic River Main Stem Regional Basin

The Housatonic River is one of Connecticut's largest rivers, extending about 139 miles from its source in Massachusetts to its mouth at Long Island Sound. The watershed and its component river systems are classified as a Major drainage basin, draining an area of about 1,939 square miles in Connecticut, Massachusetts, and New York. The regional Housatonic River basin is about 932.66 square miles.

The drainage basins associated with the Pootatuck River, Halfway River, Farmill River, Pumpkin Ground Brook, and Means Brook flow into and are sub-regional basins of the Housatonic main stem. The lower sections of the Housatonic River are designated as a sub-regional drainage basin.

### Housatonic River

In the Region, the Housatonic River forms the northeast boundary between Monroe and the Town of Oxford and is the municipal boundary between Stratford and the City of Milford.

The Stevenson Dam impounds the river and forms Lake Zoar. The lake is long and narrow and provides flood control, recreational opportunities, and hydroelectric power to the area. The Stevenson Dam is one of the largest dams in the Region, and the largest in Monroe. Downstream of the Stevenson Dam the river flows in a southerly direction through the City of Shelton and Stratford before entering Long Island Sound.

One perennial watercourse known as Boys Halfway River drains the far eastern end of Monroe, an area of 0.7 square miles, and joins Lake Zoar near the Stevenson Dam. Most of the east-central part of Stratford, as well as the lands immediately adjacent to the river, drain directly to the Housatonic River.

### Farmill River

The Farmill River begins in south-central Monroe and flows in a southeasterly direction into Shelton and forms the town line between Stratford and Shelton. Combined with its Beardsley Brook tributary, the Farmill River drains about three square miles in the town. The area drained by the Farmill River comprises much of the developed part of Monroe. As a result, a number of chronic flooding problems do occur along the river and its tributaries.

The Farmill River does not flow through Trumbull and only a small portion of the northern part of the Town is in its drainage basin. The river ultimately joins the Housatonic River. The drainage area of the Farmill River totals about 15 square miles.

### Halfway River

The Halfway River begins in Rowledge Pond, just north of the Monroe town line in the Town of Newtown. The Pine Swamp area of Monroe also

drains into the river. From its source, the river flows in a northeasterly direction, eventually forming the boundary between Newtown and Monroe. The Halfway River joins the Housatonic River at Lake Zoar. The Halfway River has a total drainage area of about 10.5 square miles.

The Copper Hill Brook and its tributary Smith Pond Brook drain the central part of Monroe, with a combined drainage area of roughly 2.5 square miles, before joining the Halfway River.

#### Means Brook

Means Brook begins in eastern Monroe near Boys Halfway River, where Hurds Brook was diverted from Boys Halfway River to Means Brook. It has a total drainage area of 11 square miles. Upstream of Means Brook, the drainage area includes Hurds Brook, which is approximately two square miles. The portion of the Means Brook drainage basin in Monroe is relatively rural. Means Brook flows to the south, and most of its drainage area lies in Shelton, where it joins the Farmill River upstream of the Housatonic River.

#### Pootatuck River

The Pootatuck River is one of the few rivers with a drainage area in the Region that flows in a northerly direction. The river rises in the far west corner of Monroe near the Easton town line, and flows north through Newtown to the Housatonic River. A tributary of the river drains the far west section of Monroe, including the area around Guskie Pond. The total size of the drainage basin is about 21 square miles, with only about one square mile located in Monroe.

#### Pumpkin Ground Brook

The northwest corner of Stratford and southeast corner of Trumbull lie in the Pumpkin Ground Brook drainage basin. The brook begins in the Trap Falls Reservoir in southern Shelton, and flows generally in a southeasterly direction through Shelton and Stratford before joining the Housatonic River. A majority of the area flows through Beaver Dam Lake. A number of short, unnamed brooks flow into the Pumpkin Ground Brook system. The total drainage basin is 6 square miles.

### Saugatuck River Regional Basin

The Saugatuck River regional basin lies along the western edge of the Region and covers mostly the towns of Redding, Weston and Westport. The basin drains 89.5 square miles.

The drainage areas associated with the Aspetuck River and Saugatuck River are two of the three sub-regional basins comprising the Saugatuck River Regional Basin.

#### Saugatuck River

The Saugatuck River drainage basin encompasses about 48.5 square miles, with headwaters in Danbury and Ridgefield. The river flows in a southerly direction and enters the Saugatuck Reservoir, a public water supply reservoir. The reservoir lies along the western edge of Easton. Downstream of the reservoir, the Saugatuck River flows through the Town of Weston and the Town of Westport before entering Long Island Sound. Adjacent land in Easton drains either directly into the reservoir or into the Saugatuck River downstream of its dam. Most of the land is preserved as open space, either as water-company owned lands or as parts of the Centennial Watershed state forest.

#### Aspetuck River

The Aspetuck River has its headwaters in southwestern Newtown and flows in a southwesterly direction toward the Saugatuck River. It forms the southwest border between the Town of Easton and the Town of Weston as well as the northwest border of the Town of Fairfield with the Town of Weston. The west side of Easton and northwest corner of Fairfield are drained by the Aspetuck River. The total size of the drainage basin is 23 square miles.

The river flows through the Aspetuck Reservoir, a public water supply reservoir, and joins the Saugatuck River downstream of Easton in the Town of Westport. Several unnamed streams flow into the Aspetuck River.

The areas drained by the Aspetuck River are very rural, and flooding problems are infrequent. Land use in this part of the watershed is typical of Easton and the northern part of Fairfield: large lot residential.

### Southwest Eastern Regional Complex Basin

The Southwest Eastern Regional Complex is a part of the Southwest Coastal Major Basin that drains most of Fairfield County. The regional complex covers most of the Region, except for the eastern half of Monroe and northeast part of Stratford. It is associated with Ash Creek, Booth Hill Brook, Bruce Brook, Cricker Brook, Lewis Gut (Great Salt Marsh), the Mill River, the Pequonnock River, Sasco Brook and the Yellow Mill Channel. The drainage area is about 98.5 square miles.

#### Ash Creek/Rooster River

Ash Creek is the tidal estuary of the Rooster River and is coincident with the boundary between Fairfield and the Black Rock section of Bridgeport. The watercourse is known as Rooster River upstream of the New Haven rail line bridge. The entire drainage basin includes the tributaries Ox Brook and Horse Tavern Brook and has an area of roughly 15.5 square miles.

The section of the watercourse named Rooster River is only two miles in length, formed by the junction of Horse Tavern Brook and Londons Brook in the eastern section of Fairfield. Londons Brook begins in northeast Fairfield and flows in a southerly direction through Fairfield, having a drainage area of 1.5 square miles. In Trumbull, the area associated with the Ash Creek/Rooster River drainage basin surrounds the Horse Tavern Brook. Horse Tavern Brook begins at Canoe Brook Lake in Trumbull and flows in a southerly direction through southwest Trumbull, the northwest corner of Bridgeport, and eastern Fairfield, having a drainage area of almost six square miles.

The Horse Tavern Brook watershed is densely developed in Trumbull, and it flows in a culvert under the Westfield/Trumbull Shopping Mall before crossing the town line into the northwest corner of Bridgeport. Horse Tavern Brook joins Londons Brook in Fairfield to form the Rooster River.

Ox Brook is a tributary of Rooster River, rising at the municipal boundary between Trumbull and Bridgeport. The brook flows in a southerly direction only 500 feet from Horse Tavern Brook in northern Bridgeport, passes through residential neighborhoods, and joins Rooster River in the western section of Bridgeport, with a total drainage area of a little more than two square miles.

The flow of Rooster River was modified in the past to reduce flooding. It is directed into a culvert beneath Laurel Avenue, bypassing the bend in the channel. This culvert rejoins the river a short distance downstream, leaving the channel dry except during storms.

Ox Brook has been modified along its entire length. Many sections of the brook are underground in culverts, and the exposed portions of the brook have been heavily channelized. The lowest section of the brook is directed into a nine-foot diameter culvert beneath Capitol Avenue that joins the Rooster River culvert. The bypassed sections of the brook channel located downstream of Capitol Avenue have been filled or remain as disjointed dry segments.

#### Booth Hill Brook

Booth Hill Brook is a larger tributary of the Pequonnock with a total drainage area of five square miles. Most of this area is within Trumbull, with a small area located in Shelton. Booth Hill Brook begins in the north eastern part of Trumbull near the Farmill River watershed. It flows in a southerly direction and through Pinewood Lake before merging with the Pequonnock River.

#### Bruce Brook

Bruce Brook rises in northwest Stratford and flows in a southerly direction from its headwaters. It forms the border between Bridgeport and Stratford from about US Route 1 to a small dam immediately upstream of the New Haven rail line crossing. Downstream of the railroad tracks, the outlet is protected by a tide gate maintained by the Connecticut Department of Transportation. At this point, Bruce Brook becomes Johnson's Creek, which flows into Bridgeport Harbor and is the tidal estuary of Bruce Brook.

The Bruce Brook drainage area is almost 3.5 square miles, with most of its area within Stratford. A small area is located in Bridgeport. The watershed is densely developed with primarily residential property but with some commercial development in the southern portion.

#### Lewis Gut

The Lewis Gut watershed is located in the South End of Stratford and consists of land draining directly to or through unnamed streams to the Great

Salt Meadows, a component of the Stewart McKinney National Wildlife Refuge. The area is densely developed with residential and commercial properties and includes the Sikorsky Airport and Lordship section of town. The total area is approximately four square miles and the area drains in several locations to the salt marsh. Besides the Lordship area, which is higher in elevation, a majority of this watershed is flat land lying, below the base flood elevation and subject to coastal flooding.

#### Mill River and Cricker Brook

The Mill River begins in the vicinity of the town line between Monroe and Easton, very close to the headwaters of the Pootatuck River and flows in a southerly direction forming the Easton Reservoir, a public water supply. Downstream of the reservoir, it serves as a short section of the town line between Fairfield and Easton, and then flows through the central part of Fairfield before ending at Southport Harbor. The entire drainage area for the Mill River is 32 square miles.

Only the extreme west side of Monroe is drained by the Mill River. The northwest section of Trumbull drains to the east side of the reservoir via a number of small streams and as overland flows. The entire eastern half of Easton and the central part of Fairfield lie within the Mill River watershed.

Main tributaries of the Mill River include Browns Brook and Cricker Brook. Both join the Mill River in Fairfield. Cricker Brook begins in the center of Easton. The impoundment of Cricker Brook created the Hemlock Reservoir, a public water supply reservoir. The northern half of this reservoir is located in Easton, with the southern half in Fairfield. Cricker Brook has a drainage area of approximately 7 square miles and Browns Brook has a drainage area of about 1.5 square miles.

#### Pequonnock River

In the Town of Monroe, the West Branch and East Branch of the Pequonnock River join to form the main stem. The river flows in a southerly direction through the Town of Trumbull and the City of Bridgeport, forming the Bridgeport Harbor and emptying into Long Island Sound. The total drainage of the Pequonnock River area is 24 square miles.

In north-central Bridgeport, a dam on the river

forms Bunnells Pond, a 33-acre lake. The dam has been reinforced and is designed to safely overtop during peak flows. The pond is relatively small in relation to the flow rate of the river.

The Pequonnock River has a number of tributaries over its entire length. In Bridgeport, the primary tributary is Island Brook. This brook begins in Ehrsam Pond in Trumbull, flows in a southerly direction into Lake Forest, and then continues through central Bridgeport to the Pequonnock River. Island Brook has a total drainage area about 2.5 square miles, with roughly half of the area upstream of Lake Forest in Trumbull.

Island Brook has been modified along its entire length, although to a lesser extent than nearby Ox Brook. Some upstream sections of the brook are underground in culverts, as is the lower section between Park Cemetery and its outlet to the Pequonnock River. Several exposed portions have been channelized.

Much of the area drained by the Pequonnock River and its tributaries are highly developed, including the central part of Monroe and most of Bridgeport. As a result, a number of chronic flooding problems do occur along the river and its tributaries. The Pequonnock River floodplain is largely undeveloped in Trumbull, as the river flows through a step-walled valley and several town parks. Land use is predominantly suburban residential on large lots.

#### Sasco Brook

Sasco Brook rises in northern Fairfield and flows in a southerly to southwesterly direction, forming the boundary with the Town of Westport closer to its outlet on Long Island Sound. Sasco Brook has a number of tributaries in Fairfield, including Great Brook. It drains roughly the western third of the Town. The entire drainage area for the Sasco Brook and its tributaries is about ten square miles. Land use within the watershed is rural to suburban. Flooding problems are infrequent and limited to sections of Great Brook.

#### Yellow Mill Channel

Yellow Mill Channel is a tidal estuary extending from Bridgeport Harbor to the New Haven rail line, just under a mile in length. The watercourses that flow into the Yellow Mill Channel begin as two

streams in the southeast corner of Trumbull. Each stream begins just north of the Merritt Parkway, flows in a southerly direction through residential areas and under the Route 8 expressway, and enters the northeast corner of Bridgeport and Success Lake. Only a small portion of the watershed is located in Stratford.

Downstream of Success Lake, the Yellow Mill Channel Stream flows through a very heavily industrialized section of Bridgeport; including the former Remington Arms munitions grounds and the former Remington Arms factory. The area around Success Lake has been designated as the site of the proposed Lake Success Eco-Business Park. The stream is constricted at four locations; one just north of Boston Avenue (US Route 1) that forms Stillman Pond and at Grant Street, Barnum Avenue and Crescent Avenue. Collectively these latter three impoundments are referred to as the Pembroke Lakes. The stream passes under the New Haven rail line through a culvert before entering the Yellow Mill Channel.

The total drainage area of the channel is 4.5 square miles.

#### Southwest Shoreline Complex Basin

The Southwest Shoreline basin consists of the lands immediately adjacent to and along the coastline. It stretches from the Town of Greenwich at the New York state line to Housatonic River. The drainage area is about 41.5 square miles.

Along the coast in the Region, areas that are included in the Southwest Shoreline basin include:

- Southport Center and land west of Southport Harbor, totaling 0.5 square miles. Land use is predominately residential with commercial use in the center area and adjacent to the harbor.
- Fairfield Town Center and the lands associated with Pine Creek. Pine Creek is a tidal estuary that begins as a small watercourse in the Town Center area. It has a drainage area of roughly 3 square miles. Although the area remains relatively undeveloped, the Pine Creek tidal wetlands area has been extensively modified by drainage canals, tide gates and dikes. Where the creek flows parallel to and behind a barrier beach, the floodplain has been extensively altered with bulkheads due to dense residential development.

- Black Rock and South End neighborhoods in Bridgeport, including land on both sides of Black Rock Harbor. The area stretches to the north to encompass the eastern half of the West End and parts of the Hollow neighborhoods. Land use is highly developed with medium-to-density housing and commercial strips along the main road arteries. The area includes Seaside Park. The drainage area totals about three square miles.
- Steel Point peninsula in Bridgeport. This area juts into Bridgeport Harbor and is surrounded by the Pequonnock River on the west and the Yellow Mill Channel on the east. The site is currently vacant but an electrical generating plant was formerly located there. The City has redevelopment plans for a mixed-use complex on the property, including a new marina.
- Lower East End in Bridgeport. The area is adjacent to Bridgeport Harbor and is bordered by the Yellow Mill Channel on the west and Johnson's Creek on the east. The eastern half of the area is predominately medium density housing and the western half is controlled by the Bridgeport Port Authority. The Cilco Terminal and other port facilities are located on this side. It is about 0.5 square miles.
- East side of Johnson's Creek in Stratford. This small area, about 0.2 square miles, covers an industrial area of Stratford.
- Long Beach, including Pleasure Beach in Bridgeport, and the Lordship section of Stratford. This area is comprised of the barrier beach that separates Long Island Sound from the Great Meadows Salt Marsh. About half of the barrier beach drains directly to Long Island and the other half is associated with the Lewis Gut sub-regional basin. The eastern part of the drainage area is comprised mainly of residential units. Most of this area of Lordship is located on high ground and less susceptible to storm surge flooding. However, coastal properties were initially built as seasonal dwellings and many have been converted to year-round use. The area is about 0.5 square miles.

#### Critical Infrastructure and Facilities

Numerous public and private facilities and infra-

structure are critical to the assessment of risks from natural hazards and are important in mitigating the possible effects of events. Critical structures include facilities that support responses and recovery efforts, such as, police headquarters, emergency management operations centers, fire stations, hospitals, medical centers, and governmental offices. In addition, facilities that house vulnerable populations are considered in this category. This category includes long-term care facilities, as these house populations of individuals that would require special assistance during an emergency. Educational institutions are often considered critical facilities, as these are often used to house persons displaced from their homes.

The City of Bridgeport is the central city of the region. It serves as the transportation hub and is home to several essential and critical facilities that serve the region. The state's emergency operations center is located in the Troop G State Police barracks in Downtown Bridgeport. The Emergency Operations Center for the City is the back-up facility for the State EOC and can handle regional emergency response as necessary. The Region's main medical facilities are Bridgeport Hospital and St. Vincent's Medical Center, both located in Bridgeport.

Major transportation infrastructure is critical for evacuation and response, and to ensure that emergencies are addressed while day-to-day management of the Region continues. Some infrastructure is located in flood prone areas and vulnerable to closure during an event. Flooding is not the only concern, as roads are often closed due to downed power lines and/or trees.

Commuter rail service offers a vital transportation mode for travel within and beyond Connecticut, especially lower Fairfield County and New York City. The Metro-North Railroad operates commuter trains through the Bridgeport on the electrified New Haven main line (NHL-ML). The NHL-ML runs east-west along the southwestern shoreline of the state between New Haven and New York City. The Region has five rail stations:

- Stratford Town Center at 2520 Main Street, Stratford
- Bridgeport at 525 Water Street, Bridgeport
- Fairfield Metro Center at 61 Constant Comment Way, Fairfield
- Fairfield Town Center at 165 Unquowa Road,

Fairfield

- Southport at 400 Center Street, Fairfield

The state also operates the East Bridgeport rail yard located at 664 Hollister Avenue. The rail yard is used to store rail cars not in use and is the location of its Maintenance of Way facility. This area is also the site of the proposed Barnum Station, the second rail station in Bridgeport.

Fixed-route and demand responsive public bus service is provided by Greater Bridgeport Transit Authority to five of the six towns in the Region. The only town with no public transit service is Easton. The local, fixed-route bus system consists of 19 routes, with various route extensions and branches to extend coverage. The system is radial in that most routes begin, end, or pass-through Downtown Bridgeport. The downtown terminal, located at 710 Water Street, acts as a pulse point to facilitate transfers between routes and better coordinate operations. The GBT's bus garage is located at 1 Cross Street.

Places where impacted populations can go before, during and while recovery occurs are needed and are essential during an emergency. Most often, schools are used as public shelters, as they have gymnasiums that can accommodate large numbers of residents, and are structurally capable of withstanding the forces endured during an event. In addition, the schools have lavatories, showers, food service facilities and can offer other recreational activities. Emergency back-up power generation is usually available, but in some instances may not provide sufficient power for the entire shelter.

The American Red Cross (ARC) has been chartered by the US Congress to respond to all disasters and be the lead agency for mass care and sheltering. It coordinates emergency services at the local level through its regional chapters. The municipalities of the Region are served by the Mid-Fairfield Chapter. Depending on the extent and duration of the emergency, the mass care of residents may be handled through the activation of local shelters for routine incidents or the municipality may request ARC assistance. At that point, the municipal shelter may become a Red Cross shelter, and serve a regional function.

The ARC conducts assessments of shelter facilities to determine the site's effectiveness in providing

for the needs of residents during an emergency. The survey evaluates site accessibility, capacity, utilities available, and lavatory and food service capacity. While the survey provides an opportunity for determining the appropriateness of the facility to function as a shelter, it does not mean that the facility would be operated by the Red Cross. For instance, a shelter may be staffed and managed by the municipality or another private organization with some level of ARC assistance while not being “managed” by the Red Cross. In other situations, the ARC may provide supplies, such as, cots, shelter kits, etc.

By ARC policy, Red Cross shelters do not restrict access to shelters by residence status. Conversely, shelters operated by municipal authorities retain and often exercise the right to restrict access to local residents only. Therefore, any ARC shelter could be viewed as a “regional” shelter. Whereas most disasters are of limited scope, the distinction between local and regional shelters is seldom of concern. During a catastrophic regional event, however, this distinction may have more relevance.

The Region has 53-designated emergency shelters, capable of accommodating approximately 23,500 individuals. The town by town breakdown of these shelters can be seen in Table 3.2 Many communities only intend to use these facilities on a temporary basis for providing shelter until hazards such as hurricanes diminish. However, there may be instances that longer term sheltering is required.

The City of Bridgeport has the most emergency shelters and has the capability of housing the highest number of residents. Forty-one shelters are located in Bridgeport, mostly in schools. These shelters can accommodate about 15,500 people. In addition, Bridgeport has designated five of its shelters to accommodate persons with special needs. Eight of the shelters are located within flood hazard areas or are vulnerable to inundation from a hurricane storm surge. That being said, Bridgeport has sufficient capacity and alternative shelter sites to manage the loss of shelters that may become flooded.

Critical infrastructure can be found in the FEMA Flood Maps in Appendix D.

Table 3.2: Shelters in the Region  
**REGIONAL SHELTERS**

<b>Bridgeport</b>	
Number of Shelters	41
Capacity	15,512
<b>Easton</b>	
Number of Shelters	2
Capacity	625
<b>Fairfield</b>	
Number of Shelters	11
Capacity	150
<b>Monroe</b>	
Number of Shelters	1
Capacity	200
<b>Stratford</b>	
Number of Shelters	7
Capacity	5,650
<b>Trumbull</b>	
Number of Shelters	3
Capacity	1,360
<b>Region</b>	
Number of Shelters	52
Capacity	23,497

### 3.3 Natural Hazards

This plan includes the hazards identified in the 2006 plan as well as additional hazards identified in the hazard mitigation workshops. In addition, this plan used Hazus-MH 2.1 to estimate loss from applicable hazards.

The first step in assessing risks from extreme weather events or other natural disasters was to identify the hazards that might affect the region and determine which are most likely to occur. The term hazard means “an event or physical condition that has the potential to cause fatalities, injuries, property damage, infrastructure damage, agriculture loss, damage to the environment, interruption of business, or other harm or loss” (Multi-Hazard Identification and Risk Assessment: A Cornerstone of the National Mitigation Strategy, Federal Emergency Management Agency, 1997).

The 2006 NHMP identified the following natural hazards that can potentially affect the Region:

- Inland and Coastal Flooding
- Sea Level Rise
- Summer and Winter Storms
- Earthquakes

- Dam Failure

The risk assessment of these hazards was based on the understanding that a single hazard may be caused by multiple events. For example, flooding may occur as a result of heavy rains, a hurricane/tropical storm, or a winter storm. And the extent of the flooding problem may differ depending on the event. The problems of inland and coastal flooding were addressed separately, as the extent, cause and risks associated with each varies.

The update of the NHMP used the above list as a starting point. Additional natural hazards were defined through holding hazard mitigation and resiliency workshops, public outreach (meetings and surveys), and research and documentation of recent events.

Participants at the hazard mitigation workshop held in the City of Bridgeport identified the top hazards facing the City as:

1. Frequency and severity of coastal and inland flooding
2. Storm surge from tropical storms and hurricanes
3. Sea level rise and rising groundwater
4. Snow, ice, rain and wind storms
5. Drought and extreme heat
6. Tornadoes and earthquakes

From the Fairfield workshop, the top hazards were similar:

1. Coastal flooding
2. Inland flooding
3. Storms (including wind, rain, ice, and snow)
4. Sea level rise
5. Extreme precipitation events
6. Extreme temperature events (heat and cold)

For the workshop that included stakeholders from Easton, Monroe and Trumbull, the principal hazards were:

1. Inland flooding caused by extreme precipitation events
2. Wind damage that downs trees and power lines

From the workshop held in Stratford, the top hazards were similar to the other coastal communities:

1. Coastal flooding
2. Sea level rise

3. Storm surge from tropical storms and hurricanes

Based on the discussions at the hazard workshops, the following natural hazards were assessed:

- Hurricanes
- Inland flooding
- Coastal flooding
- Sea level rise
- Summer storms/tornadoes
- Winter storms (blizzards/ice storms)
- Earthquakes
- Dam failures

While extreme heat and cold were considered potential hazards that might affect the region, these events were not assessed in detail as the Region is not susceptible to prolonged periods of excess temperatures or temperatures below zero degrees Fahrenheit. Climate data for the Region available from the National Climate Data Center were reviewed. Since 1895, the average temperature during July is 69.5 degrees and the mean temperature during January is 23.2 degrees. The Region averages only about eight days with temperatures over 90 degrees and only about one day with a temperature below 0 degrees.

### 3.4 Hazus-MH 2.1

Hazus is a multi-hazard loss estimation model developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences (NIBS). It is run as an extension in ArcGIS, a Geographic Information System (GIS), and is designed to assist communities in identifying and reducing risk from natural hazards. In particular, Hazus is used to estimate the physical, economic, and social impacts of earthquakes, hurricanes, and floods.

A Level 1 analysis was performed using the Hazus Hurricane, Flood and Earthquake models. Level 1 analysis uses Hazus provided inventory and hazards information. Hazus has a robust inventory from which numeric estimation of loss from modeled hazards can be calculated. The inventory is from 2000 census data and includes information about buildings, population distribution and other community specific data represented by census tract and census blocks. In addition, it contains site-specific data such as emergency operation centers,



fire stations, police stations, schools and medical care facilities. Results from Hazus will be discussed in appropriate Hazard Profiles. Specific results can be found in Appendix E.

### 3.5 Hazard Profile – Hurricanes and Tropical Systems

This section updates Section 5 from the 2006 NHMP. The plan was updated to include recent events that have impacted the Region since 2006. In addition, tables and figures documenting previous storms were included. Finally, this update includes a Hazus analysis for a set of probabilistic hurricane scenarios to estimate potential loss for each town.

#### Setting

Hurricanes and tropical storm systems threaten Connecticut residents with the possibility of storm surges, powerful winds, and heavy rains. The coastal communities of the Region (Bridgeport, Fairfield and Stratford) are the towns most at risk to inundation from a tropical event. While the rest of the Region, including the coastal communities, are at risk to inland flooding and wind damage.

#### Extent

Hurricane and tropical storm intensity is quantified using the Saffir-Simpson scale described in depth later in this section. Historically, the most intense hurricane to impact the Region was a Category 3 storm in 1938. The Region can expect to be impacted by Category 3 hurricanes every 46-74 years according to the State of Connecticut Natural Hazard Mitigation Plan. More intense storms may impact the Region as a result of climate change.

#### Impacts

Several impacts to the community result from hurricanes and tropical storms. They damage buildings, resulting in loss of functionality at essential facilities and inhabitable homes requiring the need for public shelter for individuals impacted. Hurricanes and tropical storms can also result in loss of utility services, including electricity, water, telephone, cell service, sewage, and internet. In addition, they

create disruption in transportation, debris, and cause economic loss. Finally, loss of life may occur.

#### Hazard Assessment

Hurricanes and tropical storms fall under the broader class of storm systems known as tropical cyclones. A tropical cyclone is defined by the National Weather Service as a non-frontal, large scale, low pressure system that has developed over tropical or subtropical water and has a definite organized circulation. Tropical cyclones are categorized based on the speed of the sustained (1-minute average) surface winds near the center of the storm. These categories are:

- Tropical Depression – winds less than 39 mph,
- Tropical Storm – winds 39-to-74 mph, inclusive, and
- Hurricanes – winds at least 74 mph.

The geographical areas affected by tropical cyclones are called tropical cyclone basins. The Atlantic tropical cyclone basin is one of six in the world and includes much of the North Atlantic Ocean, the Caribbean Sea, and the Gulf of Mexico. The official Atlantic hurricane season begins on June 1st and extends through November 30th of each year, although occasionally hurricanes occur outside this period.

#### Storm Surge

Storm surge can be the greatest threat to human life and property from a hurricane or tropical system. While other storm types can bring a surge, they are most notably associated with systems of tropical origin. According to the National Hurricane Center, storm surge is an abnormal rise of water generated by a storm system that is over and above the predicted astronomical high tide levels. This rapid and occasionally extreme rise in water can cause substantial inundation along coastal areas, especially when it coincides with the astronomical high tide. When this occurs, a storm tide of up to twenty feet or more can occur. A storm tide is the combination of the tide elevation and the storm surge.

The storm surge is generated through water being pushed ashore by the force of winds moving cyclonically around the storm system. The magnitude of a storm surge within a coastal basin is governed by both the meteorological parameters of the hurricane

and the physical characteristics of the basin. The meteorological aspects include the hurricane's size, measured by the radius; the intensity, measured by sea level pressure and maximum surface wind speeds at the storm center; the path, or forward track of the storm; and the storm's forward speed. Furthermore the ocean floor can play a major role with regards to the impact of a storm surge event.

While Long Island does buffer Connecticut from the open ocean, the geomorphology of Long Island Sound causes the basin to be particularly vulnerable to storm surge. The configuration of Long Island and the Connecticut coast causes a natural funneling influence on ocean waters as they are driven east to west into the Sound by a tropical event, amplifying surges.

### The Saffir-Simpson Scale

While storm surge may have great impact in coastal areas, wind is still the defining characteristic of tropical cyclones. The Saffir-Simpson Hurricane Scale, which has been adopted by the National Hurricane Center, categorizes hurricanes based upon their intensity. The Scale uses the sustained surface winds (1-minute average) near the center of the system to classify hurricanes into one of five categories:

#### Category 1

Sustained winds of 74-to-95 mph and has the potential to generate a storm surge four-to-five feet above predicted tide levels. Well-constructed frame homes may suffer damage to roofs, shingles, vinyl siding, and gutters. Large branches will break and shallowly rooted trees will likely be uprooted. Widespread damage to power lines and poles will likely cause power outages that could last from several days to a week or more. Additionally, minor to moderate coastal flooding is to be expected.

#### Category 2

Sustained winds of 96-to-110 mph. A storm surge from a Category 2 Hurricane is generally six-to-eight feet above predicted tide levels. Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted, posing a threat to structures, vital infrastructure and making roads impassable. Extensive power outages would be expected, with

outages lasting up to a week or more. Low-lying coastal areas could flood two-to-four hours before the arrival of the storm. Damage to small craft and moored vessels should also be expected.

#### Category 3

Sustained winds of 111-to-130 mph, with a storm surge generally nine-to-twelve feet above predicted tide levels. Well-constructed frame homes may incur severe damage, including the removal of roof decking and gable ends. A large portion of trees will be either snapped or uprooted, leading to property and infrastructure damage. Electricity and water could be unavailable for several weeks. Low-lying coastal areas could flood three-to-five hours before the system's landfall. Inundation from flood waters will be extreme, causing damage to structures and property. Shoreline evacuations should be mandated to prevent loss of life.

#### Category 4

Sustained winds of 131-to-155 mph. A storm surge generally 13-to-18 feet above predicted tide levels is to be expected. Well-constructed frame homes will likely incur severe damage, with loss of most of the roof structure along with possible damage or loss of exterior walls. A majority of trees will either be snapped or uprooted. Almost universal power outages and impassable roads will isolate communities. Power could be unavailable for weeks or months, and hard hit areas will not be habitable for the same length of time.

#### Category 5

Sustained winds in excess of 155 mph and a storm surge generally greater than 18 feet above predicted tide levels. A majority of framed homes will be destroyed, with roof failure and wall collapse. Recovery of utilities could take from several weeks to months, with many areas uninhabitable during that period. Low-lying areas closest to the shore could be inundated by rising waters three-to-five hours before land fall. Major damage to lower floors of all structures located less than 15 feet above sea level and within 500 yards of the shoreline is to be expected. Large scale evacuations of low lying coastal communities within five-to-ten miles of the shoreline should be enforced.

The Saffir-Simpson Hurricane Scale assumes an average, uniform coastline for the contiguous United States and was intended as a general guide for use by public safety officials during hurricane emergencies. It does not reflect the effects of varying localized bathymetry, coastline configuration, astronomical tides, barriers and/or other factors that may modify surge heights or storm effects at the local level.

### Historic Record

Through research efforts by NOAA's National Climate Center in cooperation with the National Hurricane Center, records of tropical cyclone occurrences within the Atlantic Cyclone Basin have been compiled from 1851 to present. Forty-four hurricanes and tropical systems have passed within a 65 mile buffer of the City of Bridgeport between 1851 and 2011. (It should be noted that the data is through 2011 and does not include Super Storm Sandy that impacted the Region in October and November of 2012). Based on these data, the Bridgeport area is impacted by a tropical event or hurricane once every 3.6 years. While it is difficult to predict when a tropical storm or hurricane will strike the area, there is some consistency in the frequency of these storms. Figure 3.9 shows the historical record which has a range of 1-5 storms every 10 years.

Of the 44 tropical storms and hurricanes that have passed within 65 miles of Bridgeport, the majority (34 storms) have been classified as either a tropical storm or a tropical depression at landfall. However, six of the hurricanes made impact as either Category 2 or 3.

The storm tracks of these events are displayed in Figure 3.10.

The following are detailed historical accounts of the major tropical storm systems that have affected the state of Connecticut. The accounts are compiled from the National Oceanic

and Atmospheric Administration (NOAA). The records cover events from 1900 until present.

### September 21, 1938

While this storm has no official name, it is often referred to as the Great New England Hurricane. It was classified as a Category 3 Hurricane when it made landfall in Milford, Connecticut and is regarded as the most intense hurricane to ever strike Connecticut during the twentieth century. Sustained winds of 91 mph and gusts to 121 mph were reported on Block Island in Rhode Island. In Connecticut, high winds caused downed power lines in many areas and resulted in two catastrophic fires in New London and Mystic. While three-to-six inches of rain fell across most portions of the state, isolated

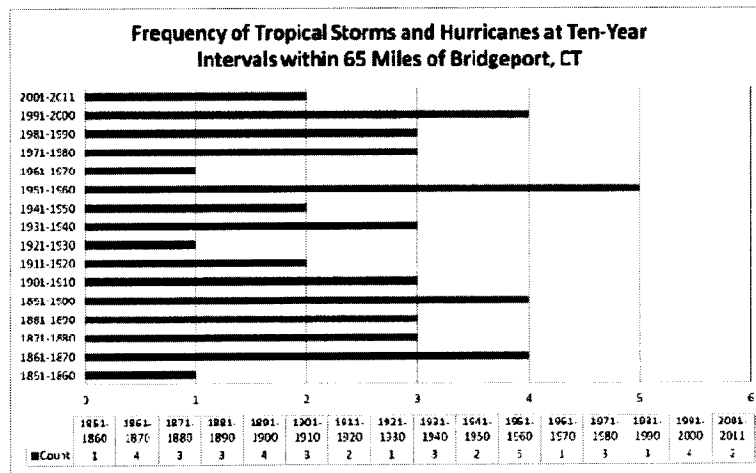


Figure 3.9: Tropical Cyclone Frequency. Data courtesy of NOAA's National Hurricane Center

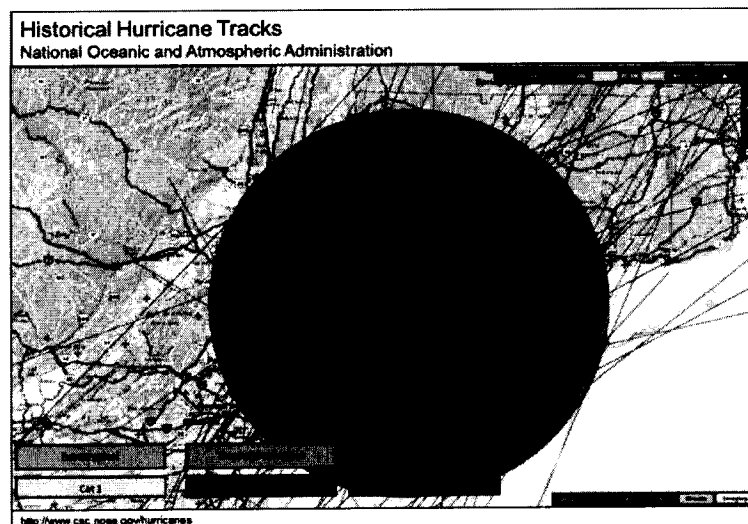


Figure 3.10: Historical hurricane and tropical storm tracks from NOAA

amounts of 14-to-17 inches were reported in central Connecticut. The Connecticut River rose close to 20 feet above flood stage in Hartford as a result of the heavy rains. Further damage was caused from storm tides that reached up to 25 feet in portions of eastern Connecticut, while western sections saw storm tides of 14-to-18 feet. Many of the shoreline homes and cottages were destroyed, with far more experiencing varying degrees of damage.

#### September 14 and 15, 1944

Due to the system's large size and immense strength, the Miami Hurricane Warning Office named this storm the "Great Atlantic Hurricane". While there was no direct landfall made over Connecticut many places across the state saw hurricane force winds, with a gust of 109 mph being reported in Hartford, Connecticut. However, it was the heavy rain, not strong winds that produced the greatest storm impact for the state. More than ten inches of rain fell in the City of Bridgeport, which was the highest total in the State.

#### August 31, 1954

Hurricane Carol arrived as a Category 3 system and was the most destructive tropical system to strike southern New England since the Great New England Hurricane of 1938. The storm made land fall near the mouth of the Connecticut River in Old Saybrook. The system brought sustained winds of 80-to-100 mph across much of the shoreline and through Rhode Island, and Cape Cod in Massachusetts. Heavy devastation occurred from large numbers of uprooted and snapped trees, and miles of downed power lines. Along Connecticut's coast, storm surge values varied greatly from five-to-eight feet in the west, to ten-to-fifteen in eastern portions of the state. There was also heavy crop damage, with 40 percent of apple, corn, peach, and tomato crops being destroyed along portions of eastern Connecticut to Cape Cod. It is reported that 48 people lost their lives and damages to possessions and property exceeded one billion dollars (in 1954 dollars) for the Northeast.

#### August 11 and 12, and 18 through 20, 1955

In an unusual occurrence, two named hurricanes, Connie and Diane, passed within proximity of the state within nine days. While neither storm

directly struck Connecticut, their combined impact was immense. Hurricane Connie was the first system, passing to the west. The system produced four-to-six inches of rain across southern New England. The rain saturated the ground and caused river and reservoir water levels to be well above normal. When Diane hit the ground was unable to absorb the additional rain and the rivers and lakes were already above flood stage. Over the two day period when Hurricane Diane tracked just south of Long Island, New York, up to 20 inches of rain fell in parts of New England. At the headwaters of the Farmington River, 18 inches of rain within a 24-hour period was recorded. This resulted in arguably the most devastating inland floods to ever hit the state. Roads and bridges were washed out across the state, residents lost drinking water and public utilities were inoperable. More than 90 people were confirmed dead from the storm and another dozen were missing and presumed dead. The damage was estimated to have exceeded 1.5 billion dollars (1955 dollars).

#### September 27, 1985

Hurricane Gloria formed off Cape Verde on September 15, 1985. It reached tropical storm status on the September 17th but was downgraded to a tropical depression as optimal conditions deteriorated. The storm continued its west-northwest movement and strengthened as a major hurricane by September 24th. As the storm tracked further northward along the Atlantic coast it weakened significantly. Gloria was downgraded from a Category 4 hurricane near the Bahamas, to a Category 2 storm by the time it made landfall on the Outer Banks of North Carolina. Gloria maintained its strength through landfalls on Long Island, New York, and Bridgeport, Connecticut. It was only downgraded to a Category 1 storm after passing to the west of Hartford Connecticut. Gloria brought devastation to the state primarily in the form of heavy wind damage. The storm toppled thousands of trees and caused major structural damage statewide. Relatively light rain from the storm meant that there was little flooding accompanying the wind damages and the power outages.

#### September 16, 1999

Torrential and record rainfall brought from tropical storm Floyd caused widespread urban,

small stream, and river flooding. Fairfield, Hartford and Litchfield counties were declared disaster areas. Serious wide spread inland flooding throughout low elevation and poor drainage areas was prevalent, and resulted in the closure of numerous roads and the flooding of many basements.

### Recent Events

Connecticut and the Bridgeport area were impacted by two recent events that occurred in back-to-back years: Tropical Storm Irene and Superstorm Sandy.

#### August 28, 2011

Irene began as a tropical wave, moving off the coast of western Africa on August 15, 2011. After passing over Puerto Rico on August 22nd, Irene gained hurricane status and reached Category 3 on August 24th with peak wind intensities of 120 mph.

As the storm proceeded north it passed offshore Florida and Georgia, weakening along the way. Irene made its first United States landfall as a Category 1 storm near Cape Lookout, North Carolina on August 27th, with peak sustained winds values of 86 mph. After moving offshore, Irene tracked further north-northeastward along the Delmarva Peninsula making its second US landfall near Atlantic City, New Jersey as a Tropical Storm with maximum sustained winds of 69 mph. The system tracked up the Hudson River Valley before turning east across the northern Litchfield Hills of Connecticut on August 28th.

In Connecticut, Irene had been predicted to make landfall as a strong Category 1 or weak Category 2 hurricane, but it had been downgraded to a Tropical Storm by the time it reached the state. Irene produced average maximum wind gusts of 52 mph and downed approximately one-to-two percent of the trees in Connecticut. The extensive number of downed trees resulted in over 800,000 power outages. Restoration of power took up to twelve days. Heavy rains, up to six inches, caused widespread coastal flooding. Damage and inundation of seawater along the coast was worsened by a large wind envelop that pushed water into western Long Island Sound. Although Irene was a tropical storm by the time it reached Connecticut, it created a storm surge of about four feet, which is consistent with a Category 1 or 2 hurricane.

On September 2, 2011, President Obama issued a presidential disaster declaration for the entire state as a result of the damage caused by Tropical Storm Irene.

#### October 29, 2012

Sandy was considered to be a classic late-season Caribbean hurricane, originating from the remnants of a tropical wave that moved westward from the west coast of Africa. It made landfall in Jamaica as a Category 1 Hurricane and increased in strength to a Category 3 storm east of Cuba. Despite weakening to a Tropical Storm as it moved out of the Caribbean Sea, it continued to grow in size. As it continued north-northwest and parallel to the US coast, Sandy re-strengthened into a Category 1 hurricane.

As Sandy was moving northward, several other atmospheric conditions affected its size, direction and damage potential. Typically, a high pressure system is established over Bermuda that causes tropical storms to veer to the northeast away from land. This high was not present to deflect the storm away from the northeast coast. Secondly, a low pressure frontal system was forming in the central US. This pattern typically creates conditions for a nor'easter to form. Instead, this trough combined with Sandy to increase its size and intensity. Finally a large high pressure system built-up over northeastern North America and blocked Sandy from moving out to sea turning it westerly toward the mid-Atlantic coast. It accelerated at an average forward speed of 23 mph, but, at the same time, the colder waters weakened the system and caused Sandy to lose its tropical characteristics. As shown in Figure 3.11 it made landfall in New Jersey as a post-tropical (extratropical) storm with maximum sustained winds of about 65 mph. However, because of its size, Sandy created a catastrophic storm surge into the New York and New Jersey coastlines.

In Connecticut, highest storm tide and greatest inundation occurred along western sections of the Connecticut coast. The National Oceanic Service tide gauge in Bridgeport measured the storm surge at 9.83 feet above normal tide levels. The average surge along the Fairfield County coast was between four-and-six feet, with inundation up to six feet above ground level. Various estimated values of flood water inundation based on USGS high-water marks and storm tide pressure sensors are listed below (Tropical

Cyclone Report Hurricane Sandy, National Hurricane Center, February 2013):

- Fairfield: Estimated Inundation = 4.3 feet
- Southport: Estimated Inundation = 4.0 feet
- Bridgeport (South End): Estimated Inundation = 3.5 feet
- Bridgeport (South End): Estimated Inundation = 3.2 feet
- Bridgeport (Enterprise Zone): Estimated Inundation = 3.1 feet
- Bridgeport (South End): Estimated Inundation = 3.0 feet
- Stratford (Lordship): Estimated Inundation = 2.8 feet
- Bridgeport (Black Rock): Estimated Inundation = 1.3 feet
- Stratford: Estimated Inundation = 1.4 feet
- Stratford (Lordship): Estimated Inundation = 1.2 feet

Approximately 3,000 homes were damaged and five people in Connecticut died as a result of Superstorm Sandy. The preliminary estimated value of the damage was about \$360 million state-wide.

### Hazard Probability

Based on review of historical records, Connecticut and the Bridgeport area are likely to be hit and severely impacted by a Tropical Storm or Hurricane at least once every 3.6 years. According to the state Natural Hazard Mitigation Plan, a Category 1 hurricane can be expected to hit Connecticut every 10-15 years, a Category 2 every 23-30 years and Category 3 every 46-74 years. Despite these rates, it remains a possibility that a destructive storm will hit the area anytime during the hurricane season and the frequency of these storms is independent of when the last storm occurred. As historical examples, the Region has experienced severe tropical events in each of the past two years, and in 1955 the state was impacted by two hurricanes within a nine day period. Because of the Region's location on Long Island Sound, the area lies in the path of tropical systems and is susceptible to their destructive forces.

### Risk Assessment

Tropical storms and hurricanes impact Connecticut with heavy rains, storm surge, and strong winds. Heavy rains can lead to flooding which will be covered more in-depth in subsection 3.6. Storm surge and devastating winds, while not unique to hurricanes and tropical storms, have the largest impact when associated with tropical events. Therefore we will discuss impacts from these conditions in this section.

### Storm Surge

When a Tropical Storm or Hurricane passes through the Region, it will impact the entire area. However, because these storms have the capability of producing excessive surge of water, inundation of coastal areas is more likely, and, as a result, these areas are more vulnerable and at a greater risk. Hurricane storm surge maps depict the inundation of flood waters that would be expected from a worst case scenario of different categories of hurricane. Further detail on property damage will be discussed in subsection 3.7.

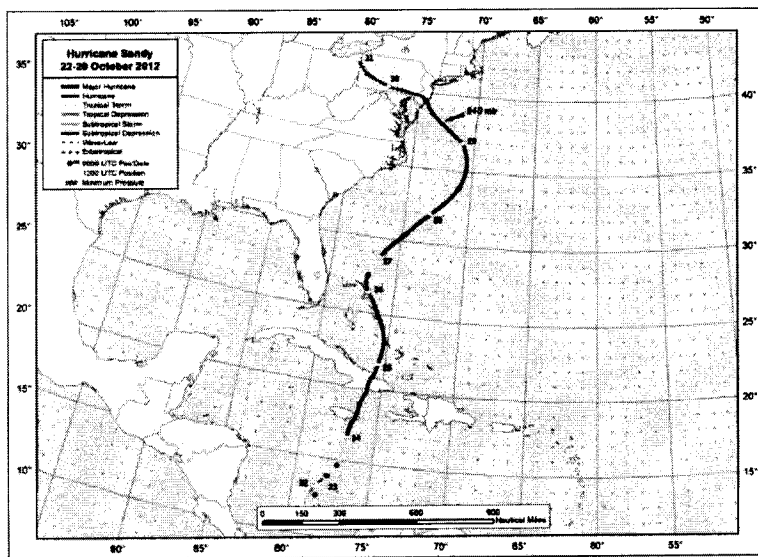


Figure 3.11 - Source: Tropical Cyclone Report Hurricane Sandy, National Hurricane Center, February 2013. Figure 2: Best Track Positions for Hurricane Sandy, 22 – 29 October 2012.

In Fairfield, a Category 1 Hurricane is likely to cause widespread flooding along the shoreline south of Old Post Road between Sasco Hill Road and the Ash Creek. Parts of Southport would be inundated by flood waters during a Category 2 or 3 storm. Small areas along the Mill River would be affected by more severe hurricanes and the Town Center area along US Route 1 would become flooded as the result of a Category 3 or 4 hurricane.

In Bridgeport, most of the South End and West End would be flooded from a Category 1 Hurricane and the shoreline along the Black Rock neighborhood, the East Side around Steel Point and the East End would be inundated with flood waters. The extent of flooding in those areas would be somewhat limited to the immediate shore area. If the City were hit by a Category 3 or 4 hurricane, flooding would extend farther north from the shore and impact neighborhoods and commercial properties along Fairfield Avenue and State Street in the West End and along Route 130 (Connecticut Avenue and Stratford Avenue) on the East End. Flood waters would also extend along the Pequonnock River, reaching as far north as the US Route 1 and Route 8/25 interchange area, and along the Yellow Mill Channel, as far north as US Route 1. Flooding would also occur along the Rooster River.

In Stratford, a Category 1 hurricane would cause flooding throughout almost the entire South End area, including the industrial areas along Route 113 (Lordship Boulevard and Main Street), the Sikorsky Memorial Airport and the residential neighborhoods bounded by I-95, Lordship Boulevard, Access Road, Main Street and South Avenue. A Category 2 hurricane would expand the extent of flooding in these areas. The only part of the South End unaffected by a Category 1 hurricane would be the Lordship neighborhood, because of its higher elevation. A Category 3 or 4 hurricane would cause flooding north of I-95 and within the town center area. Areas

in the northern part of Stratford would be flooded by various categories of hurricane, but the extent of the damage would be limited to existing marsh areas. However, a severe hurricane could potentially flood the Sikorsky Aircraft helicopter manufacturing plant.

Hurricane surge inundation maps for Bridgeport, Fairfield and Stratford are included in Appendix D.

Wind

Wind damage from tropical cyclones affects the entire Region. To quantify the impact of these storms the Hazus-MH 2.1 Hurricane Model was utilized.

Hazus does not estimate damage based on hurricane category but rather runs a probabilistic analysis similar to terminology associated with flooding. For hurricanes, probabilistic scenarios of 10, 20, 50, 100, 500, and 1000 year storms were run. The analysis was done for numerous storm tracks and the track producing the most damage was used in the final results. The model was run for each of the towns separately.

Building Damage

The default building stock from Hazus was used for all the Hazus analyses in this report. According to this database there are 99,625 buildings in the region. Bridgeport has the most buildings with 33,567.

Hazus uses a hazard-load-resistance-damage-loss methodology to produce loss estimations. Using wind models along with damage probabilities, expected building losses were estimated. The descriptions of damage can be found in Table 3.3.

Table 3.3: Damage description from Hazus Hurricane Model Technical Manual.

Damage State	Qualitative Damage Description	Roof Cover Failure	Window Door Failures	Roof Deck	Missile Impacts on Walls	Roof Structure Failure	Wall Structure Failure
0	<b>No Damage or Very Minor Damage</b> Little or no visible damage from the outside. No broken windows, or failed roof deck. Minimal loss of roof cover, with no or very limited water penetration.	≤2%	No	No	No	No	No
1	<b>Minor Damage</b> Maximum of one broken window, door or garage door. Moderate roof cover loss that can be covered to prevent additional water entering the building. Marks or dents on walls requiring painting or patching for repair.	>2% and ≤13%	One window, door, or garage door failure	No	<5 impacts	No	No
2	<b>Moderate Damage</b> Major roof cover damage, moderate window breakage. Minor roof sheathing failure. Some resulting damage to interior of building from water.	>13% and ≤50%	> one and ≤ the larger of 20% & 3	1 to 3 panels	Typically 5 to 10 impacts	No	No
3	<b>Severe Damage</b> Major window damage or roof sheathing loss. Major roof cover loss. Extensive damage to interior from water.	>50%	> the larger of 50% & 3 and ≤50%	>3 and ≤13%	Typically 10 to 20 impacts	No	No
4	<b> Destruction</b> Complete roof failure and/or failure of wall frame. Loss of more than 50% of roof sheathing.	Typically >50%	>50%	>25%	Typically >20 impacts	Yes	Yes

In the Region, no buildings were damaged in a 10 year event and severely damaged buildings were first estimated in a 50 year event. The coastal, and more populated towns, had the highest number, as well as, highest percentage of buildings damaged.

Table 3.4 aggregates the data for a regional projection. Town specific projections can be found in Appendix E. In the region, 87 buildings are at least moderately damaged in a 100 year storm but that number increases to over 25,000 buildings at least moderately damaged in a 1000 year event with 2,304 buildings being completely destroyed.

Table 3.4: Hazus building damage from hurricane impact  
**# of Building Damaged**

Damage	Total	10 yr	20 yr	50 yr	100 yr	200 yr	500 yr	1000 yr
EOC	2	0	0	0	0	0	0	0
Fire	16	0	0	0	0	0	0	0
Hospitals	4	0	0	0	0	3	3	3
Police	16	0	0	0	0	0	0	0
Schools	130	0	0	0	5	114	130	130

### Essential Facilities Damage

The essential facilities in the region were provided in the Hazus default dataset. Therefore there may be some facilities that were not included in this analysis. In the region, Hazus had 2 Emergency Operation Centers (EOC), 16 fire stations, 4 hospitals, 16 police stations and 130 schools.

Hazus provided data on damage to essential facilities as well as loss of use estimates. Loss of use refers to the inability of the essential facility to provide its normal function to the community. For example, schools are closed to students. After hurricanes this is normally due to loss of electricity. Table 3.5 summarizes the loss of use estimates for the Region. Town specific results can be found in Appendix E. Results showed that schools and hospitals were the only facilities that experienced loss of use, with the majority of schools being closed for more than one day at a 200 year event or greater.

### Debris Generated

Hazus generated estimates for the amount of debris generated from wind damage. Table 3.6 provides the total debris generated for the various probabilistic events. Bridgeport had the most debris generated in each hurricane scenario. The Region was projected to

Table 3.5: Hazus essential facility damage from hurricane impact  
**Essential Facilities (Loss of use >1 day)**

Damage	10 yr	20 yr	50 yr	100 yr	200 yr	500 yr	1000 yr
None	99,625	99,536	98,483	92,764	80,386	55,290	38,210
Minor	0	84	1,053	6,128	15,918	30,899	35,921
Moderate	0	4	83	718	3,049	11,018	18,541
Severe	0	0	4	27	193	1,645	4,637
Destruction	0	0	0	4	55	774	2,304

Table 3.6: Hazus debris generated from hurricane impact  
**Debris Generated (tons)**

Damage	10 yr	20 yr	50 yr	100 yr	200 yr	500 yr	1000 yr
Bridgeport	0	233	5,120	19,193	43,198	102,998	172,667
Easton	0	28	259	7,891	12,765	35,975	68,845
Fairfield	0	244	2,547	13,878	27,550	72,897	128,989
Monroe	0	99	602	8,954	13,463	36,906	66,468
Stratford	0	212	3,011	10,737	23,949	62,343	110,031
Trumbull	0	36	689	8,166	15,554	44,908	74,897
<b>Total</b>	<b>0</b>	<b>852</b>	<b>12,228</b>	<b>68,819</b>	<b>136,479</b>	<b>356,027</b>	<b>621,897</b>



have 68,819 tons of debris in a 100 year event and 621,897 tons in a 1000 year event.

**Shelter Needs**

Hazus generated the number of households displaced due to damage and loss off electricity and water. The number of people requiring shelter was a fraction of those displaced households and can be found in Table 3.7. Bridgeport, expectedly due to its high population, has the highest shelter needs. Overall, only 3 people require shelter in a 100 year event or less. However 1,668 people could require shelter in a 1000 year event.

Table 3.7: Hazus shelter needs from hurricane impact  
**People Requiring Shelter**

Damage	10 yr	20 yr	50 yr	100 yr	200 yr	500 yr	1000 yr
Bridgeport	0	0	0	3	55	462	1,322
Easton	0	0	0	0	0	0	0
Fairfield	0	0	0	0	0	13	93
Monroe	0	0	0	0	0	0	1
Stratford	0	0	0	0	1	35	234
Trumbull	0	0	0	0	0	1	18
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>56</b>	<b>511</b>	<b>1,668</b>

**Economic Loss**

Economic loss was calculated from both direct property damage and business interruption. Direct property damage includes the estimated costs to repair or replace the damage caused to the buildings and its contents. The business interruption costs are those associated with the inability of a business to function due to the hurricane. Again, these estimates are from wind damage only. Table 3.8 summarizes the combined economic loss for each town.

Table 3.8: Hazus economic loss to the region from hurricane impact.  
**Economic Loss (in thousands of dollars)**

Damage	10 yr	20 yr	50 yr	100 yr	200 yr	500 yr	1000 yr
Bridgeport	\$0.00	\$1,226.05	\$22,418.56	\$90,810.39	\$242,139.47	\$761,937.12	\$1,549,089.25
Easton	\$0.00	\$9.30	\$814.01	\$3,167.41	\$7,440.94	\$26,975.44	\$62,130.19
Fairfield	\$0.00	\$629.79	\$11,518.90	\$38,584.50	\$107,356.45	\$377,907.74	\$823,050.86
Monroe	\$0.00	\$62.89	\$2,111.32	\$7,689.30	\$18,673.42	\$66,305.60	\$143,183.93
Stratford	\$0.00	\$525.44	\$9,901.78	\$35,397.40	\$104,330.33	\$402,300.37	\$885,214.21
Trumbull	\$0.00	\$80.85	\$4,268.93	\$15,295.49	\$42,486.68	\$171,401.79	\$354,233.03
<b>Total</b>	<b>\$0.00</b>	<b>\$2,534.32</b>	<b>\$51,033.50</b>	<b>\$190,944.49</b>	<b>\$522,427.29</b>	<b>\$1,806,828.06</b>	<b>\$3,816,901.47</b>

**3.6 Hazard Profile – Inland Flooding**

This section updates Section 3 from the 2006 NHMP. This section was updated by including the 2013 FEMA Firm data. In addition, events that occurred after 2006 were included and a Hazus analysis was performed to generate loss estimates for each town.

**Setting**

Inland flooding is a well-documented natural hazard that threatens many areas and neighborhoods throughout the Region. It is one of the most commonly occurring natural hazards and has the potential to damage property and disrupt the quality of life for many residents. An in depth review and analysis of records and feedback from residents indicates that inland flooding affects the Region with moderate to frequent regularity. It should also be noted that flooding affects the Region with varying degrees of intensity, dependent on season, setting, and recent weather pattern.

**Extent**

Inland flooding risk is currently categorized by FEMA into 1% and 0.2 % flood zones which are described in further depth later in this section. Historically, the Region was impacted by a 0.2% event in 1955.

**Impacts**

Inland flooding can damage buildings, resulting in loss of functionality at essential facilities and inhabitable homes requiring the need for public shelter for individuals impacted. In addition, inland

flooding can disrupt transportation, create debris, and cause economic loss. Intense rain could also result in breached dams which will be discussed in Section 3.13. Finally, inland flooding can result in loss of life.

### Bridgeport

Although Bridgeport has morphed into a heavily developed urban environment, waterways still exist within its limits and have the potential to pose inland flooding concerns. Furthermore, due to the urban nature of the City, much of the water courses have undergone large-scale channel modifications or have been buried. This has resulted in many unintentional constrictions that have the potential to create flooding issues during heavy precipitation events. Of particular concern are the channels of the Island Brook and Ox Brook, along with several tributaries of the Yellow Mill River in the northeastern section of the City. In addition, smaller more localized areas experience flooding, such as the Rooster River and Ash Creek corridor, and Bruce Brook between Post Road and Barnum Avenue. Flooding is also typical along the banks of the Pequonnock River downstream of Bunnel's Pond.

The areas in Bridgeport prone to inland flooding from 1% and 0.2% probability storms are depicted in FEMA Firm maps, included in Appendix D.

### Easton

Unlike the other towns in the Region, Easton has a very low population density. Large-lot zoning regulations and a large portion of the town being preserved as water company-owned lands have reduced property damage from flooding. Roadway flooding can be handled using barricades and signs to prevent loss of life, and alternate routes are available in almost every case.

Specific problem areas include flooding from the Aspetuck River at Silver Hill Road and at Wells Hills Road, Morehouse Brook at Morehouse Road, Cricker Brook at Beers Road, and Cricker Brook at Morehouse Road. In addition, flooding occurs at the headwaters of Patterson Brook at Route 136 and Tatetuck Brook at Route 59.

Flood prone areas in Easton, based on FEMA Firm data, are depicted on the map attached in Appendix D.

### Fairfield

The Town of Fairfield contains four primary drainage basins that flow in a primarily north to south direction. The system most susceptible to inland flooding is along the Mill River, which flows from the Easton Reservoir through the center of the Town. Extensive flooding is caused by a 1% storm as well as from a more severe storm. Inland flooding is also a problem along the Rooster River and Ash Creek corridor and their tributaries. To a lesser extent, inland flooding poses a threat during extreme weather events along Great Brook and Saco Brook in the western side of Fairfield.

Much of the property directly abutting the Mill River falls within the 1% flood contour, while a smaller portion falls within the 0.2% flood contour. These flooding concerns extend the length of river and remain a very real threat. With regards to the Rooster River and Ash Creek, flooding is more commonly caused by manmade constriction. A specific location is where the river passes under I-95. The flow is controlled by a culvert system. During times of heavy precipitation, the culvert can be overwhelmed and flooding can occur in the neighborhood surrounding Royal Avenue and Camden Street. Homes in this neighborhood are in the floodplain, and a viaduct is the only way in and out. Further specific flooding concerns exist where New Haven rail line bridges cross the river. The bridges tend to have low vertical clearances and narrow horizontal spans. These features can act as a constriction point and cause flooding of neighborhoods up river. Low-lying homes adjacent to London's Brook and downstream of the Fairchild Wheeler Golf Course are also prone to flooding. Great Brook can flood in the area of Merwins Lane.

Flood prone areas in Fairfield are depicted on the FEMA Firm map attached in Appendix D.

### Monroe

The areas of Monroe which are most frequently subject to flooding are adjacent to the Pequonnock River. This river consistently overflows its banks from major storm events. Flooding also occurs in areas along the West Branch of the Pequonnock River on the western side of Town, as well as, areas along the Farmill River.

Flooding occurs along the West Branch of the Pequonnock River in a variety of locations. The Aquarian Water Company operates several reservoirs throughout Fairfield County and owns extensive tracts of land around these reservoirs. A small impoundment is located along Route 25 about midway between Judd Road and Pepper Street. Water is diverted from the impoundment through a pipeline to Easton Reservoir. It lies only a few feet below the roadway elevation and flooding occurs during heavy rain events. Stop logs are in place at the dam that can be removed to allow for greater water flow, either during or before a severe weather event. While this measure is in place to help mitigate flooding, it does not remove the possibility of flood occurrences entirely. The impact felt by flooding in this area is limited to roadway closures, as there are no homes or businesses within the vicinity. Although traffic has the potential to be impacted, no homes or buildings would be affected by flooding in this area.

A more critical flooding area is in the vicinity of where the West Branch crosses under Old Newtown Road. The river has a tendency to back up at the under sized culvert resulting in repetitive losses for many properties near Chuck's Corner. However, there are secondary roads that could be taken in the event of flooding to circumvent the blocked or impassable roadways.

In addition to the flooding associated with the Pequonnock River and the West Branch, many of its other tributaries experience flooding as well. Specifically, the neighborhood bounded by Pastor's Walk and Wiltan Drive is subject to backyard flooding and drainage problems. A swale, or intermittent stream, flows parallel to the roads through the backyards. The swale may have been constructed when the neighborhood was developed. Additionally, a low-gradient stream under Bart Road and along Verna Road has virtually no gradient and is only a few feet below backyard elevations. During heavy precipitation events the potential exists for the stream to overflow its banks and inundate the area. This stream also may have been constructed when the neighborhood was developed. A very small diameter culvert at Bart Road may cause upstream flooding during high flows. The culvert under Cottage Street near Brookside Trail, on the Boys Halfway River, may be also under capacity.

Flood prone areas in Monroe are depicted on the FEMA FIRM map attached in Appendix D.

#### Stratford

Inland flooding in Stratford occurs with moderate to frequent regularity, with major events being seen on average once every five years. Areas that are most frequently reported flooded during rain events include Main Street at Stratford Center, Broadbridge Avenue, Terrill Road, Hamilton, Reed Street, Bunnell Avenue, and Parkwood Road.

Flooding can also occur in localized areas from storm drains backing up. Areas affected from this variety of inland flooding include the regions of Albert Avenue and Albright Avenue where several residents have reported repeated flooding, with one resident having to file multiple flood insurance claims. Additional flooding is also experienced in the areas of Reed's Lane, St. Michael's Avenue, Tyrone Place and West Avenue in the vicinity of Barnum Avenue. However, it appears that the problems in these areas are not widespread.

Properties along the Pumpkin Ground Brook in the north-western Stratford also experience frequent flooding, especially in the area of Cutspring Road and Chapel Street. Flooding impacts the Oronoque Village condominium complex, an over-55 community consisting of 929 homes spread across about 300 acres. The property is crossed by the Freeman Brook and a small unnamed brook. Both have buried sections through the Village. During more severe rain events these streams tend to overflow and cause flooding, primarily in the FEMA designated flood zones. Property damage from these events has exceeded \$300,000 with loss of vehicles, furnaces, hot water heaters and damage to basements/lower levels and garages.

The areas in Stratford where inland flooding typically occurs are depicted in FEMA FIRM maps, included in Appendix D.

#### Trumbull

Trumbull contains fewer waters courses than the other towns in the Region; however, inland flooding remains a concern as the Town is traversed by the Pequonnock River, Horse Tavern Brook and Island Brook. The most frequent flooding occurs along sections of Horse Tavern Brook, especially where it

crosses under Chestnut Hill Road and Black House Road. Severe flooding occurs from major rail events along sections of the Pequonnock River from about Daniels Farm Road, through the Twin Brooks Park area and the neighborhoods between the river and White Plains Road near the town line with Bridgeport.

Horse Tavern Brook flows through a fairly developed section of Trumbull on its south-western corner. The brook and its tributaries cause moderate flooding during periods of heavy rain. A comprehensive flood control study has been completed for this area that addresses recurring flooding and recommends mitigation actions.

With regards to the Pequonnock River, the neighborhood along Manor Drive is especially susceptible to flooding. This section of town is in a low-lying flat area directly abutting the river. The houses in the area are very close to the river's elevation, which only augments their flood risk. Furthermore, the gradient of the floodplain along Route 127 causes flooding at the bend in the river.

The flood prone areas in Trumbull are depicted in the FEMA FIRM map included in Appendix D.

## Hazard Assessment

Flooding, whether coastal or inland represents the most common and costly natural hazard in Connecticut. The state typically experiences flooding in early spring due to snowmelt and heavy spring rains and then again in late summer to early autumn when tropical storms are most active. This pattern has been evident the past two years with Tropical Storm Irene arriving in late August of 2011 and Superstorm Sandy impacting the area in late October of 2012. However, severe thunderstorms are possible throughout the summer months and have the potential to produce substantial rainfall totals over short periods of time. In addition, weather patterns can produce low pressure systems that form over the ocean and cause north-easterly wind patterns. These "nor'easters" can result in heavy rain and high winds.

In order to provide a national standard without regional discrimination, the 100-year flood and the 500-year flood, which had been the standard adopted by FEMA as the base flood for flood plain management purposes, has recently been revised.

In order to eliminate the idea that a 100-year flood will only occur once every hundred years, FEMA has since adopted the 1% flood. This means that during any given year there is a 1% chance that a storm of sufficient precipitation flood will occur that will cause flooding and that it will reach or exceed FEMA's base flood levels. Similarly, the 500-year flood designation has been converted to a 0.2% flood, meaning that in any given year there is a 0.2% chance of a flood at that magnitude occurring.

Flood plains are lands along watercourses that are subject to periodic flooding; floodways are those areas within floodplains that convey floodwaters. The floodways are subject to water being carried through them at relatively high velocities and forces. Beyond the floodway, lies the floodway fringe, this is an area that remains in the floodplain yet is out of the floodway. The floodways and floodplains are the areas within the region that are vulnerable to flooding.

In certain areas of the region flooding occurs with greater frequency than documented by FEMA mapping. In these instances the higher rate of flooding is due to a combination of heavy rainfall with insufficient drainage.

## Historical Record

On average, severe flooding occurs approximately once every five years throughout the region, with minor flooding events occurring more frequently. Since the early 1900s there have been eleven major flooding events to impact the state and particularly the GBRC region. These events occurred in March 1936, September 1938, August 1955, October 1955, June 1982, May and June 1984, October 2005, April 2007, August 2011, and September of 2012 in two separate events. The 1955 flood has been estimated to be a two percent to a 0.2% flood event across Connecticut, with flood frequencies of greater than a one percent storm in southwestern Connecticut. The other storms had variable effects, depending on the location.

The Pequonnock River flows through the Region and drains into Long Island Sound at Bridgeport. Rain events typically cause the river to overflow its banks and subject the Region to occasional flooding, with some being severe. Based on the FEMA Federal Insurance Study (FIS), the largest flood

events occurred in July 1897, July 1905, March 1936, September 1938, December 1948, August 1955, October 1955 and April 2007.

Due to the generally steep topography of Trumbull, waterways in the Town are subject to rapid rates of rise at high velocities. This geographical factor combines with the river system's relatively large drainage area to produce augmented flood levels. Major floods occurred in 1905, 1936, 1938, 1955, and 1972.

In the Town of Monroe the upper reaches of the Pequonnock River are subject to overtopping their banks with every major precipitation event. In March of 1936, two closely occurring storms combined with a considerable amount of snowmelt to produce major flooding. The flood of October 1955 far exceeded any prior flood on record in Monroe. Certain low lying areas directly adjacent to the Pequonnock River and the West Branch of the Pequonnock River experienced high levels of devastation from that event.

The flood of October 1955 also exceeded any prior recorded flood within the Town of Easton. Due to the minimal quantity of developed land along the stream, little is known of the exact severity of the flooding that took place during this storm. However, through resident reports, a general idea of the level of damage can be ascertained. According to Easton citizens, the 1955 flood washed out the bridges on Valley Road and Center Road which crossed the Aspetuck River, upstream of the Aspetuck Reservoir. The Mill River overtopped its banks destroying public and private property. However, according to the Aquarion Water Company, none of the four water supply reservoirs (Easton, Aspetuck, Hemlock, or Saugatuck) were in danger of overtopping during the flood of October 1955.

#### Recent Events

The following are additional descriptions and examples of more recent major flooding events in the Region. These examples are drawn from the National Climatic Data Center, Storm Events Database, and from correspondence with municipal officials.

April, 1980: A spring rainstorm caused severe flooding along all watercourses in the Town of Easton. Due to the still frozen ground the heavy precipitation had no way of penetrating the surface

and combined with excessive snowmelt to create extensive flooding. As reported by town residents, the Aspetuck River overflowed its banks and flooded Route 136 downstream of the Aspetuck Reservoir.

September 16, 1999: Torrential and record rainfall brought by Tropical Storm Floyd caused widespread urban, small stream, and river flooding. Fairfield County was declared a disaster area, along with Hartford and Litchfield Counties. Serious wide spread inland flooding throughout low elevation and poor drainage areas was prevalent, and resulted in the closure of numerous roads and the flooded basements.

April 21, 2000: A series of intense thunderstorms moved north to northeast across Southeast Fairfield and New Haven Counties. The thunderstorms were accompanied by torrential rainfall that produced widespread flooding of small streams, brooks, rivers, and low-lying and poorly drained areas. They also produced lightning strikes. Rainfall amounts ranged from around 2-to-4 inches. Significant and widespread ponding of water caused road flooding in Stratford and Milford. Selected rainfall amounts for southeast Fairfield County included 3.57 inches at Bridgeport and 3.56 inches in Stratford. Cost estimates of property damage were unavailable.

August 11 and 12, 2000: From the east side of Bridgeport and through Stratford, torrential rain caused widespread and extreme flooding in low lying and poor drainage areas along area streams and rivers. Rainfall totals from the event ranged from 4.0-to-7.5 inches in under two hours. The heavy rains were reported to fall in "sheets" at a rate estimated by the National Weather Service (NWS) of between 3.5-to-4.0 inches per hour. Property damage from the event was extensive with a total of 471 residents experiencing flooding. The flood waters deposited up to several feet of water into 447 residents' basements, and another 24 reported flooding of their first floors.

August 21, 2004: Severe thunderstorms developed to the west over the Hudson Valley and moved into Connecticut through the afternoon. The storm systems produced heavy rainfall and caused significant street flooding.

September 18, 2004: The remnants of hurricane Ivan pushed across the state producing heavy rain,

totaling up to five inches in certain spots. The result was localized flash flooding of roadways.

June 29, 2005: Slow moving thunderstorms developed over Connecticut on the afternoon of June 29th in association with a slow moving front. The atmosphere was very moist, which allowed the thunderstorms to produce significant hourly rainfall rates of greater than two inches. In a matter of 2-to-4 hours, some locations in Fairfield County picked up anywhere from 3-to-5 inches of rain.

August 2, 2008: A stationary low in the region produced severe thunderstorms with torrential downpours. This resulted in flash flooding, with many streets in the east end of Bridgeport inundated, and properties damaged. Sections of Fairfield and Stratford experienced similar flooding from this event.

August 7, 2008: Strong thunderstorms produced heavy rainfall, causing flash flooding across portions of southwest Connecticut. The Town of Stratford was particularly hard hit. Some of the worst flooding occurred on sections of Terrill Road, where water levels were close to two feet high. Residents used kayaks along with other small floatation devices to navigate through the flooded streets. The same event brought flooding along East Main Street and Crescent Avenue in Bridgeport. In this location a car became stranded under high flood waters and the two occupants had to be rescued by local firefighters. Additionally, a new school on Waterview Avenue in Bridgeport was flooded.

November 1, 2010: A low pressure system tracking up the eastern seaboard combined with the remnants of Tropical Storm Nicole to produce heavy rain and flooding throughout portions of Fairfield and New Haven Counties. Sections of Route 25 in Monroe, along with roads in the vicinity of I-95 at Exit 33 in Stratford, were closed due to flooding.

June 23, 2011: Several rounds of thunderstorms produced heavy rain across portions of southern Connecticut. This resulted in localized flash flooding; specifically, the intersection of State Street and Iranistan Avenue in Bridgeport was closed due to three feet of standing water.

### Hazard Probability

Based on the review of historical records, severe rain storms that result in moderate-to-severe inland

flooding occur at fairly frequent rate. The occurrence of these flood-producing rain totals between 2000 and 2012 suggest that one such storm has the potential to happen once every year.

### Risk Assessment

A Level 1 Hazus analysis was run using the Hazus-MH 2.1 flood model. The model was run separately for each town and riverine flooding was done independently of coastal flooding. The analysis used Hazus stock inventory as well as National Elevation Dataset (NED) Digital Elevation Models (DEMs) to model hydrology.

### Building Damage

Building damage was based on a flood depth grid that was created by overlaying the flood depth by the DEM. This flood depth was then used with a depth-damage curve to estimate damages to buildings that are expressed as damage percentages. The 100 yr and 500 yr, now known as the 1% and 0.2% flood, flood depth maps for each town can be found in Appendix F. These two floods were used for the maps since they are the standards used by FEMA in the FIRM maps.

Building damage was expressed as percent damaged. Table 3.9 shows the results for the region. Town specific data can be found in Appendix E.

Table 3.9: Hazus building damage from inland flooding  
**Region (All Towns) Building Damage**

Damage	10 yr	25 yr	50 yr	100 yr	500 yr
1-10%	1	1	0	1	1
11-20%	18	21	24	25	29
21-30%	4	5	8	11	16
31-40%	37	51	56	59	100
41-50%	31	48	63	70	106
>50%	53	53	66	76	104

### Essential Facilities Damage

Damage, as well as loss of use estimates, was generated for all essential facilities. Damage was calculated in the same method as building damage. Loss of use estimates were calculating by assuming a default depth of flood to which the facility may close. This depth threshold for functionality

is different for each essential facility type. Loss of use projections can be found in Figure 3.10. Town specific results can be found in Appendix E. Very few essential facilities end up being effected by any inland flooding event. Only two schools in Fairfield and one police station in Easton was impacted.

Table 3.10:  
Hazus essential facility damage from inland flooding  
**Region (All Towns)**  
**Essential Facilities (Loss of use)**

Damage	Total	10 yr	25 yr	50 yr	100 yr	500 yr
EOC	2	0	0	0	0	0
Fire	16	0	0	0	0	0
Hospitals	4	0	0	0	0	0
Police	16	0	0	0	1	1
Schools	130	0	0	0	0	2

### Debris Generated

Hazus generated estimates for the amount of debris generated from inland flooding. The overall debris generated is in Table 3.11. Fairfield had the most debris generated with 9,307 tons in a 1% event and 10,166 tons in a 0.2% event. Overall, the Region is projected to have 16,063 tons of debris in a 1% flood and 19,534 tons in a 0.2% flood.

Table 3.11: Hazus debris generated from inland flooding  
**Debris Generated (tons)**

Damage	10 yr	25 yr	50 yr	100 yr	500 yr
Bridgeport	1,316	1,437	1,664	1,786	2,222
Easton	615	733	860	980	1,290
Fairfield	7,864	8,297	8,806	9,307	10,166
Monroe	364	556	737	864	1,375
Stratford	547	717	915	1,031	1,469
Trumbull	1,340	1,516	1,816	2,095	3,112
<b>Total</b>	<b>12,046</b>	<b>13,256</b>	<b>14,798</b>	<b>16,063</b>	<b>19,634</b>

### Shelter Needs

Shelter needs were generated in Hazus by the number of households displaced due to the flood and potential evacuation. Displaced houses include not only areas in the flood but near the flood in potential evacuation zones. The number of people

requiring shelter was a fraction of those displaced households and can be found in Table 3.12.

Table 3.12: Hazus results for shelter needs from inland flooding  
**People Requiring Shelter**

Damage	10 yr	25 yr	50 yr	100 yr	500 yr
Bridgeport	720	816	1,002	1,055	1,964
Easton	20	24	31	32	44
Fairfield	867	1,041	1,165	1,270	1,738
Monroe	196	243	278	313	483
Stratford	743	915	1,001	1,053	1,565
Trumbull	124	146	177	213	428
<b>Total</b>	<b>2,670</b>	<b>3,185</b>	<b>3,636</b>	<b>3,936</b>	<b>6,222</b>

### Economic Loss

Economic loss was calculated from both direct property damage and business interruption. Table 3.13 summarizes the combined economic loss for each town. Fairfield had the most losses of any member town. The Region can expect \$347 million dollars in loss from a 1% event and \$425 million from a 2% event.

Table 3.13: Hazus results for economic loss from inland flooding  
**Economic Loss (in millions of dollars)**

Damage	10 yr	25 yr	50 yr	100 yr	500 yr
Bridgeport	\$56.54	\$64.20	\$70.84	\$74.15	\$78.29
Easton	\$10.67	\$12.93	\$14.94	\$16.46	\$19.57
Fairfield	\$74.09	\$85.08	\$94.85	\$103.61	\$119.96
Monroe	\$14.27	\$20.98	\$26.06	\$30.18	\$42.47
Stratford	\$34.58	\$42.35	\$51.15	\$57.82	\$76.56
Trumbull	\$43.14	\$51.60	\$59.81	\$65.53	\$88.52
<b>Total</b>	<b>\$233.16</b>	<b>\$276.31</b>	<b>\$317.63</b>	<b>\$347.76</b>	<b>\$425.37</b>

### 3.7 Hazard Profile – Coastal Flooding

This section updates Section 4 from the 2006 NHMP. This section was updated by using the 2013 FEMA Firm data and documenting events that occurred after 2006. Finally, a Hazus analysis was used to estimate losses for each town.

#### Setting

Coastal flooding is a natural hazard that threatens the Greater Bridgeport Region. Much like inland flooding, coastal flooding represents a common naturally occurring event that causes damage to property and residents' quality of life. The three member communities that are directly impacted by coastal flooding are the City of the Bridgeport and the towns of Fairfield and Stratford.

Bridgeport Harbor is one of three deep water harbors in Connecticut. The harbor is fed by three main tributaries, the largest being the Pequonnock River, followed by the Yellow Mill Channel, and Johnson's Creek/Lewis Gut. Since the adoption of the 2006 Natural Hazard Mitigation Plan, development along the harbor has been drastically reduced. While the United Illuminating plant remains operational, Steel Point remains vacant, Derektor Shipyard has fallen into bankruptcy, and a small marina along the Steel Point development has been acquired by the City via eminent domain. However, many residential neighborhoods lay near the harbor's edge and two marinas exist along the banks of Johnson's Creek.

Much of Fairfield's population resides south of the I-95 corridor. The neighborhoods within the vicinity of Fairfield Beach and Pine Creek have undergone a monumental shift over the recent decades, transitioning from summer cottages to full time residences. This increased the region's year-round population density, which in turn increased concerns for public safety and possible damage inflicted from a coastal flooding event.

A significant portion of the population of Stratford lives along the shoreline and, much like the shift seen in Fairfield, many of Stratford's shoreline cottages have been converted to year round residences. Recently, the cottages located on Long Beach,

a barrier beach connecting Stratford with Pleasure Beach in Bridgeport, were removed and the area converted to permanent open space. In addition to the immediate shoreline along Long Island Sound, the threat of coastal flooding exists for residents that reside along the lower reaches of the Housatonic River.

#### Extent

The most intense coastal flooding is commonly a result of storm surge from hurricanes and tropical storm systems. Historically, the largest storm surge resulted from a Category 3 hurricane in 1938. Coastal flooding risk is also represented by FEMA in 1% and 0.2% flood zones

#### Impacts

Coastal flooding can damage buildings, resulting in loss of functionality at essential facilities and inhabitable homes requiring the need for public shelter for individuals impacted. In addition, coastal flooding can disrupt transportation, create debris, and economic loss. Finally, inland flooding can result in loss of life.

#### Hazard Assessment

In Bridgeport, Fairfield and Stratford, severe flooding can result from astronomically high tide levels along coastal areas. Commonly these extreme high tide events are brought on by a "nor'easter." Characterized by slow moving low-pressure zones, this storm system can occur throughout the year, although it most often occurs during the winter months. Further events can be brought on by tropical systems of varying intensities that pass through the area.

The extent of coastal flooding is depicted in the Figure 3.12, below. It is based on the flood zones relating to a 1% and a 0.2% storm event, as determined by FEMA. Town maps for coastal flooding with enhanced critical facilities can be found in Appendix D.

As explained in the previous section, a 1% flood means that in any given year there is a one percent chance that there will be a storm that will cause widespread flooding and a 0.2% storm as 0.2 percent chance of occurring in a year. Unlike inland



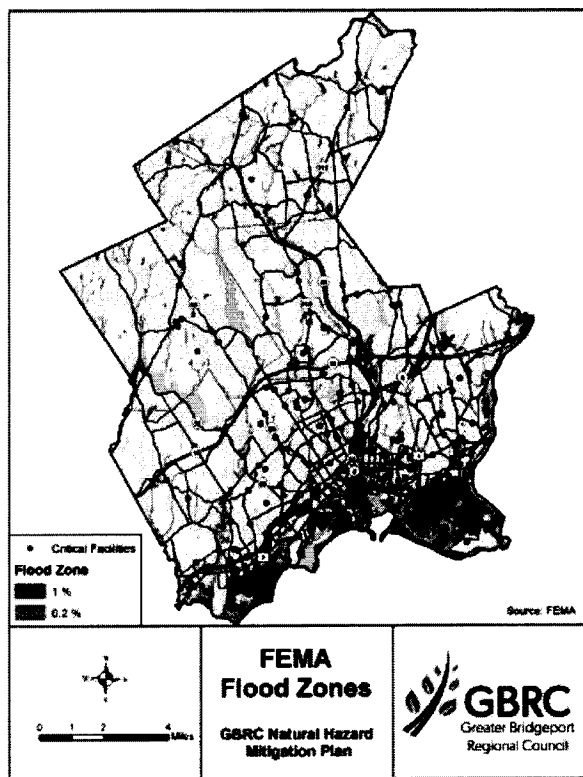


Figure 3.12: Flood zones and critical facilities

flooding, coastal flooding is typically due to hurricanes, tropical systems, nor'easters, or other events that are further discussed in other sections of this plan.

In addition, floods of smaller magnitudes can occur with more frequent regularity. For example, areas within the Region that are proximate to low-lying coastline may be more prone to flooding from unusually high tides. While these events can occur with greater frequency, they are typically far less severe in duration and impact.

The majority of the Region's coastal flooding occurs from storm systems that move up the Atlantic Coast and carry heavy precipitation. This includes tropical systems and hurricanes, and nor'easters. These systems typically carry very low pressure gradients and strong winds. The direct coastal flooding associated with these storms can migrate into tidal and estuarine stream systems.

### Historical Assessment

As mentioned above, flooding, whether coastal or inland, represents the most common and costly

natural hazard in Connecticut. The FEMA FIS identifies the coastal storm events that had the most effect on Fairfield, Stratford and Bridgeport as occurring in 1815, 1938, 1944, 1954, 1955, 1960, 2011, and 2012. The major unnamed hurricane of September 21, 1938, was estimated to cause 600 deaths in New England. Another unnamed hurricane hit the Connecticut coast in September 1944, and Hurricane Carol struck the Connecticut coast in August of 1954. In the following year, 1955, back-to-back hurricanes Connie and Diane caused torrential rains in Connecticut, with up to 12 inches of rainfall in areas from Connie and an additional 10 to 20 inches of rain from Diane.

### Recent Events

More recently, flooding and winds associated with hurricanes and storm events have caused extensive shoreline erosion and related damage. In 1985, Connecticut was impacted by Hurricanes Bob and Gloria, with Gloria directly hitting the coastline. Tropical and extratropical storms have produced periods of locally heavy rainfall. These events have been recorded on June 4 through 7, 1982, May 16, 1989, October 31, 1991, December 10 through 12, 1992, and May 27-June 2, 1994.

The following are additional descriptions and examples of more recent major flooding events in the region. These examples are drawn from the National Climatic Data Center Storm Events Database, as well as from discussions with municipal stakeholders.

#### March 19, 1996

A strong low pressure system moving northeast off the Delmarva Coast brought strong winds of 40 to 50 MPH across much of the region. The strong winds pushed water inland producing tides two-to-four feet above normal. This resulted in a moderate flooding along much of western Connecticut's shoreline.

#### October 19, 1996

A system that developed over the Delmarva Peninsula brought easterly gale force winds (40 mph) across Long Island that persisted from late Friday through Saturday. This caused tides to exceed their astronomical means, and produced tide levels of three-to-five feet above normal. In turn, varying

amounts of coastal flooding were reported along with varying degrees of beach erosion. In Stratford, roadways were covered with up to three feet of water leaving residents stranded. The Fairfield Beach area also experienced flooding. Sand was pulled from the beaches and deposited yards away in the basements and first floors of resident's homes.

March 13, 2010

The right combination of high and low pressure in the region created a prolonged period of strong easterly winds. This resulted in tidal heights of three to five feet above normal, with many locations reporting higher levels than seen in 20 years. The National Oceanic Service (NOS) tidal gauge in Bridgeport reported a maximum tide level of 10.4 feet. This produced moderate flooding which closed many roads close to the shoreline. Roads crews had to be brought in to remove sand and debris from roadways.

October 29, 2012

Superstorm Sandy produced a storm surge of 8-to-9 feet along much of western Long Island Sound, with its effects further exacerbated by its coincidence with the high tide. This produced up to two to five feet of inundation that spread several blocks inland in many places. In certain areas the inundation reached north of I-95, including areas along the Pequonnock River in Bridgeport along with Ash Creek and the Mill River in Fairfield.

February 27, 2013

Strong onshore winds were produced from a complex low tracking northeast system through the Ohio Valley. The winds produced a two to three foot storm surge for much of southwest Connecticut, resulting in widespread minor to locally moderate flooding. The Birds Eye Marina in Stratford experienced moderate inundation of up to three feet, similar flooding was experienced along Housatonic River where the marina lies.

Recent events have also demonstrated that the extent of coastal flooding has exceeded the limits indicated on FEMA mapping. Inundation of flood waters from both Tropical Storm Irene and Superstorm Sandy extended farther inland than expected.

## Hazard Probability

Based on the review of historical records, severe rain storms that result in moderate-to-severe coastal flooding occur about once every three-to-four years.

## Risk Assessment

A Level 1 Hazus analysis was run using the Hazus-MH 2.1 flood model. The analysis used Hazus stock inventory as well as National Elevation Dataset (NED) Digital Elevation Models (DEMs) to model hydrology. The NED DEM is a low resolution (30 meter) dataset. This low resolution may have led to overestimation of damage from small events which is evident in the following results. The coastal flooding model was run independently for the three coastal communities (Bridgeport, Fairfield, Stratford).

## Building Damage

Building damage was assessed using the same methodology described in subsection 3.6. Town specific damage can be found in Appendix E. Table 3.14 summarizes the damage for the Region. One-thousand buildings would be more than 50% damaged from a 100 year coastal flood and over 3,400 buildings in a 500 year event.

Table 3.14: Hazus building damage from coastal flooding.  
**Region (Coastal Towns) Building Damage**

Damage	10 yr	25 yr	50 yr	100 yr	500 yr
1-10%	8	9	8	8	2
11-20%	307	337	265	235	236
21-30%	820	1,052	970	794	537
31-40%	458	771	1,604	1,283	899
41-50%	385	657	1,500	2,195	2,063
>50%	36	136	500	1,000	3,406

## Essential Facilities Damage

Essential Facility damage and loss of use estimates were calculated in the same method described above in subsection 3.6. Town specific loss of use projections can be found in Appendix E. As apparent in Table 3.15, below, essential facilities are impacted in every flood scenario. Schools were the most impacted by coastal flooding.

Table 3.15: Hazus essential facility damage from coastal flooding  
**Region (Coastal Towns)**  
**Essential Facilities (Loss of use)**

Damage	Total	10 yr	25 yr	50 yr	100 yr	500 yr
EOC	2	0	0	0	0	0
Fire	16	0	0	2	2	2
Hospitals	4	0	0	0	0	0
Police	16	1	1	3	4	3
Schools	130	2	3	7	8	14

### Debris Generated

Hazus generated estimates for the amount of debris generated from coastal flooding. The amount of debris generated was much larger than those from wind and inland flooding hazards. Table 3.16 summarizes the debris generated from different flooding scenarios.

Table 3.16: Hazus results for debris generated from coastal flooding  
**Debris Generated (tons)**

Damage	10 yr	25 yr	50 yr	100 yr	500 yr
Bridgeport	1,415	4,324	11,168	25,449	110,450
Fairfield	39,215	63,245	107,645	172,718	272,594
Stratford	9,536	16,252	43,665	83,154	229,056
<b>Total</b>	<b>50,166</b>	<b>83,821</b>	<b>162,508</b>	<b>281,321</b>	<b>612,100</b>

### Shelter Needs

Shelter needs were generated in Hazus by the number of households displaced do to the flood and potential evacuation. Displaced houses include not only areas in the flood but near the flood in potential evacuation zones. The number of people requiring shelter was a fraction of those displaced households and can be found in Table 3.17.

Table 3.17: Hazus shelter needs from coastal flooding  
**People Requiring Shelter**

Damage	10 yr	25 yr	50 yr	100 yr	500 yr
Bridgeport	1,901	3,356	6,819	9,677	18,511
Fairfield	5,512	6,187	7,069	7,578	9,442
Stratford	4,646	5,943	7,638	8,597	9,904
<b>Total</b>	<b>12,059</b>	<b>15,486</b>	<b>21,852</b>	<b>25,852</b>	<b>37,857</b>

### Economic Loss

Economic loss was calculated as in the subsection 3.6. Table 3.18 summarizes the combined economic loss for each town. While Fairfield has the most buildings damaged, and shelter needs, Bridgeport still experiences the greatest economic loss. The Region is projected to lose over \$2.4 billion in a 1% event and almost \$3.8 billion in a 0.2% coastal flood.

Table 3.18: Hazus results for economic loss from coastal flooding  
**Economic Loss (in millions of dollars)**

Damage	10 yr	25 yr	50 yr	100 yr	500 yr
Bridgeport	\$55.39	\$11.42	\$357.61	\$645.84	\$1,343.51
Fairfield	\$247.46	\$394.53	\$655.86	\$795.18	\$1,257.24
Stratford	\$320.02	\$486.53	\$764.41	\$967.10	\$1,198.34
<b>Total</b>	<b>\$642.87</b>	<b>\$1,000.48</b>	<b>\$1,777.88</b>	<b>\$2,408.12</b>	<b>\$3,799.09</b>

### 3.8 Hazard Profile – Sea Level Rise

This section updates Section 6 from the 2006 NHMP. It updates sea level rise scenarios with the most recent International Panel on Climate Change (IPCC) report from 2007. This plan also includes a figure displaying sea level rise scenarios from The Nature Conservancy.

#### Setting

Sea level rise has the potential to impact all low-lying areas near the shore and unlike other natural hazards, is one that is constant and ongoing.

#### Extent

Sea level rise has been occurring since the last ice age. Over the last 100 years sea level has risen 15-30cm. By 2100 the International Panel on Climate Change (IPCC) predicts sea level will rise between (9-88cm)

#### Impacts

Sea level rise exacerbates the impacts from coastal flooding. In addition, sea level rise can result in permanent property loss.

#### Hazard Assessment

Sea level rise results from thermal expansion of seawater and the melting of land based ice sheets and glaciers. The Intergovernmental Panel on Climate Change (IPCC) estimated that the global mean sea level rose by 17 centimeters (-6.7 inches) in the 20th Century. The IPCC also reported an observed rate increase of 1.8 millimeters/year (-0.07 inches) between 1961 and 2003, while the rate was almost double from 1993 to 2003 to an average yearly rise at 3.1 millimeters (-0.12 inches).

As sea level rises, tidal marshes and barrier islands will be the first areas to experience damage. Within the Greater Bridgeport Region, the three coastal communities of Bridgeport, Fairfield and Stratford, will be highly susceptible to damage from sea level rise. These municipalities have a coastline that extends about 15.5 miles and contain many tidal marshes, inlets, embayments, rivers and creeks, all of which will be affected by sea level rise.

#### Historic Record

Sea levels have been constantly rising since then end of the last ice age. However, it is only in the last 20 years that this change has been increasing at a more rapid rate, and its threat realized. Along the Atlantic Coast, it is estimated that by the end of the century sea levels could rise anywhere from 20-to-40 inches, with higher amounts possible depending on the effect of melting polar ice.

Connecticut is realizing a relative sea level rise greater than that of the rest of the globe. During the past ice age much of the northern hemisphere was covered in up to a mile of ice. The immense size of these glaciers warped the Earth's crust, causing the northeast to be slightly uplifted. Since the ice has melted, the crust is slowly evening out, leading to Connecticut sinking at approximately 0.76-to-0.89 millimeters per year ( $\approx$ 0.03-to-0.035 inches). This only further complicates assessing and predicting the long term effects of continued sea level rise.

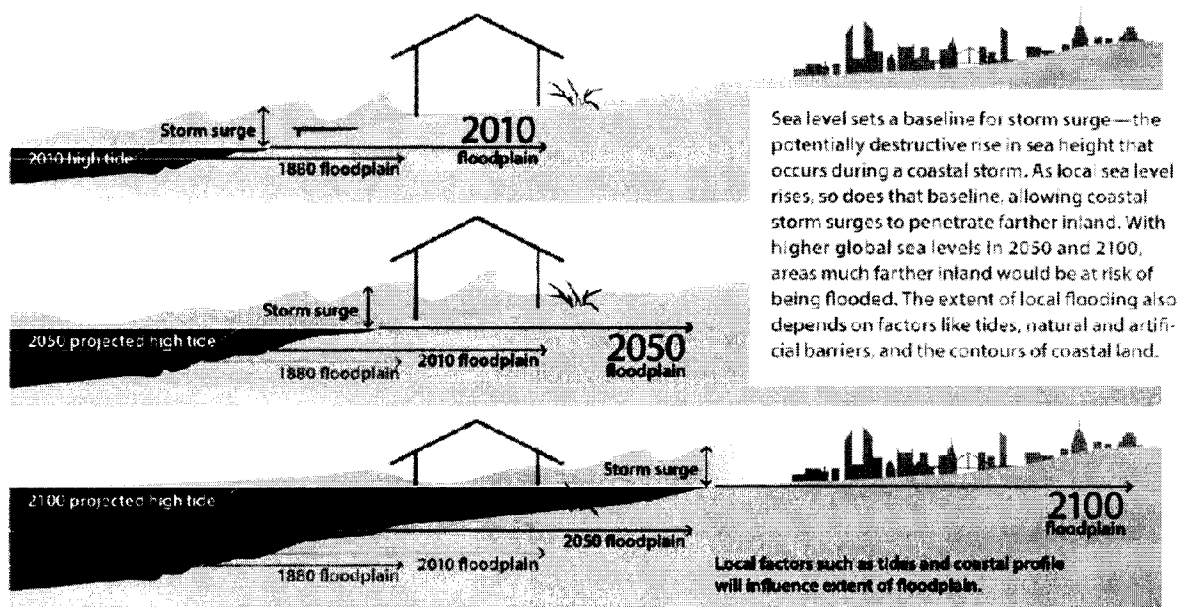
The IPCC concluded that there has been a global mean rise in sea level between 10 and 25 centimeters (-4-to-10 inches) over the last 100 years. Relative sea level rise in Connecticut in the same time period is estimated between 15 and 30 centimeters (-6-to-12 inches). The IPCC further estimates that global sea level will rise 9 to 88 centimeters (-3.5 to 34.5 inches) during the 21st century.

In Connecticut, the current rate of sea-level rise is 2.54 millimeters (0.10 inches) per year in Bridgeport and 2.03 millimeters (0.08 inches) per year in New London. These trends exceed the global mean trend of sea level rise of around 1.52 +/- 0.51 millimeters (0.06 +/- 0.02 inches) per year. Including the effects of regional subsidence, sea level is likely to rise two feet along most of the Atlantic Coast in the next 100 years.

#### Risk Assessment

Rising sea levels will impact both the natural and manmade coastal environments. It could result in the disappearance of a large portion of Connecticut's tidal wetlands, and the conversion of upstream wetlands to saltwater marshland. Beachfront communities will see increased erosion of the sand and dune structures, which potentially will lead to more extreme and frequent flooding. Dikes and sea walls

### Storm Surge and High Tides Magnify the Risks of Local Sea Level Rise



© Union of Concerned Scientists 2013; [www.ucsusa.org/sealevelrise/science](http://www.ucsusa.org/sealevelrise/science)

Figure 3.13: Effects of sea level rise on storm surge. Source: Union of Concerned Scientists 2013

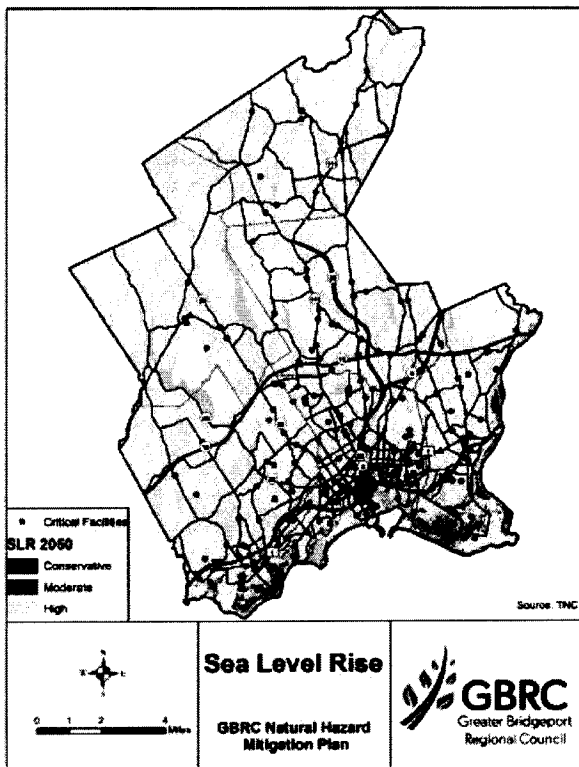


Figure 3.14: Sea level rise projections. Source: The Nature Conservancy

that are in place now could see a rapid decline in their effectiveness, potentially increasing the frequency and extent of flooding of coastal areas.

As sea levels rise, drainage systems will become less effective, leading to the potential for greater flooding from even moderate rain events. Bridgeport already experiences problems with inadequate storm drainage in coastal neighborhoods; a higher water table will only exacerbate this problem. Future storm events, especially those with an accompanying strong storm surge, will pose an even greater threat to coastal and low lying communities. Storm surges from hurricanes and nor'easters will reach further inland, impacting a greater portion of the region. The flooding and inundation that typically occurs from a Category 3 hurricane could, by the end of this century, result from a Category 1 storm. This phenomenon is portrayed in Figure 3.13. Sea level rise for the Region is shown in Figure 3.14. Town specific sea level rise maps can be found in Appendix D.

### 3.9 Repetitive Loss Properties

Properties that experience damage from recurring flooding and have made multiple claims under the National Flood Insurance Program are referred to as “repetitive loss” properties. Because of the multiple claims under the NFIP, these properties are costly to insure and strain on FEMA resources. The FEMA offers grant programs to assist communities and states in implementing actions that reduce or eliminate the long-term risk of flood damage to focus on repetitive loss properties. The primary objective of these programs is to eliminate or reduce the damage to residential property caused by repeated flooding. Funds are provided to implement various mitigation measures that will reduce future flooding losses. Possible mitigation actions include acquisition or relocation of severe repetitive loss properties and elevating existing structures.

FEMA has defined two classes of repetitive loss properties;

A Severe Repetitive Loss (SRL) property is defined as a residential property that is covered under an NFIP flood insurance policy and meets one of the following criteria:

1. That has had at least four NFIP claim payments (including building and contents) over \$5,000 each, and the cumulative amount of such claims payments exceeds \$20,000; or
2. For which at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the

market value of the building; and

3. For both criteria, at least two of the referenced claims must have occurred within any ten-year period.

A Repetitive Loss (RL) property is defined as a residential property that is covered under an NFIP flood insurance policy and meets one of the following criteria:

1. That has incurred flood-related damage on 2 occasions, in which the cost of the repair, on the average, equaled or exceeded 25% of the market value of the structure at the time of each such flood event; and
2. At the time of the second incidence of flood-related damage, the contract for flood insurance contains increased cost of compliance coverage.

A list of repetitive loss properties was obtained from the Connecticut Department of Energy and Environmental Protection. These data were used to identify general areas where properties are susceptible to recurring flooding that cause repetitive losses. In total, 316 properties in the Region have experienced repetitive losses, and thirteen of these met the criteria for severe repetitive loss properties as noted in Table 3.19.

Not surprising, the vast majority of the repetitive loss properties are located in one of the coastal communities, with the Town of Fairfield the home of the most with 144 properties. Of the other RL properties, almost all are located in Trumbull; there is only one RL property in Monroe and none in Easton. Of the thirteen SRL properties, ten are in Fairfield.

Table 3.19: Repetitive loss properties. Source: CT DEEP  
**REPETITIVE AND SEVERE REPETITIVE LOSS PROPERTIES  
 GREATER BRIDGEPORT PLANNING REGION**

Town	Repetitive Loss Properties (RL)						Severe Repetitive Loss Properties (SRL)
	Single Family	2-4 Family	Condo	Other Resident	Non-Resident	Total	Total
Bridgeport	48	17	3	4	10	82	0
Easton	0	0	0	0	0	0	0
Fairfield	129	6	2	0	7	144	10
Monroe	1	0	0	0	0	1	0
Stratford	52	3	0	0	9	64	2
Trumbull	24	0	0	0	1	25	1
<b>Total</b>	<b>254</b>	<b>26</b>	<b>5</b>	<b>4</b>	<b>27</b>	<b>316</b>	<b>13</b>

While disclosure regulations prohibit the identification of the address of repetitive loss properties, the general areas that have experienced recurring flooding that has resulted in multiple losses were mapped. These were then aggregated into Census blocks to maintain property anonymity but allow the aggregated data to be displayed in Figure 3.15. Repetitive loss maps for each town can be found in Appendix D.

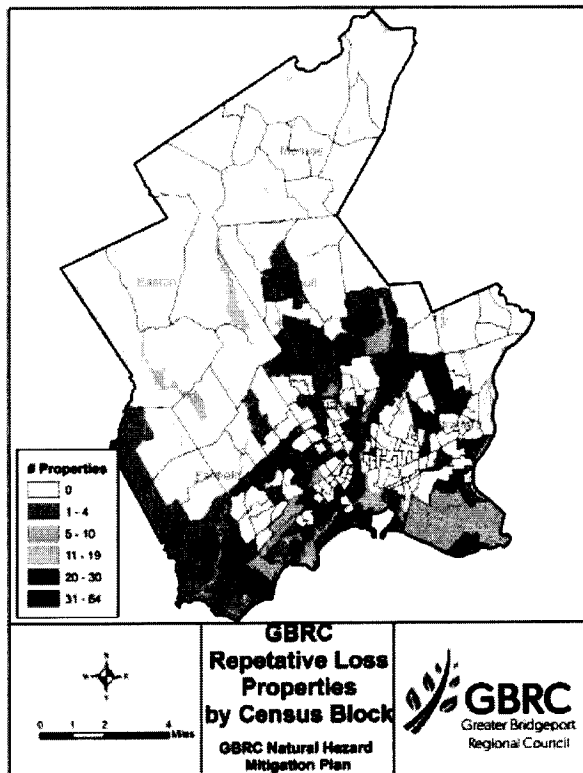


Figure 3.15: Repetitive loss in the Region. Source: CT DEEP

### 3.10 Hazard Profile – Winter Storms

This section updates Section 8 from the 2006 NHMP. Storms that occurred after 2006 were documented and tables and figures describing previous storms included. Finally, snowfall maps from NOAA were included.

#### Setting

Winter weather affects the Region indiscriminately, bringing not only the typical threats of snow, wind, and ice, but concerns of extreme cold and flooding. Furthermore, the results of any one these events can create tertiary hazards as well; these include loss of power and heat. While severe winter weather is commonly associated with the months of December, January, and February, the potential exists for occurrences from late September through mid-May.

Although the entire Region is susceptible to winter storms, the geography, topography and its location along Long Island Sound influence the severity of different events. Because of their proximity to Long Island Sound, the coastal and low lying areas receive less snow amounts than the more northern reaches. However, the temperature variations can affect precipitation mix during a winter storm. Warmer temperatures can create changeable conditions. Along the coast, it is not uncommon for a mixture of snow, sleet and freezing rain to occur, while most of Easton, Monroe and Trumbull are receiving only snow. These conditions affect driving conditions, damage to trees and power distribution.

#### Extent

Winter storms impact the Region annually. The intensity of the storms vary between years but recently there have been high impact events including one storm which dropped 36" of snow.

#### Impacts

Winter storms commonly disrupt transportation and result in loss of power. Severe events can also cause moderate building damage and loss of life. At risk populations such as the elderly and disabled are more impacted by winter storms.

## Hazard Assessment

Winter storms and weather range from blizzards, ice storms, heavy snow, sleet, freezing rain and extreme cold. Most deaths from winter storms result from traffic accidents on icy roads and hypothermia from prolonged exposure to cold. Damage to trees and tree limbs and the resultant downing of utility cables are a common effect of these types of events. Secondary effects include loss of power and heat.

The possible weather events that can impact the region are described below:

### Blizzard

The main characteristic of a blizzard is that it has conditions of sustained winds or frequent gusts of 35 mph or more. The high winds cause blowing and drifting of snow and reduction of visibility. By definition, visibility is reduced to less than one-quarter mile for three or more hours. Extremely cold temperatures are often associated with blizzard conditions.

### Winter Storm

A heavy snow event results in a snow accumulation of more than six inches in twelve hours, or more than twelve inches in twenty-four hours. Unlike a blizzard, a heavy snow event does not have the high, sustained winds that can cause reduced visibility and down trees and power lines.

### Freezing Rain

Temperatures at higher levels are warm enough for rain to form but surface temperatures are below 32 degrees. The rain freezes on contact and coats objects such as trees, cars or roads, forming a glaze of ice. Freezing rain is generally associated with an approaching warm front and cold air is trapped at lower levels in the atmosphere. When a substantial amount of freezing rain occurs and at least one-quarter inch of ice accumulates, it is referred to as an "Ice Storm." The freezing rain from an ice storm can create hazardous walking and driving conditions, and cause trees and branches to break from the weight of built-up ice. Power lines are susceptible to spanning from the weight of ice build-up.

### Nor'easter

The classic winter storm in New England is the nor'easter. It forms as a low-pressure disturbance

along the south Atlantic coast, moves northeast along the Middle Atlantic and the New England coasts and collides with a cold, dry high pressure system moving down from the north. Strong northeast winds are created and wind driven waves can batter the coastline, causing flooding and severe beach erosion. Coupled with a high tide, the low pressure of a nor'easter can have an effect similar to a storm surge from a hurricane. During the winter months and if the temperatures are right, heavy snow totals are possible.

### Sleet

Unlike freezing rain, sleet is formed by water droplets that freeze into ice pellets before reaching the ground. Sleet usually bounces when hitting a surface and does not stick to objects. However, it can accumulate like snow and cause a hazard to motorists. It typically falls as a mix of snow and freezing rain.

## Historical Record

The National Oceanic and Atmospheric Administration (NOAA) has developed a Northeast Snowfall Impact Scale for the northeast that rates winter storms into five categories: Extreme, Crippling, Major, Significant, and Notable. The index considers the impact the storm had on the area and is based on snowfall amounts, size of the area impacted and the population within the path of the storm. Winter storms since the mid-1950s to 2013 were reviewed. During that time period, 47 high impact snowstorms that affected the northeast were identified and rated:

Two were rated Extreme:

- March 12, 1993
- January 6, 1996

Nine were rated Crippling:

- February 14, 1958
- March 2, 1960
- February 2, 1961
- January 11, 1964
- December 25, 1969
- January 19, 1978
- February 10, 1983
- February 15, 2003
- January 21, 2005



Eighteen were rated Major:

- December 11, 1960
- January 18, 1961
- January 29, 1966
- February 22, 1969
- February 18, 1972
- February 5, 1978
- February 17, 1979
- January 21, 1987
- February 8, 1994
- February 12, 2006
- February 12, 2007
- February 4, 2010
- February 9, 2010
- February 23, 2010
- December 24, 2010
- January 9, 2011
- February 1, 2011
- February 7, 2013

The start date for these events are illustrated in Figure 3.16

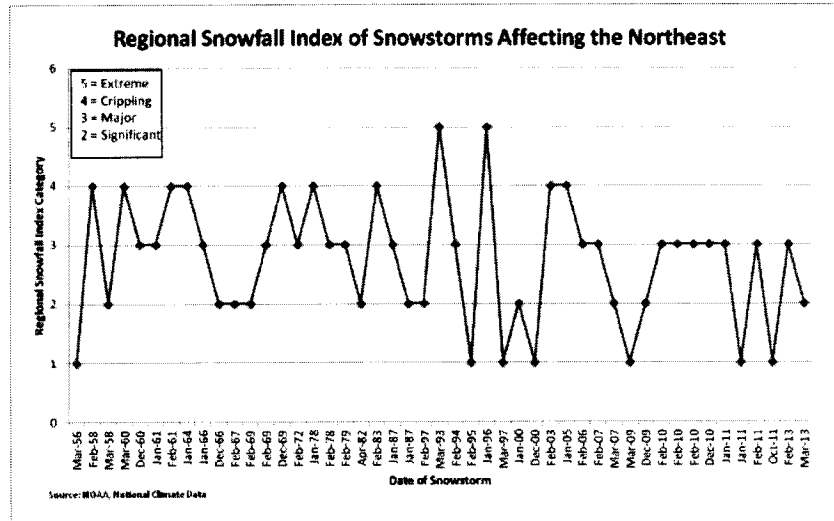


Figure 3.16: Index of snowstorms affecting the Northeast. Source: NOAA National Climate Center

Nine were rated Significant:

- March 18, 1958
- December 23, 1966
- February 5, 1967
- February 8, 1969
- April 6, 1982
- January 24, 2000
- December 18, 2009
- March 15, 2007
- March 4, 2013

Severe winter storms can produce an array of hazardous weather conditions, including heavy snow, blizzards, freezing rain and ice pellets and extreme cold. Based on the RSI, nearly one-quarter of the snowstorms were considered either extreme or crippling to the Northeast, while the majority were categorized as major. The remainder of the snowstorms were listed as significant or notable as seen in Figure 3.17

Nine were rated Notable:

- March 18, 1956
- January 25, 1987
- February 22, 1987
- February 2, 1995
- March 31, 1997
- December 30, 2000
- March 1, 2009
- January 26, 2011
- October 29, 2011

Number of Snowstorms Affecting the Northeast by Regional Snowstorm Index category

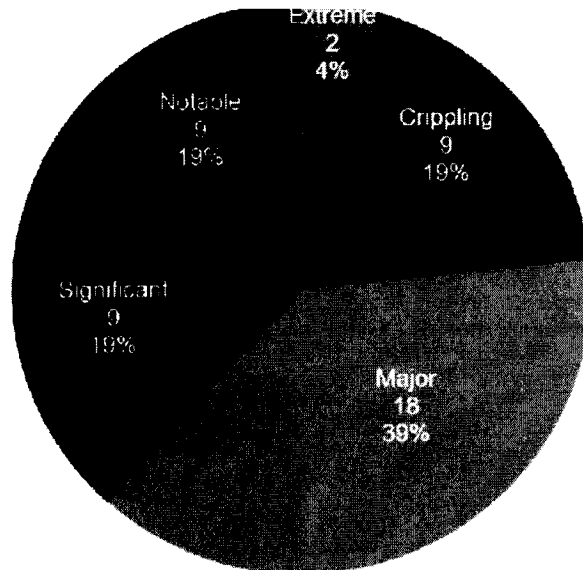


Figure 3.17: RSI rating for winter storm occurrences. Source: NOAA

## Recent Events

On February 11th and 12th, 2006, Connecticut received record snowfall from a relatively minor system that started along the southern Appalachian range. It intensified over the Atlantic and developed into a nor'easter and became known as the North American Blizzard of 2006. State highways were closed to facilitate clean-up and the state was declared a federal disaster area. About 27.8 inches of snow was recorded in Fairfield as seen in Figure 3.18.

On January 9, 2011, Connecticut was hit by a winter storm that dropped up to two feet of snow, with 24.1 inches recorded in Danbury, 29 inches in Newtown and 22.5 inches in Hartford. In the Region, snowfall amounts totaled 16.5 inches in Bridgeport and were up to 20 inches in several northern areas as seen in Figure 3.19. Colder-than-expected temperatures resulted in the higher snowfall totals.

In late October 2011, a historic and unprecedented early-season winter storm impacted the area with up to 18 inches in some parts of Connecticut as seen in Figure 3.20. This was the first time a winter storm of this magnitude occurred in October. The storm is often referred to as the 2011 Halloween nor'easter or Storm Alfred. The combination of high winds and wet, heavy snow caused trees and power lines to snap. About 830,000 customers lost power throughout the state, and many remained without electricity for over a week. Almost the entire state was declared a federal disaster area; New London County was the only exception.

The most recent winter storm to affect the Region was the February 2013 nor'easter, commonly referred to as Winter Storm Nemo. The snow storm developed from the combination of two areas of low pressure, one originating in the northern plains and the other forming over Texas. The National Weather Service issued blizzard warnings for all of Connecticut on February 7th and Governor Malloy declared a state of emergency on February 8th and ordered the closure of all limited access highways. The snow-storm resulted in heavy snowfall and blizzard force winds. The highest amounts were recorded in Hamden at 40 inches, while 30-to-36 inches blanketed the Region as seen in Figure 3.21, below.

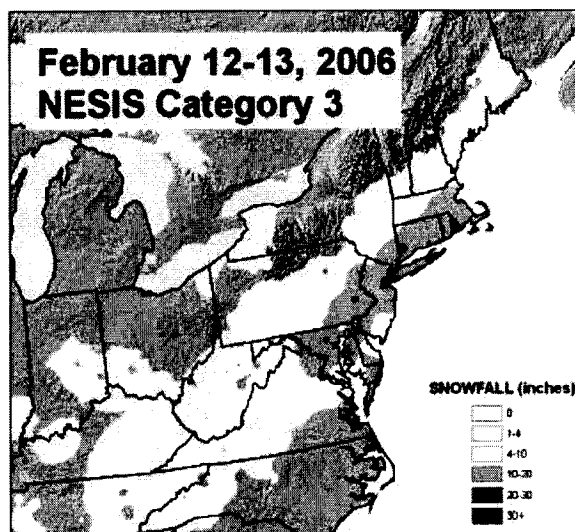


Figure 3.18: Snowfall totals from NOAA for February 2006 storm

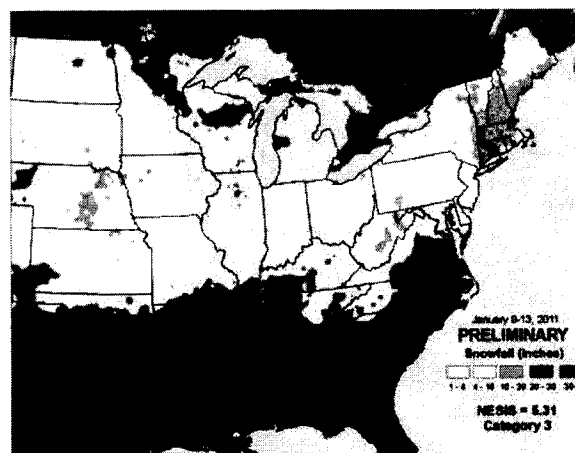


Figure 3.19: Snowfall totals from NOAA for January, 2011 storm

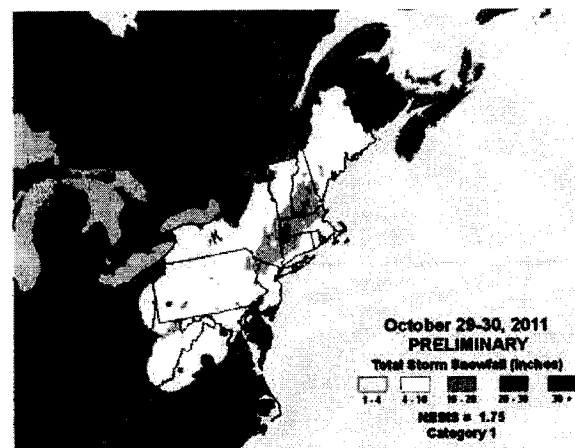


Figure 3.20: Snow totals from NOAA for Winter Storm Alfred

During the evening and overnight, snow was falling at an extreme rate of six inches per hour.

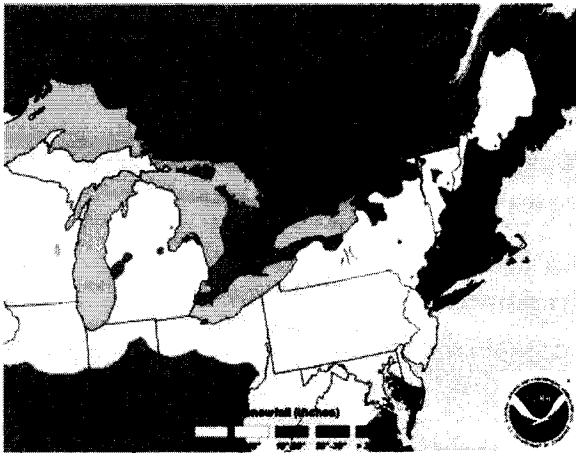


Figure 3.21: Snow totals from NOAA for Winter Storm NEMO

### Hazard Probability

Connecticut experiences at least one severe winter storm every five years. However, a variety of small and medium snow and ice storms occur nearly every winter. The probability of a nor'easter or any other winter storm occurring in any given winter is likely. The data from the NCDC suggest that the Northeast experiences a severe snowstorm every 1.2 years or, effectively, the area can expect at least one notable snow event every year.

### Risk Assessment

The entire Region is vulnerable to the impacts of winter storms. While there may be damage to structures directly from the winter weather, the tertiary effects are what impact the Region the most.

Transportation is severely impacted by winter storms as heavy snowfall and icy conditions can make roadways dangerous and in some cases impassible. This greatly restricts access to hospitals and other medical care facilities which puts everyone at risk during an event. People in more rural areas of the Region are also more impacted as travel is mostly limited to personal vehicles. In addition, rural areas often take longer to clear the roads often forcing people to stay in their homes. Even when roads are cleared, vulnerable populations such as the elderly and disabled may be unable to clear their own walks and driveways, leaving them trapped inside.

In addition to travel impediment, winter storms also have the potential to knock out power in the Region. Without power many individuals will be without heat, again putting certain populations such as the elderly more at risk.

## 3.11 Hazard Profile – Summer Storms and Tornadoes

This section updates Section 7 from the 2006 NHMP. This plan replaces the Fujita scale with the Enhanced Fujita scale and includes events that occurred after 2006.

### Setting

Unlike many other natural hazard events that are more likely to affect only certain portions of the Region, summer storms and tornadoes have the potential to affect the Region indiscriminately. These systems can bring with them torrential rains, damaging winds, dangerous lightning, and large hail. Furthermore, due to the complex nature of these storms, the affected area from an event could be very small, perhaps only a few blocks within a single town, or a system could impact the entire Region.

### Extent

Summer storms occur annually with varying degrees of intensity. Tornadoes are not common in the Region but have occurred in the past. In 1950, an EF-2 tornado, classified as a “strong” tornado, was the most severe tornado to impact the Region.

### Impacts

Summer storms can result in downed trees, power loss, and loss of life from lightning strikes. Tornadoes can result in severe building and vehicular damage and loss of life.

### Hazard Assessment

Severe summer storms include tornadoes, downburst, lightning, high winds, heavy rain and hail. These weather systems can cause flash floods, as well as, downed trees and power lines. The possible weather events that can impact the region are described below:

## Summer Storms

The development of a thunderstorm occurs in several stages. These stages include growth, development, electrification, and finally dissipation. For all of these stages to occur a precise combination of atmospheric conditions must be present. The formation of these storm cells often begins early in the morning when the sun's rays begin to warm the lower levels of the atmosphere; this warmer air mass begins to rise. It is these rising pockets of warm air that produce cumulus clouds. As the day progresses and the atmosphere warms further the clouds grow vertically, creating towering cumulus clouds. The rapid vertical growth is the first sign that a potentially severe thunderstorm is developing. The final maturation of the cloud structure occurs when the very top of the cloud expands outward, producing a cloud that resembles mushroom or an anvil.

To help warn residents to the arrival of potentially severe and destructive storms systems the National Weather Service utilizes a system of watches and warnings to designate the potential for damaging weather. The following definitions are pulled directly from the National Oceanic and Atmospheric Administration's webpage.

### Severe Thunderstorm Watch

A Severe Thunderstorm Watch outlines an area where organized episodes of hail one inch in diameter or larger, and/or damaging winds are expected during a three-to-eight hour period. Winds for a severe thunderstorm must be in excess of 58 miles per hour or 50 knots. Typical watches cover about 25,000 square miles.

### Severe Thunderstorm Warning

A Severe Thunderstorm Warning outlines an area where organized episodes of hail one inch in diameter or larger, and/or damaging thunderstorm winds have developed and are occurring, or are imminent. Winds for a severe thunderstorm must be in excess of 58 miles per hour or in excess of 50 knots. Unlike a watch, a Severe Thunderstorm Warning is generally only issued for small areas where the severe weather is likely to impact the region in the very near future.

## Hail

Hail is a severe weather phenomenon that can occur within strong thunderstorms where large updrafts are present. Water droplets at the base of the cloud structure are carried upwards by strong updrafts where much colder temperatures at the top of the cloud freeze the droplets. As they fall back down towards earth the droplets are caught again by an updraft and carried to the upper level of the cloud structure. With each trip from the bottom to the top of the cloud the frozen droplets become larger, forming the hailstones. This process repeats itself until the mass of the hailstones exceeds the capacity of the updraft to carry it aloft once more. This means that the stronger the updraft within a storm, the larger hailstones it is capable of producing. Hail has the potential to be extremely devastating; with hail above  $\frac{3}{4}$  of an inch in diameter capable causing significant damage to crops, persons, and property. While correlations can be drawn between the presence of hail and a tornado, primarily because of the updrafts and downdrafts required for both to occur. The presence of hail does not mean a tornado is imminent nor does its absence mean there is no risk of a tornado.

## Lightning

Lightning is an exceptionally dangerous hazard that is most commonly associated with thunderstorms. It is reported to have killed 17 Connecticut residents from 1959 to 2012; ranking the state 41st in the country for the number of lightning fatalities. A lightning strike is the product of a completed circuit between positive and negative charges within the thunderstorm cloud or between that thunderstorm cloud and the ground. Initially the atmosphere acts as an insulator between the positive and negative charges, however when the potential between the two becomes too great a rapid discharge of electricity occurs, producing a lightning strike.

Lightning can occur, primarily, in two different forms. Intra-cloud lightning occurs between oppositely charged particles within the thunderstorm cloud structure. Because the discharge occurs within the cloud structure, it poses little threat to human life or destruction of property. The second form of lightning is cloud-to-ground lightning. This form occurs either between negatively charged particles at

the base of the cloud and positively charged particles on the ground; or positively charged particles at the top of the thunderstorm structure and negatively charged particles on the ground. Unlike the intra-cloud lightning mentioned, cloud-to-ground lightning can pose a great threat to both human life and property.

**Downbursts**

Downbursts are a severe weather occurrence that occasionally accompanies a severe thunderstorm. While much of a thunderstorm's life cycle is dominated by strong updrafts that carry warm, moist, and unstable air aloft, a downburst develops when large portions of unstable air mass begin to fall, creating a downdraft. As the air mass falls it begins to gain immense speed. When the air mass contacts the ground it expands outwards rapidly forming the actual downburst. These straight line winds can easily exceed 100mph. Downbursts can occur in two forms depending on their size: 1) if the affected area is less than 2.5 miles in diameter the occurrence is categorized as a Microburst, and 2) for those occurrences that affect an area greater than 2.5 miles in diameter, it is categorized as a Macro burst.

**Tornadoes**

In meteorological terms defined by NOAA, "a tornado is a violently rotating column of air, usually pendant to a cumulonimbus [cloud structure], with circulation reaching the ground. It nearly always starts as a funnel cloud and may be accompanied by a loud roaring noise. On a localized basis, it is the most destructive of all atmospheric phenomena." Tornadoes are the product of a severe thunderstorm that has progressed in such a way to produce the low level rotation needed for tornado development. Since the last adaptation of the Regional Natural Hazard Mitigation Plan, the scale by which the severity of a tornado is measured has been modified. The original scale was created in 1971 by Dr. Ted Fujita, a University of Chicago severe storms research scientist. This original scale was dubbed the F-scale, from F-0 to F-5, with the severity of a tornado based upon wind speed. While the current scale is similar to the F-scale, the wind speeds and parameters by which the damage is assessed have been greatly improved. The severity of a tornado is now measured using the Enhanced Fujita scale which ranks tornados based

on their estimated wind speeds and the reported damage from the event. The scale ranks tornadoes from EF-0 to EF-5, with an EF-0 being the least severe and an EF-5 being the most severe as seen in Table 3.20. The new scale uses 28 damage indicators that are each assigned a value of 1 through 8.

Table 3.20: Enhance Fujita Scale. Source: National Weather Service

**ENHANCED FUJITA SCALE FOR TORNADES**

EF Scale	Intensity	Wind Speed (mph)
EF-0	Gale	65-85
EF-1	Weak	86-110
EF-2	Strong	111-135
EF-3	Severe	136-165
EF-4	Devastating	166-200
EF-5	Incredible	>200

**Historic Record**

**Severe Thunderstorms**

Records of severe thunderstorm events within the Region were gathered from NOAA's National Climatic Data Center, Storm Events Database. The data provides detailed information on the events and their affects and is for time period from January 1, 1996 to present. Of special note is the severe thunderstorm that occurred on June 24, 2010. This storm caused severe damage throughout the Region.

On June 24, 2010 a cold front and strong upper level trough moved across New England, and this unstable air mass spawned lines of severe thunderstorms across southwestern Connecticut during the afternoon hours. The accompanying super-cells and squall lines produced an EF1 tornado in Bridgeport and severe winds and hail across the remainder of the region. The extent of the damage from this single event was vast.

The City of Bridgeport was impacted more greatly than the remainder other parts of the Region. The devastation was caused by exceptionally powerful straight line winds, believed to be in excess of 100mph, along with a small EF1 tornado. This led to the total collapse of five buildings and severe damage to at least nine other structures, including the Morton Government Center and Barnum Museum in the downtown area. Damage also included a

billboard being blown off the roof of an apartment building, blown out windows, building façade damage, and over-turned vehicles on I-95 and Route 8/25, including a tractor trailer. The vicious storm was also responsible for the downing of hundreds of trees, with two falling on a house. At the Sikorsky Memorial Airport a wind gust tore a roof off of a hanger, shattering the structure's windows and cracking its foundation. Several planes suffered minor damage from the incident. The winds also caused structural damage to the old terminal building. Debris from the two buildings also damaged a local bar adjacent to the property. The damage sustained to the airport totaled \$50,000. The National Weather Service (NWS) determined that an EF-1 tornado did impact the City, in a very localized area to the north of I-95 from about Route 8/25 to Pembroke Street. The NWS survey found signs of rotation in the area, including blown-in windows, peeled-off exterior façades from homes, and sheared off trees tops. Reports from eyewitnesses described near zero visibility, with a rain wrapped tornado surrounded by swirling debris. Three residents were directly injured from the tornado. The sum of this damage led to the partial closure of at least 57 streets, and the displacement of around two dozen residents. The cost of the damage in the City totaled \$3,200,000.

In Easton, significant tree damage resulted from straight line winds believed to be in excess of 80 mph. Some of the toppled trees damaged residents' homes, causing in excess of \$30,000 in damages.

While the Town of Monroe was hit far less severely by the thunderstorms, winds believed to be around 60 mph sporadically toppled trees and downed power lines.

Hundreds of trees were lost in Stratford, with the Lordship and Paradise Green sections being hardest hit. Fallen trees were reported to have damaged a number of homes and several cars. One resident was injured while in their car when it was stuck by a fallen limb. Strong winds were reported, believed to be close to 90 mph. The cost of the damage totaled \$100,000.

In Trumbull, sporadic damage from winds believed to be around 70 mph was reported, mainly from downed trees and power lines. A falling tree struck a car on Daniels Farm Road, injuring the vehicle's occupant. In addition, two homes were

damaged when trees fell on them. The damages from the event totaled \$40,000.

Other recent severe thunderstorm events and tornadoes that produced damage within the Region are listed below.

May 16, 2007

Severe thunderstorms developed ahead of an approaching cold front across the region and produced potent straight line winds along with an EF1 tornado in northern Fairfield County. The Town of Easton experienced exceptional winds which downed countless trees throughout the town. The extent of the damage from these downed trees is unknown; however it is likely that power outages occurred in certain areas.

August 07, 2008

Unstable, moist air spawned several severe thunderstorms in southwestern Connecticut. This line of storms delivered a microburst in the Town of Stratford, where shingles were torn from homes, and many trees and power lines were downed. Several of the downed trees fell on residents' vehicles.

July 31, 2009

An approaching cold front approaching the Region spurred a cluster of severe thunderstorms that caused damage in the southern Fairfield area. Further damage was caused from straight line winds. Two tornadoes were produced from the system, but occurred outside of the Region.

July 19, 2010

A cold front crossing through the northeast corridor spawned several clusters of severe thunderstorms across southern Connecticut. This led to sporadic tree damage in the Nichols section of Trumbull, including a tree that fell on a house.

June 06, 2011

Atmospheric instability spawned wide spread clusters of severe thunderstorms across the majority of southern Connecticut. Many trees were brought down by the strong winds associated with the storms in Stratford, along with sporadic tree loss in Monroe.

July 26, 2012

An approaching mass of warm air produced a cluster of severe thunderstorms in Fairfield and New Haven Counties. This led to downed tree limbs in Bridgeport and reports of a downed tree in Monroe.

#### Lightning and Hail

Severe thunderstorms that produce cloud-to-ground lightning strikes are listed below. Hail producing storms occur infrequently in the Region and NOAA records are limited. However, the potential exists for severe thunderstorms to produce hail and cause widespread damage. Instances of hail are included in the lightning records.

May 31, 1988

A line of severe thunderstorms formed in moist and unstable air ahead of an approaching cold front. The storms produced hail, a substantial number of lightning strikes, heavy rain, and powerful winds. At the Trumbull Police Headquarters, a lightning strike travelled down into the building through a telephone wire injuring a Communications Officer and damaging the radio system, rendering it temporarily useless.

August 10, 2001

Several lines of severe thunderstorms developed across the state during the afternoon hours. These intense storms toppled trees, produced isolated flooding, and caused numerous power outages. Frequent cloud-to-ground lightning strikes occurred, with two lightning related injuries reported statewide. In Trumbull, lightning struck a nearby communications tower and travelled through a phone line into the Police Headquarters, injuring a police officer, who was working dispatch during the storms.

June 08, 2006

Several clusters of severe thunderstorms developed across the state producing strong winds, and numerous cloud-to-ground lightning strikes. A home in Stratford was hit by lightning, causing a fire.

August 07, 2008

Several severe thunderstorms developed in the southwestern part of the state during the afternoon hours and brought torrential rains, strong winds, and lightning. In the Nichols section of Trumbull light-

ning struck a tree behind a home, creating a hole in the exterior concrete wall of the home's basement.

May 24, 2009

An approaching cold front triggered small clusters of severe thunderstorms during the afternoon hours in southern portions of the state. Cloud-to-ground lightning from one of the storms injured three people who were camping at Webb Mountain Park in the Stevenson section of Monroe.

July 10, 2009

A strong cold front brought strong thunderstorms to portions of Fairfield County, creating numerous cloud-to-ground lightning strikes, two of which struck homes in the Sport Hill section of Easton, producing fires at both locations.

May 05, 2008

An area of low pressure moved northeast across the state bringing with it a cold front. This resulted in tightening pressure gradients as the system moved away from the Region and spawned several thunderstorms along this pressure gradient. Numerous cloud-to-ground lightning strikes were produced. Three men, who were fishing on a jetty in Seaside Park in Bridgeport, were struck by lightning. One of the men was killed.

June 03, 2010

A slow moving cold front brought scattered thunderstorms to southern Connecticut. A lightning strike from this line of storms struck the Stratfield Elementary School in Fairfield. A large portion of the school's chimney was knocked out of the surrounding structure.

#### Tornadoes

The state and region are not highly susceptible to tornadoes, and, when they do occur, the severity tends to be at the lower end of the Fujita scale. Since 1950, 14 tornadoes have occurred in Fairfield County, with the most severe storm, rating an F-2, occurring in 1950. Four tornadoes struck somewhere in the Region, hitting Fairfield in 1958, Trumbull in 1992, Monroe in 1996 and Bridgeport in 2010. Table 3.21 shows confirmed tornadoes impacting Fairfield County; the data was extracted from the NOAA's National Climatic Data Center Storm Events Database.

### Hazard Probability

Based on the review of recent events, the likelihood of a severe summer storm occurring in the Region is fairly high. Weather systems that spawn severe thunderstorms are prevalent in the area and the conditions needed for severe weather are fairly common during the summer months. However, these weather patterns tend not to result in extreme conditions that produce tornadoes or hail. Since 1950, only 14 tornadoes have been recorded in Fairfield County. This indicates that the probability of the Region experiencing a tornado is about one every 15 years. Damaging hailstorms are more frequent but these events are also relatively rare. The risks from severe summer storms are related to thunderstorms that produce torrential rain that causes inland flooding or high winds that can cause downed trees and power lines.

### Risk Assessment

These systems pose a great threat to the Region most notably from the torrential rains, damaging winds, dangerous lighting, and large hail that can be associated with a system of this type. From this trees and power lines can be toppled, causing structure damage and the loss of power. Larger hail can crack windshields and dent the roofs of cars along with causing damage to homes and other structures. Finally, the torrential rains can produce flash flooding that has the potential to damage homes and strand motorists. Along with the physical impacts of summer storms, these systems arrive with incredible speed and ferocity. Residents can be unprepared and stranded in locations without adequate shelter.

Table 3.21: Tornado activity in the region. Source: Storm Events Database, NCDC, NOAA  
**REGIONAL AND SUB-REGIONAL DRAINAGE BASINS  
 GREATER BRIDGEPORT PLANNING REGION**

Date	Location	Fujita Scale	Property Damage	Wind Speed
14-Jul-50	Ridgefield	F-2	\$250,000	113-157
15-Aug-58	Fairfield	F-1	\$3,000	73-112
9-Aug-68	Danbury	F-1	0	73-112
19-Jul-71	Norwalk	F-2	\$25,000	113-157
18-Sep-73	Greenwich	F-1	0	73-112
29-Jun-90	Danbury	F-0	\$3,000	40-72
5-Jul-92	New Fairfield	F-0	0	40-72
4-Aug-92	Trumbull	F-1	0	73-112
9-Jul-96	Monroe	F-1	0	73-112
31-May-02	Brookfield	F-1	0	73-112
12-Jul-06	North Greenwich	F-1	\$2,000,000	73-112
16-May-07	Newtown	EF-1	0	86-110
31-Jul-09	Pine Rock Park, Shelton	EF-1	\$10,000	86-110
24-Jun-10	Bridgeport	EF-1	\$3,200,000	86-110



### 3.12 Hazard Profile – Earthquakes

This section updates Section 9 from the 2006 NHMP. Events that occurred after 2006 were included and a Hazus analysis performed to estimate losses for each town.

#### Setting

An earthquake is a sudden rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth's surface. The entire Region is susceptible to earthquakes; however, the effects may be felt differently in some areas based on the type of geology. The US Geological Survey (USGS) monitors and reports on earthquake activity. Their records indicate a lack of historical and instrumental reports of strong earthquakes in Connecticut. This suggests that the State experiences only very minor seismic activity, even when compared to other States in the northeast region.

#### Extent

According to the Richter scale the Region has been impacted by minor earthquakes over the last 40 years. Historically, only two earthquakes were considered notable by the United States Geologic Survey (USGS) and they occurred in 1568 and 1791 respectively.

#### Impacts

Earthquakes can potentially severely impact an area. Most notably they cause building damage resulting in loss of functionality at essential facilities and inhabitable homes requiring the need for public shelter for individuals impacted. Earthquakes can also cut power, disrupt transportation, cause fires and cause economic loss. Finally, they can result in loss of life.

#### Hazard Assessment

Earthquakes can occur at any time without warning. Damage to buildings can range from minor cracking of walls and foundations to complete collapse. Earthquakes can cause disruption of utility services, landslides, flash floods, fires, avalanches, and tsunamis.

The underground point of origin of an earthquake is called its focus; the point on the surface directly above the focus is the epicenter. The magnitude and intensity of an earthquake is determined by the use of the Richter scale and the Mercalli scale, respectively.

The magnitude of an earthquake is related to the amount of seismic energy that is released at the epicenter of the earthquake. It is defined by the Richter scale and is based on the amplitude of earthquake waves. The magnitude of an earthquake is recorded by a seismograph, which depicts the varying amplitude of ground oscillations. It is measured on a logarithmic scale, which means each whole number increase in magnitude represents a tenfold increase in its measured strength. Earthquakes with a magnitude of about 2.0 or less are usually called micro-earthquakes, and are generally only recorded locally. A magnitude 4.5 or greater earthquake is strong enough to be recorded by seismographs anywhere in the world.

The effect an earthquake has on the surface is referred to its intensity. While numerous intensity scales have been developed over the last several hundred years, the current scale used in the US is the Modified Mercalli Intensity Scale. It consists of a series of key responses to an earthquake, ranging from how it was felt by people (at the low end of the scale) to observed structural damage. Unlike the Richter Scale, the Modified Mercalli Intensity Scale is an arbitrary ranking based on observed effects, with a more intense earthquake simply described as having a greater effect than a less intense earthquake, but not by how much. The scale is composed of 12 increasing levels of intensity that range from imperceptible shaking felt by very few people to catastrophic destruction.

Earthquakes in Connecticut are not associated with specific known faults, like in California, and are referred to as intra-plate activity. Bedrock in Connecticut and New England in general, is highly capable of transmitting seismic energy; thus, the area impacted by an earthquake in Connecticut can be four-to-40 times greater than that of California. In addition, the population density of Connecticut can potentially put a great number of people at risk. The built environment in Connecticut includes old, unreinforced masonry that is not seismically designed.

People who live or work in unreinforced masonry buildings, especially those built on filled land or unstable soils, are at the highest risk for injury from an earthquake. However, the Region is unlikely to experience an earthquake in any given year and is not susceptible to an earthquake with a high magnitude

or intensity. Figure 3.22, from the USGS indicates that the Region has only about a three percent probability of experiencing a 5.0 or greater magnitude earthquake within 50 years.

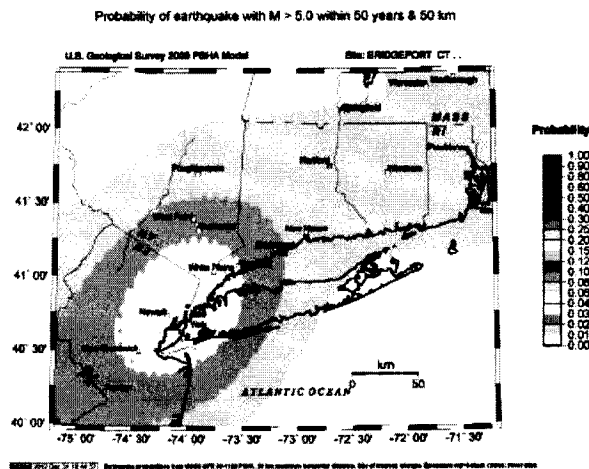


Figure 3.22: Earthquake probability. Source: United States Geological Survey, Earthquake Hazards Program, website

Table 3.22: Connecticut Earthquakes. Source: USGS  
**RECENT EARTHQUAKES IN CONNECTICUT  
1976 – 2013**

Location	Magnitude	Depth	Date
Stamford	2.1	4 km	8-Sep-12
East Hartford	1.7	5 km	3-Jun-11
Clinton	2.3	2 km	11-Mar-08
Norwich	2.0	12 km	22-Aug-02
Greenwich	1.1	6 km	5-Mar-02
North Branford	1.8	2 km	3-Feb-01
Danbury	2.6	6 km	22-Aug-00
Groton	2.8	20 km	10-Mar-92
Stamford	3.0	10 km	28-Oct-91
Middletown	2.4	5 km	11-Sep-87
New Milford	3.0	7 km	26-Feb-83
Colchester	2.4	1 km	17-Jun-82
Colchester	3.0	2 km	17-Jun-82
Colchester	2.2	1 km	17-Jun-82
Madison	3.8	5 km	21-Oct-81
New Haven	3.0	0 km	25-Oct-80
East Haven	3.1	0 km	24-Oct-80
Middletown	2.2	0 km	24-Apr-76

### Historic Record

According to the USGS Earthquake Hazards Program, Connecticut is a region of very minor seismic activity. However, the New England states regularly register seismic events and earthquakes have occurred in the Region. Based on the USGS archives, there have been 137 earthquakes recorded in Connecticut between 1598 and 1990. However, only two are considered notable. Both were recorded in the Moodus/East Haddam areas, one in 1568 and the other in 1791. The most severe earthquake in Connecticut’s history occurred at East Haddam on May 16, 1791. Stonewalls and chimneys were toppled during this quake. In October 1845, an Intensity V earthquake occurred in Bridgeport.

As seen in Table 3.22, 18 earthquakes have been recorded in Connecticut between 1976 and 2013, ranging in magnitude from 1.1 to 3.8 on the Richter Scale, with only two having a magnitude greater than 3.0. These are relatively minor earthquakes. Although magnitude and intensity measure different characteristics, the USGS has related the magnitude of an earthquake to the typical intensity as measured by the Modified Mercalli Intensity Scale. Generally, the earthquakes that have occurred in Connecticut produce very little noticeable shaking, and are not felt by very many people.

In addition to the earthquakes that have occurred in Connecticut, the Region can feel the effects of earthquakes that happen outside the state. Most recently, on August 23, 2011, an earthquake that was centered in Virginia measured 5.8 on the Richter Scale. It was felt from Georgia to Canada, including by many in the Region. Despite, no damage was reported in the Region.

### Hazard Probability

The conclusion by the USGS is that Connecticut is a region of minor seismic activity. The earthquakes that have occurred have been of low magnitude and intensity. Most people would not feel the shaking generated by an earthquake in Connecticut.

While earthquakes have occurred outside the state, the impacts felt in Connecticut from these events has also been minor. Based on this review of recent events, the likelihood of an earthquake of sufficient magnitude and intensity impacting the Region is low.

### Risk Assessment

Based on the historical record, the Bridgeport Region has a low vulnerability to earthquake activity. However, it is not impossible that a significant event could occur and cause tremendous damage. While no earthquakes have been centered in Bridgeport there have been magnitude 5 earthquakes in other parts of the state. That is why to simulate a worst-case scenario a magnitude 5 earthquake centered in Bridgeport was modeled in Hazus.

While this scenario is unlikely it would result in significant damage. As Table 3.23 shows, 13,000 buildings would be at least moderately damaged including 350 completely destroyed. Most essential facilities in the region would lose functionality during the first day as shown in Table 3.24.

The transportation system will also experience moderate damage in the earthquake however no facilities were completely damaged. The results are shown in Table 3.25

Hazus also used a Monte Carlo simulation to model the number of fires and burnt area resulting from a magnitude 5 earthquake in Bridgeport. The model estimates that there would be 4 fires that would burn about 0.05 sq miles. Additionally, there would be 0.47 million tons of debris generated requiring 18,690 truckloads to remove.

Hazus also projects 1,953 households to be displaced, resulting in 1,614 people requiring shelter. The model also projects between 12-18 people killed based on the timing of the earthquake.

The economic impact would be devastating costing the region over 2.4 billion dollars in damage from income and capital stock losses. Table 3.26 summarizes the economic loss.

While an earthquake has never been centered in the Bridgeport area, a significant event in a built up, densely populated region would have a serious impact.

Table 3.23: Hazus building damage from a magnitude 5 earthquake  
**# of Buildings Damaged**

None	Slight	Moderate	Extensive	Complete
60,579	24,676	11,679	2,341	350

Table 3.24: Hazus essential facilities functionality from a magnitude 5 earthquake  
**Essential Facilities (<50% functionality on day 1)**

EOC	2
Fire	15
Hospitals	4
Police	16
Schools	126

Table 3.25: Hazus transportation and utility damage from a magnitude 5 earthquake  
**Transportation and Utility Damage**

	Moderate Damage
Highway Bridges	9
Railway Facility	1
Bus Facility	5
Ferry Facility	1
Port Facility	16
Airport Facility	1

Table 3.26: Hazus results for economic loss from a magnitude 5 earthquake  
**Economic Loss (in millions of dollars)**

REGION		
Income Losses	Capitol Stock Losses	Total
\$350.94	\$2,180.92	\$2,431.86

### 3.13 Hazard Profile – Dam Failure

This section updates Section 10 from the 2006 NHMP. The plan was updated to include information about Class A and Class B dams. In addition, this update includes a detailed narrative of each of the Class C dams in the Region.

#### Setting

Dams are man-made or artificial barriers usually constructed across a stream channel to impound water. Various materials are used for dam construction such as timber, rock, concrete, earth, steel or a combination of these materials. However, in Connecticut, most dams are constructed of earth or combinations of earth and other materials. Spillways are commonly constructed of non-erosive materials such as concrete or rock. Spillway systems are typically provided along the dam to allow water to flow from the impounded area, and mechanisms are typically installed to control water levels of the impoundment.

The construction of dams began with the arrival of the first colonial settlers in the 1630s. Dams were essential for economic development and were used for manufacturing, water supply, mechanical power and for fire protection. In addition to the historic economic benefits, Connecticut’s dams are also used for flood control, water supply, recreation and for mitigating the impact of increased runoff typically caused by land use changes associated with property development. Since 1878, Connecticut (Department of Environmental Protection (DEEP), Bureau of Water Protection and Land Reuse’s Inland Water Resources Division) has exercised regulatory oversight of dams and reservoirs and regularly inspects dams. High hazard potential dams are inspected at a more frequent interval. Dam safety and inspection regulations are codified in state statutes.

The state classifies dams based on their hazard potential, that is, the damage that would likely occur if the structure failed. Five classes have been developed:

#### Class AA

Negligible hazard potential; no measurable damage to roadways, land and structures. Economic loss would be negligible.

#### Class A

Low hazard potential; damage to agricultural land and unimproved roadways. Economic loss would be minimal.

#### Class BB

Moderate hazard potential; damage to normally unoccupied structures and low volume (less than 500 vehicles per day). Economic loss would be moderate.

#### Class B

Significant hazard potential; possible loss of life, minor damage to habitable structures, residences, and other critical infrastructure, damage to roadways that carry less than 1,500 vehicles per day, and impact on railroads. Economic loss would be significant.

#### Class C

High hazard potential; probable loss of life, major damage to habitable structures, residences, and other critical infrastructure, damage to main roadways that carry greater than 1,500 vehicles per day, and impact on railroads. Economic loss would be great.

The highest potential impact from a dam failure would result from Class B or Class C dams. The inundation of water released from a failure of these dams would result in loss of life and major damage to main roads and habitable structures.

There are 112 dams of varying size in the Greater Bridgeport Region which are listed in Table 3.27. The majority of the dams are classified as having either a negligible or low hazard potential – Class AA, A, or BB. Twelve dams have been classified as Class C dams and three are Class B dams.

Table 3.27: Dams in Region. Source: CT DEEP  
**NUMBER OF DAMS BY CLASS**  
**GREATER BRIDGEPORT PLANNING REGION**

Town	Total	Class A/AA	Class BB	Class B	Class C
Bridgeport	11	6	2	0	3
Easton	21	14	4	1	2
Fairfield	30	20	8	0	2
<b>Monroe</b>	<b>15</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>Stratford</b>	<b>9</b>	<b>7</b>	<b>0</b>	<b>1</b>	<b>1</b>
<b>Trumbull</b>	<b>26</b>	<b>16</b>	<b>6</b>	<b>1</b>	<b>3</b>
Region	112	77	20	3	12

The dams are scattered throughout the Region and the area of the impoundment ranges from small detention ponds to large public water supply reservoirs. Fairfield is the home of the most dams, including those impounding the Hemlock Reservoir and the Samp Mortar Reservoir. Both are classified as Class C dams. The second highest number of dams is found in the Town of Trumbull, with 26 dams. While most have low hazard potential, there are three Class C and one Class B dams in the town. The Class C dams are located at and impound Canoe Brook Lake, a private lake. Twenty-one dams are located in Easton, including those impounding the Easton Lake Reservoir and Saugatuck Reservoir, and 15 dams are in Monroe. The most critical dam in Monroe is the Stevenson Dam that impounds the Housatonic River to create Lake Zoar and is used to generate electricity. Route 34, a main highway, is located along the top

the Stevenson Dam. The fewest number of dams are located in Bridgeport, with 11 dams, and Stratford with nine dams. Three of the dams in Bridgeport have high hazard potential, while none of the dams in Stratford pose a high risk. The Class C and Class B dams are listed in Table 3.28. Figure 3.24 shows the location of these dams. Maps for dams in each town can be found in Appendix D.

Table 3.28: High hazard dams in the Region. Source: CT DEEP  
**SIGNIFICANT AND HIGH HAZARD POTENTIAL DAMS**

Dam Name	Downstream Watercourse	Town	Class
Lake Forest Dam	Island Brook	Bridgeport	C
Bunnells Pond Dam	Pequonnock River	Bridgeport	C
Island Brook Lagoon Dam	Island Brook	Bridgeport	C
Popps Mountain Dike	Saugatuck River	Easton	C
Easton Reservoir Dam	Mill Brook	Easton	C
Hemlock Reservoir Dam	Cricker Brook	Fairfield	C
Samp Mortar Reservoir Dam	Mill River	Fairfield	C
Stevenson Dam	Housatonic River	Monroe	C
Beaver Dam Lake Dam	Pumpkin Ground Brook	Stratford	C
Canoe Brook Lake Dike	Horse Tavern Brook	Trumbull	C
Canoe Brook Lake Dam	Canoe Brook	Trumbull	C
Canoe Brook Lake East Dike		Trumbull	C
Aspetuck Reservoir Dam	Aspetuck River	Easton	B
Brewster Pond Dam	Long Brook	Stratford	B
Pinewood Lake Dam	Booth Hill Brook	Trumbull	B

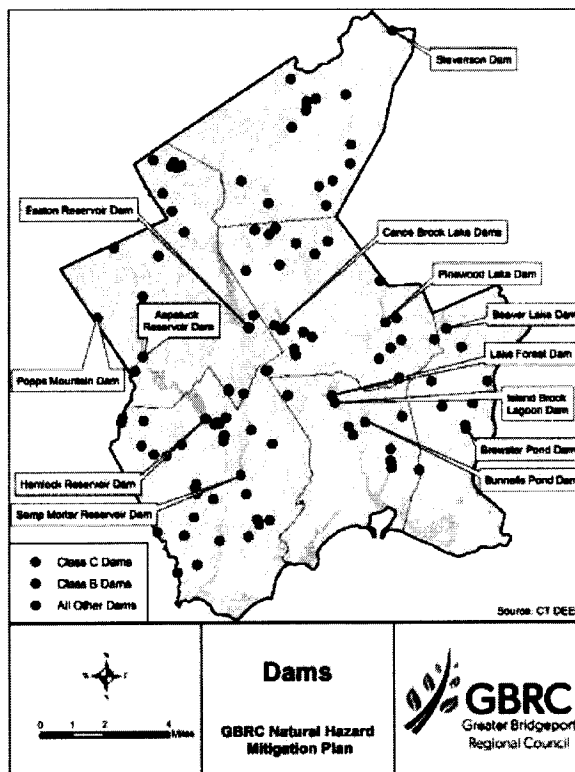


Figure 3.24: Dams in the Region. Source: CT DEEP

### Extent

The largest dams in the Region are classified by the State as Class C. According to state statutes, Class C dams have high hazard potential.

### Impacts

Impacts from a failure of a Class C dam include major damage to buildings, critical infrastructure, major transportation disruption, and loss of life. Building damage can result in loss of functionality at essential facilities and inhabitable homes requiring the need for public shelter for individuals impacted.

## Hazard Assessment

Dam failures can be triggered suddenly, with little or no warning, due to other natural disasters, such as, heavy rains, floods and earthquakes. Excessive floodwaters cause pressure and additional force to build behind dams, and, depending on its condition, a failure can occur. In addition, a chain reaction from the sudden release of waters can cause the next dam downstream to fail. Earthquakes cause a violent and rapid shaking of the ground, which can severely damage a dam, causing it to fail.

## Historical Assessment

Fortunately, there have been few dam failures in Connecticut. The most recent incident occurred in 1982. During a period of heavy rain over the weekend of June 5th and 6th, flooding throughout the state resulted in 17 dam failures and severe damage to another 31. The total cost from this event was about \$70 million. Only one significant dam failure has occurred in the Region. In July 1905, Bunnells Pond dam was breached as the result of a flood.

## Hazard Probability

Since the failure of a dam can occur without warning, there is no particular season that is more susceptible to dam failures than another. However, dams are at a greater risk of failure during heavy rain events as overtopping is a major cause of dam failure. To mitigate the potential hazards, the state DEEP monitors potentially destructive flood events. In addition, dams are routinely inspected and those that have a higher hazard potential are inspected more frequently. The DEEP and state regulations also require dams that are repaired or reconstructed to be designed to handle at least a 100-year rainfall event with at least one foot of freeboard (Connecticut's 2010 Natural Hazard Mitigation Plan Update, Department of Environmental Protection, December 2010).

Therefore, the likelihood of a dam failure impacting the Region is low.

The dam safety statutes are codified in Section 22a-401 through 22a-411 inclusive of the Connecticut General Statutes. Sections 22a-409-1 and 22a-409-2 of the Regulations of Connecticut

State Agencies, have been enacted which govern the registration, classification, and inspection of dams. Dams must be registered by the owner with CT DEEP, according to Connecticut Public Act 83-38.

Dam Inspection Regulations require that over 600 dams in Connecticut must be inspected annually. CT DEEP currently prioritizes inspections of those dams which pose the greatest potential threat to downstream persons and properties. Dams found to be unsafe under the inspection program must be repaired by the owner. Depending on the severity of the identified deficiency, an owner is allowed reasonable time to make the required repairs or remove the dam. If a dam owner fails to make necessary repairs to the subject structure, CT DEEP may issue an administrative order requiring the owner to restore the structure to a safe condition and may refer noncompliance with such an order to the Attorney General's Office for enforcement. As a means of last resort, the CT DEEP Commissioner is empowered by statute to remove or correct, at the expense of the owner, any unsafe structures which present a clear and present danger to public safety.

Owners of Class C dams are required to maintain emergency operations plans. It is believed that Aquarion Water Company maintains such plans for its dams in the Region.

## Risk Assessment

As listed above, there are 12 Class C dams in the Region. The following describes the land uses and hazards associated with each:

### Bridgeport – Three Class C Dams

#### Bunnells Pond Dam

Impounds the Pequonnock River and creates an approximate 47-acre pond, located in Beardsley Park. The lake and dam are owned by the CT DEEP. Downstream of the dam is Glenwood Park, an active recreation area that includes tennis courts and ice skating facility. Farther downstream is the commercial area along US Route 1, as well as, densely populated residential neighborhoods. The dam was built in 1906 and is an earthen structure with a concrete spill-lay.

#### Lake Forest Dam

Impounds Island Brook and creates a privately owned lake with a surface area of about 66 acres. The lake is surrounded by single family residential neighborhoods on relatively small lot sizes. Downstream is the Island Brook Lagoon, another impoundment of Island Brook that would be impacted by a failure of the Lake Forest Dam.

#### Island Brook Lagoon Dam

Impounds Island Brook and creates a small, privately owned lake, with a surface area of about five acres. It is surrounded by single family residential neighborhoods on relatively small lot sizes.

#### Easton – Two Class C Dams

##### Easton Lake Reservoir Dam

Impounds the Mill River to create the Easton Lake Reservoir, a public water supply reservoir. It is owned and maintained by the Aquarion Water Company. The dam is constructed of concrete and the reservoir has a surface area of about 488 acres. The area directly downstream of the reservoir is made up of sparsely developed residential land uses,, consisting of single family homes on at least one-acre lots. Farther downstream, the residential patterns become denser but remain single family residential.

##### Poppo Mountain Dam (Dike)

This dam is located on the Saugatuck Reservoir about 2,000 feet northeast of the main dam (Samuel P. Senior Reservoir Dam) that impounds the Saugatuck River to create the reservoir. The outflow from the dam drains primarily into the Town of Weston and undeveloped portions of Easton. The surface area of the Saugatuck Reservoir is about 827 acres. The dike is a concrete structure.

#### Fairfield – Two Class C Dams

##### Hemlock Reservoir Dam

Impounds the Cricker Brook to create the Hemlock Reservoir, a public water supply reservoir. It is owned and maintained by the Aquarion Water Company. The dam is constructed of concrete and the reservoir has a surface are of about 437 acres. The area directly downstream of the reservoir is low-to-medium dense residential development, consisting of single family homes on at least one-acre lots. Cricker

Brook flows from the dam into Samp Mortar Reservoir. Farther downstream, the residential patterns become denser but remain single family residential.

##### Samp Mortar Reservoir Dam

Impounds Cricker Brook, entering on the west side, and the Mill River, entering from the north. The lake formed by the dam is owned and maintained by a private association. Residences line the banks of the Samp Mortar Reservoir, and land use downstream of the dam is moderately dense residential. The total surface area is about 35 acres.

#### Monroe – One Class C Dam

##### Stevenson Dam

Impounds the Housatonic River to create Lake Zoar. The concrete dam is owned and maintained by First Light Power Resources, and used for hydroelectric power generation. The area immediately downstream is largely undeveloped; although the Housatonic River is a very significant recreational resource, and numerous riverfront structures are present a short distance downstream from the dam in Derby and Shelton. Route 34, a main artery between New Haven and Newtown, is located on top of the dam.

#### Stratford – One Class C Dam:

##### Beaver Dam Lake Dam

Impounds the Pumpkin Ground Brook and creates Beaver Dam Lake, a private lake in the northwest corner of Stratford. It has a surface area of about 58 acres. The shoreline is sparsely developed and the large Roosevelt Forest is to the east of the lake. Downstream, land use patterns become medium density, single-family residential. The Trumbull Corporate Park lies downstream and just east of the dam.

#### Trumbull – Three Class C Dams

##### Canoe Brook Lake Dike

Impounds the Horse Tavern Brook and creates Canoe Brook Lake, a private lake in the northwest part of Trumbull. It has a surface area of about 64 acres. The lake and dike are owned and maintained by an association of property owners living on and near the lake. The shoreline is lined with homes on large lots and houses are setback from the edge of the water. The dike is located on the south edge of the

lake and Canoe Brook Road is on top of the dike. Downstream, land use patterns are primarily medium density, single-family residential. Horse Tavern Brook flows into the land now occupied by the Westfield/Trumbull Shopping Park, about 1.2 miles downstream of the dike.

#### Canoe Brook Lake Dam

Impounds the Canoe Brook, entering Canoe Brook Lake (described above) on the west side. Land use on this side of the lake is more sparsely developed than downstream of the Canoe Brook Lake Dike along Horse Tavern Brook, although it is exclusively residential. The drainage valve located on the spillway near Redcoat Lane is plugged and needs replacement.

#### Canoe Brook Lake Dike, East Dike

This dike is located along the eastside of Canoe Brook Lake (described above). Land use on this side of the lake consists of single-family residential homes on small-to-medium sized lots – one-half to one acre.

#### Pinewood Lake Dam

Impounds the Booth Hill Brook and creates Pinewood Lake, a private lake in the southeast part of Trumbull. It has a surface area of about 60 acres. The lake and dike are owned and maintained by an association of property owners living on and near the lake. The shoreline is lined with homes on large lots and houses are setback from the edge of the water. The dike is located on the south edge of the lake and West Lake Road runs along the top of the dike. Downstream, land use patterns are primarily medium density, single-family residential. Booth Hill Brook flows into Twin Brooks Park and joins the Pequonnock River. The dam is in good condition but a valve located on the spillway to drawdown the lake level is in poor condition and there is concern of it breaking.

**NOTE: Hazard Summary on next page.**



### 3.14 Hazard Summary

#### HAZARDS SUMMARY

Hazard Type	Historical Extent	Probability of Future Occurrence	Impacts	Vulnerable Areas
Hurricanes	Category 3 hurricane was strongest storm to strike Connecticut	<ul style="list-style-type: none"> <li>• Tropical cyclone every 3.6 yrs</li> <li>• Cat 1 every 10-15 yrs</li> <li>• Cat 2 every 23-30 yrs</li> <li>• Cat 3 every 46-74 yrs</li> </ul>	Loss of life, building damage, essential facility damage, debris, people requiring shelter, transportation disruption, loss of power, economic loss	Low lying area in or near flood zones vulnerable to -inland flooding from rain to storm surge
Inland Flooding	The 1955 flood was estimated to be a 2% to 0.2% event for the region	Moderate to extreme flooding occurs at a fairly frequent rate. Based on historical record from 2000-2012 it suggests one such storm happens every year.	Loss of life, building damage, essential facility damage, debris, people requiring shelter, transportation disruption, economic loss, breach of dams	Low lying areas nears streams; especially those in the 1% and 0.2% flood zones. Certain areas are more susceptible due to local conditions such as poor drainage.
Coastal Flooding	Category 3 hurricane was strongest storm to strike Connecticut creating largest storm surge	Based on historical record moderate to severe coastal flooding occurs once every three to four years	Loss of life, building damage, essential facility damage, debris, people requiring shelter, transportation disruption, economic loss	Low lying coastal areas especially those in FEMA 1% and 0.2% flood zones
Sea Level Rise	Relative sea level rise has been between 15-30 cm (~6-12 in) over last 100 years	IPCC reports 9-88cm (~3.5 to ~34.5 in) by 2100	More damage from coastal and inland flooding events	Low lying coastal areas especially those in FEMA 1% and 0.2% flood zones
Winter Storms	Recent storms have dropped up to 36 in of snow in the Region	Based on historical record severe winter storms occur once every 1.2 years in the Region	Transportation disruption, loss of power, moderate building damage, loss of life especially to at risk populations such (elderly/ disabled)	<ul style="list-style-type: none"> <li>• Entire region</li> <li>• More rural areas where road clearing is more difficult and loss of power leads to loss of water</li> </ul>
Summer Storms and Tornadoes	Most severe tornado in history was EF-2	Based on historic record tornadoes hit Region once every 15 years	Building damage, vehicular damage, debris, people needing shelter, power loss and downed trees, loss of life from lightning strikes and tornadoes	Entire region
Earthquakes	Magnitude 5 earthquakes have occurred historically in the State	Low probability of significant event	Loss of life, building damage, essential facility damage, debris, people requiring shelter, transportation disruption, economic loss, fires	Entire region
Dam Failure	Failure of a class C dam	Low probability but could occur during large rain events	Loss of life, building damage, essential facility damage, debris, people requiring shelter, transportation disruption, economic loss	Low lying areas downstream of dams

# 4 Mitigation

The previous section profiled hazards in the region and the impact, extent and probability of the hazard. Risks were assessed by data collection, research of past events, GIS and Hazus analyses and the planning process described in Section 2. The risk assessment was utilized to identify assets most vulnerable to specific hazards. As a result of these assessments, problem statements were developed to inform the formulation of goals and objectives and to determine mitigation actions.

The NHMP update discusses mitigation actions at both the regional and local scale.

These recommended mitigation actions are a reflection of the risk and vulnerability assessments, problem statements and the Plan's goals and objectives. Regional mitigation actions address the challenges posed by hazards throughout the region, while local mitigation actions address the unique impacts of a hazard on a municipality or neighborhood. As this plan is an update to the 2006 Natural Hazard Mitigation Plan and the 2008 Stratford Annex, past mitigation actions were reviewed to determine whether they had been implemented, their effectiveness and their current applicability to the region or respective community. Those actions that are ongoing from the 2006/2008 plans or that still must be implemented are included as mitigation actions for this update.

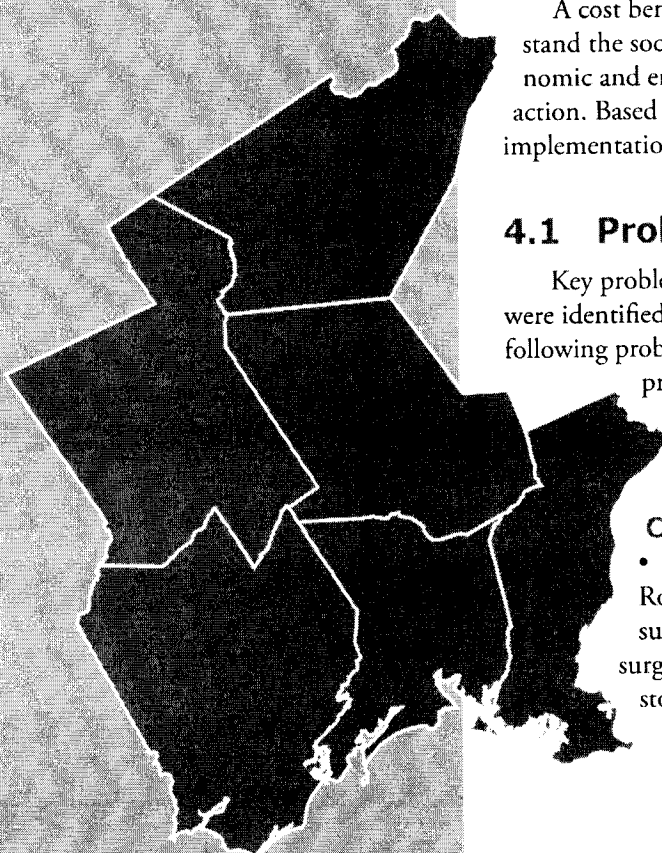
A cost benefit review tool, STAPLE+E was utilized to understand the social, technical, administrative, political, legal, economic and environmental costs and benefits of each mitigation action. Based on this review, actions were prioritized for future implementation.

## 4.1 Problem Statements

Key problem areas and critical issues for each municipality were identified through the risk and vulnerability assessments. The following problem statements were formed through the planning process and were utilized to develop a vision for the plan, a series of goals and objectives and mitigation actions.

### City of Bridgeport

- Low lying neighborhoods and streets – Black Rock, the East End, East Side and South End – are susceptible to coastal flooding from excessive storm surge from hurricanes, tropical storms, extratropical storms, and nor'easters.



- Vulnerable and at risk populations, including low income, minorities, persons with limited English proficiency, elderly and disabled persons disproportionately live in flood prone areas.
- Housing stock in areas at risk of coastal flooding from extreme weather is older and less able to withstand the forces of storm surges.
- Several coastal features are vulnerable to damage from extreme weather, including Ash Creek, Seaside Park, Pleasure Beach and Johnson's Creek.
- Access to some parts of the City can be cut-off due to flooding, especially at underpasses of the New Haven rail line and I-95.
- The City operates two wastewater treatment plants, both of which are located in flood hazard areas and flooding can cause overflows of waste water and pollution to enter Long Island Sound.
- Several sections of the City are served by combined sewer systems. These combined systems can be overwhelmed by excessive runoff from heavy rain events and cause overflows of wastewater from the sewage treatment plants.
- The City operates Reverse 9-1-1 and EverBridge systems to notify residents about approaching extreme weather or mandatory evacuation orders, but reaching those with limited English proficiency remains a challenge.
- Schools are used as emergency shelters. The schools are appropriate for short term shelter needs but are not appropriate for long term use as shelters, especially for people with medical needs.

### **Town of Easton**

- A large proportion of Easton is forested and excessive damage and downing of limbs and trees occurs from severe winds. Downed trees cause power disruptions throughout the Town and restricts access to residential neighborhoods. Because of the development patterns in Easton, few alternate routes around downed trees exist, effectively isolating impacted areas.
- A water purification and filtration plant is located at the base of the Easton Lake Reservoir. The Region's public drinking water supply could potentially be severely limited if the

plant is damaged during an extreme storm.

### **Town of Fairfield**

- Coastal flooding from excessive storm surge from hurricanes, tropical storms, extratropical storms, and nor'easters is a problem for areas of Fairfield south of US Route 1, especially the area just north of the Fairfield Beach and Jennings Beach, which sits in a basin. Flood waters that over top the dunes collect in the area as well. Sand deposited by the flood waters clogs storm drains, and water needs to be pumped.
- The Pine Creek area is protected by a dike system, but recent events indicate a need to raise the height of the dikes.
- Fairfield's wastewater treatment plant is located in a flood hazard area. The berm that protects the facility from flooding needs to be raised.
- The northern part of Fairfield is forested and excessive damage and downing of limbs and trees occurs from high winds and heavy snow fall. Downed trees cause power disruptions throughout the area and restricts access to these residential neighborhoods. Because of the development patterns in this part of the Town, few alternate routes around downed trees exist, effectively isolating impacted areas.
- Undersized culverts and low lying rail underpasses create chokepoints that cause isolated flooding in several areas. The most prominent is the culvert that carries Ash Creek under I-95. The neighborhood north of this location experiences recurring flooding from even moderate intensity storms.

### **Town of Monroe**

- The Town is susceptible to power disruptions from downed trees. Extensive tree coverage exists, especially in proximity of road rights-of-way. Damage and downing of limbs and trees occurs from high winds and heavy snow fall. Downed trees also restrict access to residential neighborhoods, effectively isolating impacted areas.
- Undersized culverts cause inland flooding at several locations, including along Route 25 in

the vicinity of the West Branch of the Pequonnock River and the diversion to the Easton Lake Reservoir and along Route 111 near Ryegate Terrace.

- Inland flooding occurs along the Pequonnock River behind Bart shopping plaza on Route 25 and behind Chuck's Corner on Route 25 near Purdy Hill Road.
- Alternate power generation at long term care facilities in Monroe, as well as the Town's senior housing facilities and emergency shelters needs to be addressed. Back-up generators are undersized and cannot adequately address all electrical needs during a power outage.
- Isolated inland flooding affects on-site septic systems and leaching fields, increasing the potential flow of pollutants into the Pequonnock River.

#### **Town of Stratford**

- Coastal flooding from excessive storm surge from hurricanes, tropical storms, extratropical storms, nor'easters, and heavy rain events during high tide is a problem for the South End neighborhood. This area also includes an industrial and commercial district located along Route 113. The adjacent Lordship area does not experience flooding from storms because it is a coastal upland with an elevation above base flood heights. However, the neighborhood can become isolated as access is cut-off by flood waters.
- Stratford's wastewater treatment plant is located in a flood hazard area. The berm that protects the facility from flooding has been sufficient, preventing the facility from being flooded. However, the berm needs to be raised to protect the plant against the newly calculated flood zone elevation and increased storm surges.
- A number of sewage pump stations are located in flood prone areas, and need to be protected.
- During thunderstorms and heavy rain events over a short period of time, inland flooding occurs in the South End, under railroad viaducts and along several smaller brooks and streams, especially in the Town Center area, Oronoque Village and along Bruce Brook and Raven Brook. These streams become over-

whelmed by excessive runoff from heavy rain events. Several sections have been channelized and the structures exacerbate the flooding potential.

- Wind causes tree limbs to fall, block roads and cause power outages. The urban tree canopy of the Town is composed of many older trees and some species are not suitable for their locations.

#### **Town of Trumbull**

- Inland flooding from excessive storm surge from hurricanes, tropical storms, extratropical storms, and nor'easters is a problem for areas of Trumbull along the Pequonnock River. Recurring problem areas include Trumbull Center in the vicinity of Daniels Farm Road, the Twin Brooks Park area and west of Route 127 south of the Unity Park area.
- Trumbull does not operate its own wastewater treatment facility, instead sewage is collected by a sanitary sewer system that connects to the treatment plants located in Bridgeport. Because of the topography of Trumbull, pump stations are located throughout the Town. Many of these are located in flood hazard areas.
- Alternate power generation at the Town's emergency shelters is insufficient to properly power these facilities, especially at the Trumbull High School, which is the primary emergency shelter. Back-up generators are undersized and cannot adequately support all electrical needs during a power outage.
- There are three Class C dams located in Trumbull, and the failure of these structures would greatly impact residential neighborhoods downstream of the impoundments.
- Most streets throughout the Town are lined by mature trees that are susceptible to damage from high winds and heavy snow fall. Downed trees cause power disruptions throughout the Town and restricts access to some residential neighborhoods. The Town public works personnel can clear debris but must coordinate efforts with the utility company to ensure power to any downed lines has been deactivated.

- Undersized culverts create chokepoints that cause isolated flooding in several areas. Problem areas include: Daniels Farm Road over the Pequonnock River, Lake Avenue over the inlet to Canoe Brook Lake and Melrose Avenue over Island Brook.

## 4.2 Vision, Goals & Objectives

The primary goal of the NHMP is to reduce the loss of life, personal injury and damage to property, infrastructure, natural, cultural and economic resources from natural disasters.

The following vision statement was prepared by the Planning Committee and regional stakeholders to establish the goals, objectives and mitigation actions of the Plan. Goals represent the plan's long term vision for addressing the impact of and building resiliency to natural hazards throughout the Region.

### Vision

*"The communities of the Greater Bridgeport Region recognize the need, in light of recent severe and extreme weather events, to increase resilience to the devastating effects of natural hazards and mitigate future impacts through adaptation of existing infrastructure, improved planning and assessment, expanded education and awareness, and proactive response to emergencies caused by natural hazards."*

### Goals

The goals and objectives of the NHMP cover six functional areas:

#### Prevention

##### Goal

Continue pre-disaster mitigation planning that assesses impacts from natural hazards and identifies effective strategies to mitigate future events and increase hazard resiliency.

##### Objectives

1. Adopt and keep current the Natural Hazard Mitigation Plan.
2. Adopt and enforce nationally recognized building codes and design standards in high

hazard areas.

3. Implement management practices and techniques that go beyond minimum requirements.
4. Integrate the natural hazard mitigation objectives and strategies detailed in the NHMP with local land use policies and zoning regulations.
5. Continue to participate and comply with guidelines and requirements of the National Flood Insurance Program (NFIP).
6. Improve storm water management planning and adopt policies to reduce runoff.
7. Implement "No Adverse Impact" policies.
8. Implement low impact development techniques and green infrastructure policies and design guidelines.

#### Property Protection

##### Goal

Protect buildings from the impacts of natural hazards and implement projects to safeguard against the impacts of natural hazards.

##### Objectives

1. Rebuild damaged buildings to meet minimum design standards so as to withstand the impacts of natural hazards.
2. Acquire repetitive loss properties, as deemed necessary.

#### Structural and Infrastructure Projects

##### Goal

Protect infrastructure from the impacts of natural hazards and implement projects (structural and infrastructure) to safeguard against the impacts of natural hazards.

##### Objectives

1. Rebuild damaged infrastructure and buildings to meet the minimum design standards to withstand the impacts of natural disasters.
2. Implement floodplain management techniques above and beyond minimum NFIP requirements.
3. Construct flood control measures.
4. Maintain drainage systems.

5. Increase the capacity of drainage systems, including the separation of combined sewer systems, utilization of low impact development techniques and construction of green infrastructure.

### Natural Systems Protection

#### Goal

Protect and restore natural systems and features that mitigate the impact of natural hazards.

#### Objectives

1. Prohibit removal of natural vegetation dunes and use riprap along stream channels.
2. Restrict development in floodplains and sensitive coastal areas.
3. Protect and restore riverbanks, wetlands, salt marshes, and dunes.
4. Establish vegetative riparian buffers.
5. Preserve floodplains as open space and acquire floodplain lands for open space.
6. Restore and replenish beaches.
7. Implement tree trimming programs that maintain healthy and appropriate urban forest and tree canopy.

### Education and Awareness

#### Goal

Educate residents, businesses and stakeholders throughout the region about natural hazards and increase the awareness of severe and extreme weather events.

#### Objectives

1. Inform residents of shelter locations and evacuation routes.
2. Encourage homeowners to purchase flood insurance.
3. Educate citizens about actions to take in the event of extreme weather – before, during and after.
4. Educate residents on the importance of wetlands and the need for the protection and maintenance of wetlands.
5. Conduct outreach to educate and advise homeowners about risks to life, health and safety.
6. Hold workshops to facilitate dissemination of information on technical assistance programs.

7. Encourage residents and businesses to prepare for extreme weather and for actions to take when an event occurs.
8. Develop pamphlets on emergency procedures and management and make available at city and town halls, libraries and on municipal websites.

### Emergency Services Protection Actions

#### Goal

Improve upon and ensure the continuity of emergency services during severe and extreme weather events.

1. Conduct planning studies on evacuation policies, sheltering needs and capacity, hydrology, “Make Safe” procedures, and natural features.
2. Protect critical facilities and infrastructure necessary for emergency response.

## 4.3 Recommended Hazard Mitigation Strategies

The mitigation actions listed in this section were developed through The Nature Conservancy’s Risk Matrix. Each community utilized the Risk Matrix to understand the risks associated with natural hazards and to understand vulnerabilities and strengths. Through this matrix, participants developed and prioritized actions to address the impacts of natural hazards.

Mitigation actions are considered at the regional and local levels. Regional actions are general in nature and can be regarded as best practices. Mitigation actions at the local level address the unique characteristics of a community or the concerns expressed by the community.

Each mitigation action falls into one of the following six categories:

- **Prevention:** actions that will keep problems from getting worse
- **Property Protection:** actions that address individual buildings
- **Public Education & Awareness:** actions that will inform the public
- **Natural Resource Protection:** actions that will protect natural resources
- **Emergency Services Protection:** actions that

will protect emergency services before, during and immediately after an occurrence

- Structural Projects: actions that will control the hazard

Mitigation actions from 2006/2008 that are either ongoing or have not yet been implemented are listed in this matrix as well. Each action is prioritized using the STAPLE+E process (discussed below). Guidance from the CTAC and municipal staff informed the action selection and prioritization process.

Actions listed in the 2006 NHMP and 2008 Stratford Annex that have been implemented are listed in the implementation section.

### STAPLE+E

Throughout the planning process, a wide range of actions to mitigate and increase resiliency to the impacts of natural hazards were identified and discussed. Prioritizing each action will determine its effectiveness in reducing or preventing future impacts. The STAPLE+E method was used to prioritize the mitigation actions.

The STAPLE+E method evaluates the costs and benefits of a specific action against social, technical, administrative, political, legal, economic and environmental criteria. This method is commonly used by planners and public administrators. Based on this review, actions were prioritized for future implementation. The 2006/2008 plans used the STAPLE+E method to evaluate and prioritize strategies. However, the original plans only assessed the benefits of the strategy and not the costs. This update evaluates the costs and benefits of each strategy. Because the benefits, as well as the costs of each strategy were evaluated, the final prioritization (based on benefits and costs) may have changed as well.

The STAPLE+E cost benefit review evaluates the following:

#### Social

1. Is the proposed strategy socially acceptable to the Region or municipality?
2. Are there equity issues involved that would mean that one segment of the Region or municipality is treated unfairly?

#### Technical

1. Will the proposed strategy work?
2. Will it create more problems than it will solve?

#### Administrative

1. Can the Region or municipality implement the strategy?
2. Is there someone to coordinate and lead the effort?

#### Political

1. Is the strategy politically acceptable?
2. Is there public support both to implement and maintain the project?

#### Legal

1. Is the Region or municipality authorized to implement the proposed strategy?
2. Is there a clear legal basis or precedent for this activity?

#### Economic

1. What are the costs and benefits of this strategy?
2. Does the cost seem reasonable for the size of the problem and the likely benefits?

#### Environmental

1. How will the strategy impact the environment?
2. Will the strategy need environmental regulatory approvals?

The benefit of each criteria was ranked as low (1), medium (2) or high (3). Costs were ranked as low (-1), medium (-2) or high (-3). Criteria received a 0 if there was no cost or benefit, or if the criteria were not applicable to the mitigation action.

The workshop risk matrices informed the overall STAPLE+E process, as actions identified through the risk matrices obviously had some community or stakeholder support. Typically, these actions received a high ranking for the administrative, social and/or political benefits. High administrative and technical rankings were given to actions that were underway or in the process of implementation, since the community demonstrates the capacity to implement the action.

The economic costs of actions were evaluated based on a monetary estimate. Minimal cost actions require little staff time or municipal resources and

could possibly be implemented through volunteer assistance. Low cost actions were less than \$10,000. Moderate cost actions were between \$10,000 and \$100,000 and high cost items were over \$100,000.

The results of the STAPLE+E review will inform how actions are prioritized and implemented. Implementation will be discussed in Section 5 of the NHMP.

## 4.4 Regional Actions

Natural hazards are not governed by state, regional or local boundaries and typically impact a large geographic area. The following mitigation actions are general and address the regional scale and impact of natural hazards.

### Inland and Coastal Flooding:

Through the risk assessment, vulnerability assessment and discussions throughout the planning process, the communities of the Greater Bridgeport Region were found to be most at risk from flooding, both inland and coastal. Common impacts of flooding include damage to personal property, buildings, and infrastructure, closure of roads, disruptions of critical services, and injuries to persons in flood prone areas. General mitigation actions include:

#### Prevention

1. Incorporate flood mitigation in local land use regulations.
2. Enforce flood management regulations.
3. Consider requiring new buildings in the floodplain to be protected from the highest recorded flood level.
4. Develop storm water management regulations and programs
5. Develop regional watershed councils to prepare watershed management plans.
6. Improve storm water management planning and adopt policies to reduce storm water runoff, such as, requiring development projects have “zero discharge.”
7. Comply with the NFIP and maintain FEMA elevation certifications.
8. Implement floodplain management techniques above and beyond minimum NFIP requirements, including increasing “freeboard”

heights, adopting “No Adverse Impact” policies, notifying repetitive loss property owners, and participating in the Community Rating System (CRS) program.

9. Conduct hydrologic and hydraulic studies to evaluate risks and flood mitigation strategies.

#### Property Protection

1. Adopt and enforce building codes and increase “freeboard” requirements.
2. Remove existing structures from flood-prone areas.
3. Flood-proof basements and other areas.
4. Encourage elevation of structures.

#### Structural

1. Limit or restrict development in floodplain areas.
2. Limit the amount of impervious surface.
3. Prohibit filling in floodplain areas.
4. Increase capacity of storm water drainage systems and separate combined sewer systems.
5. Increase capacity of detention and retention ponds and basins.
6. Maintain drainage systems by clearing sediment, removing debris and routinely repairing and cleaning storm drains.
7. Elevate structures, roads, and bridges above base flood elevation.
8. Construct flood control measures, such as, berms and dikes, and use hardened material to prevent erosion.
9. Install bioengineered bank stabilization techniques.

#### Natural Systems Protection

1. Protect and restore natural flood mitigation features.
2. Protect and restore riverbanks, wetlands and dunes.
3. Use vegetative buffers.
4. Establish riparian buffers.
5. Preserve floodplains and wetlands as open space.
6. Acquire floodplain lands and wetlands for open space.
7. Establish a green infrastructure program that requires more trees to be planted or preserved, encourages the use of porous pavement, and planting of vegetative buffers.



8. Develop stream buffer ordinances.
9. Continue beach nourishment programs.

#### Education and Awareness

1. Increase awareness of flood risk and safety.
2. Encourage homeowners to purchase flood insurance.
3. Educate citizens about safety during flood conditions.
4. Conduct outreach to educate and advise homeowners about risks to life, health and safety.
5. Hold workshops to facilitate dissemination of information on technical assistance programs.

#### Emergency Services

1. Flood proof critical facilities in vulnerable locations, such as wastewater treatment plants, EOCs, police and fire stations, and emergency shelters.
2. Locate critical facilities, such as wastewater treatment plants, EOCs, police and fire stations, and emergency shelters outside flood-prone areas.

#### Sea Level Rise

Many of the mitigation actions that address the impact of coastal and inland flooding will also mitigate the impacts of sea level rise. Sea level rise causes land loss in low-lying coastal areas. Sea level rise also exacerbates erosion and flooding as new areas become vulnerable to storm surge, wave action, and tides.

#### Prevention

1. Map and assess vulnerability to sea level rise, including modeling of various “what if” scenarios.
2. Use GIS to map at-risk areas and structures.
3. Regulate and manage development in high risk areas and create a sea level rise overlay zone.
4. Prohibit reconstruction and redevelopment in areas susceptible to chronic flooding.

#### Property Protection

1. Protect buildings by acquiring structures in high risk areas and either demolish or relocate.
2. Raise buildings above potential sea levels.

#### Structural

1. Protect infrastructure by acquiring structures in high risk areas and either demolish or relocate.
2. Raise infrastructure above potential sea levels.
3. Limit the amount of impervious surface.

#### Natural Systems Protection

1. Preserve open space and wetlands in high risk areas.
2. Acquire open space in high risk areas.
3. Protect and restore natural buffers.
4. Implement dune restoration projects.
5. Promote conservation and management of open spaces and wetlands within sea level rise areas.

#### Education and Awareness

1. Increase awareness and educate the public about sea level rise.
2. Encourage homeowners to purchase flood insurance.

#### Emergency Services

1. Locate critical facilities, such as wastewater treatment plants, EOCs, police and fire stations, and emergency shelters outside areas vulnerable to sea level rise.

#### Severe Winter Weather

Severe winter storms may include snow, sleet, freezing rain, or a mixed precipitation, and are often accompanied by high winds. The damage from these storms includes downed trees, widespread power outages, road closures and limited access to critical facilities, and can result in injury and death.

#### Prevention

1. Adopt and enforce building codes.
2. Improve tree maintenance.

#### Infrastructure

1. Protect power lines and infrastructure.
2. Establish and follow standards and guidelines for tree pruning around power lines and routine inspection of hazardous trees.
3. Establish debris management and clearing capabilities.
4. Reduce the impacts to roads by planning for

snow removal and debris clearing.

5. Maintain and improve snow clearing equipment.

#### Education and Awareness

1. Increase awareness and educate the public about proper tree maintenance.
2. Educate citizens about safety during winter storms and power outages.
3. Provide residents with the locations of warming centers and shelters during a power outage.

#### Emergency Services

1. Ensure adequate power to critical facilities such as EOCs, police and fire stations, and emergency shelters.
2. Improve communication and cooperation with local utilities, "Make Safe" crews and power restoration regarding downed trees and power lines.
3. Ensure emergency access to vulnerable populations and critical facilities.

#### Earthquakes:

An earthquake is a sudden release of energy that creates a movement in the earth's crust. Property damage from earthquakes is primarily caused by the failure and collapse of structures. The Region is not highly susceptible to earthquakes.

#### Severe Summer Weather:

Severe summer weather comes in the form of thunderstorms and tornadoes, and is accompanied by lightning, hail and high winds. These events pose a threat to lives, property, and vital utilities primarily from downed trees, limbs, power lines and flying debris. Although infrequent in the Region, a tornado is a violently rotating column of air that has contact with the ground and is often visible as a funnel cloud. The destruction caused by tornadoes ranges from light to catastrophic depending on the intensity, size, and duration of the storm.

#### Prevention

1. Adopt and enforce building codes.

#### Structural

1. Install lightning protection and grounding on

communications infrastructure and critical facilities.

2. Install surge protection on critical electronic equipment.

#### Education and Awareness

1. Develop a lightning brochure for distribution at recreation facilities and parks.
2. Ensure the public is aware of emergency cooling centers during severe hot weather.

#### Emergency Services

1. Ensure adequate power to critical facilities such as EOCs, police and fire stations, and emergency shelters.
2. Improve communication and cooperation with local utilities regarding downed trees and power lines, "Make Safe" crews and power restoration.
3. Ensure emergency access to vulnerable populations and critical facilities.

#### All Hazards:

1. Secure and install backup generators that are adequate to meet the needs of critical facilities and evacuation locations, both short term and long term.
2. Expand the use of GIS to inform municipal staff, residents, businesses and regional stakeholders of potential natural hazards and strategies to mitigate, prepare and/or respond to the impacts of natural hazards.
3. Develop a regional website to inform residents, businesses and regional stakeholders of natural hazards, their impacts, preparation for and response to.

**LEGEND**

Hazard Type			
C = Coastal flooding	C/I = Coastal and Inland Flooding	W = Wind	SR = Sea Level Rise
I = Inland Flooding		A = All Hazards	
Existing/New			
E = Existing	N = New		
Cost			
MI = Minimum: staff time or volunteer time	L = Low: less than \$10,000	MO = Moderate: between \$10,000 and \$100,000	H = High: \$100,000

Table 4.1  
**RISK MATRIX - REGION**

Description	Hazard Type	Existing/New	Cost	Benefits								Subtotal	Costs						Subtotal	TOTAL			
				Social	Technical	Administrative	Political	Legal	Economic	Environmental	Social		Technical	Administrative	Political	Legal	Economic	Environmental					
Enforce flood management regulations	C/I	E	L	2	2	2	2	2	2	1	1	11	-1								-1	10	
Conduct hydrologic and hydraulic studies to evaluate risks and flood mitigation	C/I	N	H	1	2	3	3	1	1	1	2	12									-2	10	
Develop regional watershed councils to prepare watershed management plans	I	E	L	2	2	1	1			1	3	9	-1									-1	8
Comply with NFIP and maintain FEMA elevation certificates	C/I	E	L	2	2	3	3	2	2	2		12	-1	-1							-2	8	
Develop storm water management regulations and programs	I	E	L			2	2				3	7										0	7
Implement floodplain management techniques above and beyond minimum NFIP requirements, including increasing "Freeboard" heights, adopting "No Adverse Impact" policies, notifying repetitive loss property owners, and participating in the Community Rating System (CRS) program	C/I	N	H	2	3	2	2			3	2	11	-1	-1							-2	7	
Incorporate flood mitigation in local land use regulations	C/I	E	MO	1	2	2	2	1	2	1	1	9	-1	-1							-1	6	
Improve storm water management planning and adopt policies to reduce storm water runoff, such as, requiring development project have "zero discharge"	I	N	H	1	1	1	2				3	8	-1								-2	5	
Consider requiring new buildings in the floodplain to be protected from the highest recorded flood level	C/I	N	MO		1	2	1			2	1	5	-1								-1	3	

Table 4.1  
RISK MATRIX - REGION

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL
<b>Public Education &amp; Awareness</b>																				
Increase awareness of flood risk and safety	C/I	E	MI	3	2	2	3				10								0	10
Encourage homeowners to purchase flood insurance	C/I	E	MI	3	2	2	3		1		10								0	10
Educate citizens about safety during flood conditions	C/I	E	MI	3	2	2	3				10								0	10
Conduct outreach to educate and advise homeowners about risks to life, health and safety	A	E	MI	3	2	2	3				10								0	10
Hold workshops to facilitate dissemination of information on technical assistance programs	A	E	L	3	2	2	3				10						-1		-1	9
<b>Natural Resources Protection Actions</b>																				
Protect and restore riverbanks, wetlands and dunes	C/I	E	L	2	2	2	2			3	11						-1		-1	10
Use vegetative buffers	C/I	E	L	2	2	2	2			3	11						-1		-1	10
Establish riparian buffers	I	E	MO	2	2	2	2			3	11						-1		-1	10
Preserve floodplains and wetlands as open space	C/I	E	L	2	2	1	1			3	9								0	9
Protect and restore natural flood mitigation features	C/I	E	L	2	1	2	2	1	1	2	10						-2		-2	8
Acquire floodplain lands and wetlands for open space	C/I	E	H	1	2	2	2			3	10						-2		-2	8
Develop stream buffer ordinances	I	N	MI		2	1	1			2	6								0	6
Continue beach nourishment programs	C	E	H	2	1	2	2		1	1	8						-2		-2	6
Establish a green infrastructure program that requires more trees to be planted or preserved, encourages the use of porous pavement, and planting of vegetative buffers	I	N	H	1	1	1	2		1	2	7						-2		-2	5
<b>Emergency Services Protection Actions</b>																				
Locate critical facilities, such as wastewater treatment plants, EOCs, police and fire stations, and emergency shelters outside flood-prone areas	C/I	N	MO		2	1	1	1	2		5								0	5
Flood proof critical facilities in vulnerable locations, such as wastewater treatment plants, EOCs, police and fire stations, and emergency shelters	C/I	N	H		1	2	2	1	1		6						-2		-2	4

Table 4.1  
RISK MATRIX - REGION

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL	
<b>Structural</b>																					
Maintain drainage systems by clearing sediment, removing debris and routinely repairing and cleaning storm drains	I	E	MO	1	3	2	2	1	1	1	10							-1	-1	9	
Prohibit filling in floodplain areas	C/I	N	MI	1	2	2	2		1	1	8								0	8	
Limit or restrict development in floodplain areas	C/I	N	L	1	2	2	1	1	1	2	9	-1		-1					-2	7	
Limit the amount of impervious surface	I	N	L			2	2		2	3	7	-1					-1		-2	5	
Increase capacity of detention and retention ponds and basins	I	N	MO		1	2	1		2	1	5						-1		-1	4	
Install bioengineered bank stabilization techniques	C	N	H		1	1	2	1	2	1	6							-2	-2	4	
Increase capacity of storm water drainage systems and separate combined sewer systems	I	E	H		1	2	1		2	1	5							-2	-2	3	
Construct flood control measures, such as, berms and dikes, and use hardened material to prevent erosion	C/I	E	H		1	1	2	1	3		5							-2	-1	-3	2
Elevate structures, roads, and bridges above base flood elevation	C/I	N	H			1	1	1	2		3							-2	-2	1	
<b>Property Protection</b>																					
Adopt and enforce building codes and increase "freeboard" requirements	C/I	N	L		2	1	1	1	2		5			-1					-1	4	
Encourage elevation of structures	C/I	E	MO		2	1	1	1	3	1	6							-2	-2	4	
Removing existing structures from flood-prone areas	C/I	E	H		2				3	3	5	-1		-1			-1		-3	2	

### National Flood Insurance Program

As described in Section 3, inland and coastal flooding has severely impacted communities throughout the Greater Bridgeport Region. All communities in the Greater Bridgeport Region participate in the National Flood Insurance Program (NFIP).

Communities that participate in the NFIP must adopt a local flood damage prevention ordinance with established minimum building standards for

the floodplain. All new buildings and substantial improvements to existing buildings are required to be protected from damage by floods with a 1-percent-annual-chance of occurring (the 100-year flood). Any new floodplain development may not aggravate existing flood problems or increase damage to other properties. See Table 4.2 NFIP Adoption.

All communities in the Greater Bridgeport Region have adopted and continue to enforce floodplain management regulations that are consistent

Table 4.2: NFIP Adoption  
**NFIP Adoption**

City or Town	NFIP Entry Date	Effective FIRM	Total Policy Holders (as of 10/13)	Policy Holders in SFHA (as of 10/13)	Average Premium	1000 yr
Bridgeport	10/15/80	07/08/13	1,873	1,365	\$937	\$1,755,309
Easton	09/30/83	06/18/10	37	9	\$858	\$31,760
Fairfield	08/15/78	07/08/13	2,844	2328	\$1,667	\$4,740,855
Monroe	04/17/85	06/18/10	51	20	\$850	\$43,365
Stratford	06/01/78	07/08/13	2007	1470	\$1,220	\$2,448,995
Trumbull	12/04/79	06/18/10	223	134	\$1,192	\$265,742

with those required by the NFIP. Continued compliance with NFIP standards, active participation in the NFIP and application to the Community Rating System will mitigate the financial impacts of future flood events.

**Mitigation Actions for Repetitive Loss Properties**

Due to multiple claims under the NFIP, Repetitive Loss Properties are costly to insure and strain FEMA resources. FEMA offers grant programs to assist communities and states in implementing actions that reduce or eliminate the long-term risk of flood damage to focus on repetitive loss properties. The primary objective of these programs is to eliminate or reduce the damage to property caused by repeated flooding. Funds are provided to implement various mitigation measures that will reduce future flooding losses. Possible mitigation actions include acquisition or relocation of severe repetitive loss properties and elevating existing structures. In addition to these actions, additional objectives and actions for the Greater Bridgeport Regional Council and member communities are as follows:

**Objective 1**

Improve storm water management and ground water recharge to prevent increased flooding.

**Mitigation Actions**

- 1.1 Encourage all municipalities in the Region to adopt regulations that incorporate or refer to recommended practices from the most current Connecticut Stormwater Quality Manual, Connecticut Guidelines for Erosion and Sedimentation Control and in particular, those

which promote low impact development and green infrastructure techniques.

- 1.2 Encourage development that is in harmony with natural drainage systems in all municipalities through reviews of development referrals.
- 1.3 Foster improved understanding of the importance of stream management, maintenance of natural drainage channels, and use of green infrastructure practices among municipal staff, inland wetlands commissions and planning and zoning commissions through education.
- 1.4 Continue participation in the GBRC's Conservation Technical Advisory Committee and strengthen relationships with adjacent Councils of Government and regional conservation organizations.

**Objective 2**

Implement hazard mitigation strategies.

**Mitigation Actions**

- 2.1 Maintain the multi-jurisdictional natural hazard mitigation plan with updates at least every five years.
- 2.2 Work with municipalities and regional, state and federal agencies to improve the availability of relevant data; including, but not limited to current land uses, vulnerable building stock inventories and values, and hazardous materials inventories.
- 2.3 Train GBRC and municipal staff in HAZUS-MH software.
- 2.4 Assist member municipalities in pursuing federal and state funds to implement mitigation measures.
- 2.5 Incorporate natural hazard mitigation con-

cerns into the regional plan of conservation and development and encourage municipalities to address natural hazards mitigation in local plans of conservation and development.

2.6 Encourage municipalities to participate in the National Flood Insurance Program's Community Rating System.

2.7 Work with municipalities to facilitate a process for improved communications with upstream communities to provide timely downstream notifications regarding water levels and releases from dams.

## 4.5 Recommended Hazard Mitigation Actions – Municipal Actions

The following local actions are recommended to mitigate the impacts of natural hazards and address the specific concerns of each respective community.

Each section begins with the community's TNC risk matrix, developed at the resiliency planning workshops. A brief narrative of mitigation strategies explains the overall concerns of the community. The mitigation strategy matrix is the result of the workshop's risk matrices, discussions with municipal staff, the concerns gathered through the public outreach process and the STAPLE+E review method. Actions from the 2006 plan and 2008 annex that have not been implemented are included in the mitigation action matrices as well.

Table 4.3  
**RISK MATRIX - BRIDGEPORT**  
**Bridgeport Climate Preparedness Workshop Risk Matrix - April 10, 2012**  
*Risk Matrix developed by The Nature Conservancy (01/2012)*

			HAZARDS					Priority for Action	
Vulnerabilities/ Assets	Location	Ownership	Coastal Flooding (Surge and SLR)	Precipitation	Heat	Wind	Priority for Action	Time	
<b>Infrastructure</b>									
V	Transportation - airport, rail, ferries, bus, highways, local roads, bridges, viaducts	coastal and low lying	private & city, federal & state	Raise/repair bridges for evac route & viaducts for pumping station, back up generator		High rise & elderly	Evac during hurricanes, can't move high-profile vehicles at 45 mhp	H	L
A	Signs for Evacuation Route/Website	Citywide	City	Improve (color code) evacuation zones		High rise & elderly	Hurricane evacuation	M	S
A	Metro North brings buses for evacuations	Coastal	State	Amphibious vehicles, high clearance vehicles (infrastructure limiting)		Improved communications with commuters & residents		H	S/L
A	Communication (reverse 911 Tool, social media)	Citywide	Local, regional, state, federal & private	Underground lines and downed poles, generators	Snow/ice damage	Equipment performance, damage	Loss of towers, equipment, and lines	H	S/L

Section 4: Mitigation

Table 4.3  
**RISK MATRIX - BRIDGEPORT**  
**Bridgeport Climate Preparedness Workshop Risk Matrix - April 10, 2012**  
*Risk Matrix developed by The Nature Conservancy (01/2012)*

HAZARDS

Vulnerabilities/ Assets	Location	Ownership	HAZARDS				Priority for Action Time	
			Coastal Flooding (Surge and SLR)	Precipitation	Heat	Wind		
V Utilities - Tank Plants/ Power Plants/Trash to Energy/Water	Citywide	Aquarion/ multiple	Flood control at Ox Brook, Rooster River, N. Bridgeport	Drinking water supply (high rain flooding downstream), freezing water pipes (old pipes)	Drought/high heat pressure		H	S/L
V High Density/Public Housing	Citywide *primarily- critical-coastal	City and Private	Evacuation, communication, transportation, age of basement utilities		Failure of HVAC systems	Aging buildings and building codes	H	S/L
<b>Societal</b>								
V Restricted Access/Egress	E&S Neighborhoods	BHA/City	Build local area of refuge, Build alternate access/ change grades		Develop communication trees		H	S/L
V Pollution/Contamination	Citywide	DEEP,EPA;Fire Dept; Health Dept	Coordinated cleanup effort, quarantine sites, communicate issues & procedures				H	S/L
V Seniors and Low Income Residents	Citywide	City and Private; Health Dept.	Build local area of refuge, Build alternate access/ change grades		Transportation & communication, I.D. Cooling Centers in central areas, sustainable dev.		H	S/L
A Fire and Police response/ EOC	Citywide	City, Hospitals, Utilities	Widespread alerts, coordinate resources including funding				M	L
<b>Ecosystem</b>								
V Tidal Marsh	East End, Ash Creek	USFWS	Limit development, naturalized armor (slope) add marsh, vegetation, etc			Limit development	H	S/L
V/A Barrier Beach	Pleasure Beach	City of Bridgeport	Breakwater expansion	Preserve, advance dunes	Preserve, advance dunes	Preserve, advance dunes	H	S/L
V City Parks	Citywide	City of Bridgeport	Limit development, stormwater, improvements site by site			Limit development, stormwater, improvements site by site	M	L
V/A Maritime (oysterbeds, reef)	Coastline	Multiple	Coastline protection/ redesign (finger-like protection design)				M	S/L



## City of Bridgeport

The primary natural hazards impacting the City of Bridgeport include coastal flooding from tropical storms and hurricanes and inland flooding from heavy rain events. Inland flooding is worsened by the past channeling and/or burying of water courses. Addressing the impacts of coastal and inland flooding continue to be priorities in the City of Bridgeport, as they were in the 2006 NHMP. Since 2006, NHMP recommendations have expanded to include a diverse and very comprehensive set of strategies to address the impacts caused by a variety of natural hazards.

As detailed in the BGreen Plan, the City has placed a priority on proactively addressing rising sea levels and the impacts of climate change. While improvements to and expansion of infrastructure and structural solutions remained as priority actions, as in the 2006 NHMP, green infrastructure, low impact development and comprehensive, region-wide watershed management were also recommended as strategies to mitigate the impacts of natural hazards. A number of strategies to protect/nourish beaches, such as at Seaside Park and shoreline neighborhoods were also recommended throughout the update process.

New priorities for infrastructure improvements were also identified as part of the update. While the 2006 NHMP identified specific sewer separation projects, new recommendations are most focused on finding opportunities for a coordinated approach to the overall sewer separation project by a number of city departments. This includes upgrading to a separated sanitary sewer system during road improvement projects. Continuing to secure funding for the various phases of ongoing projects and completing these projects remains a city priority. Integrating low impact development best management practices into these projects is emphasized throughout the update.

A greater emphasis on pre-disaster planning and effective public education is another change in priorities since 2006. Public education, outreach and early warning to residents is crucial to insuring a resilient community. These strategies will ensure that the public has the information to adequately prepare (and recover) in the event of a disaster. Assisting residents of high density public housing, vulnerable populations, the transit dependent and those with special needs before, during and after severe weather events is another city priority. The City of Bridgeport will continue to provide universal shelters, which provide facilities for people with special needs and accept pets.

Hazards caused by severe ice, wind, snow storms and heat have also received greater attention from stakeholders in the City of Bridgeport. During periods of severe heat, insuring that vulnerable populations are aware of and have access to cooling centers is a crucial task. Developing a plan to address city operations protocols for varying levels of snowfall and securing additional equipment for snow removal are priorities to address events such as Winter Storm Nemo in 2013. Increasing the effectiveness of emergency communications – among city departments and to the public are priority strategies that can be utilized during a variety of natural hazard events.

Recommended mitigation strategies for the City of Bridgeport include the following:

LEGEND			
<b>Hazard Type</b>			
C = Coastal flooding	C/I = Coastal and Inland Flooding	W = Wind	SR = Sea Level Rise
I = Inland Flooding		A = All Hazards	
<b>Existing/New</b>			
E = Existing	N = New		
<b>Cost</b>			
MI = Minimum: staff time or volunteer time	L = Low: less than \$10,000	MO = Moderate: between \$10,000 and \$100,000	H = High: \$100,000

Section 4: Mitigation

Table 4.4  
ACTION MATRIX - BRIDGEPORT

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL
<b>Prevention</b>																				
Consider enrolling and participating in FEMA's Community Rating System (CRS) program. Identify and integrate building codes, land use policies and zoning regulation modifications that minimize exposure of existing buildings, future development and critical infrastructure to natural hazards and extreme weather. The City of Bridgeport has a well developed public engagement program that educates residents about flooding and flood preparation. The Greater Bridgeport Regional Council is preparing a regional GIS, with information about flooding which is another CRS activity.	C/I	N	M	2	3	3	2		3	2	15	-1	-1				-2		-4	11
Adopt stream dumping regulations. Property owners are responsible for clearing any obstruction in streams that run through their property. The City will clear obstructions on non-private property.	C/I	E	L	1	3	3				3	10			-2			-1		-1	9
Identify and integrate building code, land use policies and zoning regulation modification that minimize exposure of existing and future development and critical infrastructure and facilities.	A	N	L	2	3	3	1				9						-1		-1	8
Continue the policy of "Universal" shelters, "Universal" means specific needs and pets are allowed for.	A	N	MI	3	3	2					8								0	8
Consider tapping into new or alternate sources of funding for resilience/hazard mitigation projects.	A	N	MI		2	2	2		2		8								0	8
Consider adopting standards to require two or more feet of freeboard when developing or redeveloping structures in tidally influenced floodplains. Initiate longer-term opportunity to adapt the City to flooding through new building siting to elevations well above FEMA's 100-year flood zones (i.e., 500-year standard).	C	N	L	2	3	3	1				9						-1		-1	8
Investigate opportunities for floodplain easements on properties. The City has applied for a Natural Resource Conservation Service Easement Grant for areas in Johnson's Creek.	C/I	N	MI		3	3				2	8	-1							-1	7
Encourage low impact development techniques and green infrastructure for new developments.	C/I	N	L		3	2				3	8						-1		-1	7

Table 4.4  
ACTION MATRIX - BRIDGEPORT

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL	
Secure funding for and initiate an urban forest canopy study. A study was conducted in 2010 but needs to be updated.	W	N	L		2	3				2	7								-1	-1	6
Factor climate change impacts into all critical infrastructure improvement plans (i.e., bridges, bus route realignment).	SR	N	MO	1	2	2	1			2	8								-2	-2	6
Continue to implement the comprehensive urban forest management plan. Working directly with the local utility, the City has begun implementing a "right tree, right place" tree replanting strategy, due to the recent decline in large growth trees.	W	N	L	1	3	2				2	8			-1					-1	-2	6
Continue to expand Energy Improvement Districts with policies and codes that promote efficiency and hardening of infrastructure.	A	N	MO	1	2	3	2				8								-2	-2	6
Continue to amend the storm water management manual as necessary.	C/I	N	MI		2	3				1	6									0	6
Conduct a study to assess and prioritize the highest risk locations across the City.	A	N	L	2	1	3	1				7								-1	-1	6
Continue to enforce V-zone requirements in sections of coastal A zones located waterward of waterfront roadways. Applicable ordinances are amended as FIRM maps are revised.	C	E	L	1	2	3					6			-1					-1	-1	5
Pending funding, proceed with the Stormwater Authority Feasibility Study. Consider incentives to reduce the amount of impervious surface in the City. Use GIS to assess impervious surface cover.	C/I	N	MO		2	2				2	6	-1		-1						-2	4
<b>Property Protection</b>																					
Encourage property owners to elevate electrical and heating systems above the base flood elevation. Utilizing \$500,000 through a Robin Hood Foundation Grant utilities in Seaside Village are being raised and upgraded.	C/I	N	L	2	3	3	2				10								-1	-1	9
Continue to flood-proof structures, especially in the Seaview Avenue/Lower East End neighborhoods. Ordinances regarding flood proofing are amended as FIRM maps are revised.	C/I	E	MO	2	3	3	2				10								-2	-2	8
Elevate houses as they are renovated or constructed in the Black Rock Area.	C	E	MO	2	3	3	2				10								-2	-2	8
Encourage property owners to elevate structures above the base flood elevation.	C/I	N	MO	2	3	3	2				10								-2	-2	8

Section 4: Mitigation

Table 4.4  
ACTION MATRIX - BRIDGEPORT

Description	Hazard Type	Existing/New	Cost	Benefits							Subtotal	Costs					Subtotal	TOTAL					
				Social	Technical	Administrative	Political	Legal	Economic	Environmental		Social	Technical	Administrative	Political	Legal			Economic	Environmental			
Consider moving sediment to preserve hydrologic function of Ash Creek.	C/I	N	MO	1	3	3	2			3	12									-2	-2	10	
Expand the separation of sanitary and storm drainage sewers. Implement and install green infrastructure and building modifications to improve on-site storm water management, retention and infiltration.	C/I	N	H	2	3	3	2			3	13									-3	-3	10	
During road construction, upgrade to a separated sewer system and improve the drainage and catch basin system.	C/I	N	H	2	3	3	2			3	13									-3	-3	10	
Improve ability of drinking water supply reservoirs to accommodate high intensity, short duration rain events.	I	N	MO	2	3	3	2			2	12									-2	-2	10	
Continue to utilize low impact development techniques and green infrastructure for new developments and continue to work with the Office of Planning and Economic Development and the WPCA to coordinate development and sewer separation projects.	C/I	N	MO		2	2	1		3	3	11									-2	-2	9	
Expand the separation of sewer and surface runoff across more of the City's water/sewer infrastructure (i.e., CSO separation). Continue to improve the communication of Long Term Control Plan (LTCP), CSO master planning document. Continue to map and strategically plan separation projects.	C/I	N	H	2	3	2	2			3	12									-3	-3	9	
Consider retreat from the Cedar Creek shoreline where vacant properties have little probability of expansive redevelopment. The City is currently considering a conservation easement for a site located at the NE terminus of Brewster Ave.	C	E	MO	1	3	2	1	1		3	11									-2	-2	9	
Address the number of derelict structures in the City.	A	N	MO	3	2	3	3			1	12									-1	-2	-3	9
Continue to protect vital transportation infrastructure working with GBT, local, state and federal Agencies as well as providing safe and secure access to and from transit hubs as preparation for any future storm response and/or evacuation.	A	N	MO	3	3	3	1				10									-2	-2	8	
Continue to implement the recommendations from the Pleasure Beach Master Plan. Phase I work is in construction. The City is seeking funding for Phase II and hopes to build in more resilience measures into plans.	C	N	H	1	3	3	2			2	11									-3	-3	8	
Implement recommendations made by the Seaside Park flood control study.	C	N	H	1	3	3	2			2	11									-3	-3	8	

Table 4.4  
ACTION MATRIX - BRIDGEPORT

Description	Hazard Type			Benefits							Subtotal	Costs						Subtotal	TOTAL	
	Existing	New	Cost	Social	Technical	Administrative	Political	Legal	Economic	Environmental		Social	Technical	Administrative	Political	Legal	Economic			Environmental
Initiate a waterfront recapture program and consider waterfront easements. Proceed with Knowlton Park Phase III.	C	N	H	2	3	3	1			2	11							-3	-3	8
Integrate the Complete Streets Policy into the annual paving regiment, to improve drainage as part of road improvement projects.	C/I	N	MO	1	3	3	1			2	10							-2	-2	8
Initiate strategically placed green infrastructure and roof leader and other building modification projects to improve on-site stormwater runoff retention and infiltration. Continue to work to find physical locations for 'green solutions' called for in the WPCA Long Term Control Plan (LTCP).	C/I	N	H		3	3	2			2	10							-3	-3	7
Continue using a mix of hard and soft beach protection measures at Seaside Park.	C	E	H	2	2	3	2		1		10							-3	-3	7
Continue to clean catch basins annually. The WPCA and Public Facilities department have a yearly catch basin cleaning program.	C/I	E	MO		3	3	1			2	9							-2	-2	7
Continue the aggressive street sweeping program and cleaning streets prior to forecasted storms to keep storm grates clear and accommodate higher flows.	C/I	E	MO		3	3	1			2	9							-2	-2	7
Continue to frequently clean the racks at Bowe Street.	I	E	MO		3	3	1			2	9							-2	-2	7
Aggressively maintain culverts and remove debris from channels along Ash Creek/ Rooster River.	C/I	E	MO		3	3	1			2	9							-2	-2	7
Use signage and large, visible staffs to indicate depths of water so that vehicles can avoid flooded viaducts when necessary.	A	E	L	1	3	3	1				8							-1	-1	7
Aggressively maintain culverts and remove debris from channels along Johnson Creek, Pequonnock River, and Yellow Mill.	C/I	N	MO		3	3	1			2	9							-2	-2	7
Install an automated flood control gate system to measure flooding at viaducts. This system will insure timely police response to close the viaducts and prevent cars from getting stuck. The City has installed flood depth signage and posts to indicate the depth of water at critical locations to inform motorists to avoid flooded viaducts when necessary and has developed well-marked, color-coded evacuation routes for residents to follow.	C/I	N	H	2	3	3	1				9							-3	-3	6
Improve beach protection in the Black Rock Area.	C	E	H	1	2	3	1			2	9							-3	-3	6

Section 4: Mitigation

Table 4.4  
ACTION MATRIX - BRIDGEPORT

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL
Proceed with creation of a stormwater detention area at the north end of Roger's Park. The design phase of the project has been bonded. The project's scope and fee negotiation for design is anticipated to be complete by the end of 2013.	I	E	H	1	3	3	1			1	9							-3	-3	6
Improve drainage when completing roadway projects in the future to address flooded viaducts.	C/I	E	MO		3	3	1			1	8							-2	-2	6
Continue the drainage maintenance program for inspections of private drainage facilities to be maintained and cleaned.	C/I	N	MO		3	3	1			2	9	-1						-2	-3	6
Systematically replace culverts and bridges and upgrade drainage systems.	C/I	N	H	1	3	3	1			1	9							-3	-3	6
Repair/replace the State Street Ext/ Commerce Drive Bridge and upgrade the catch basins and drainage system.	I	N	H	1	3	3	1			1	9							-3	-3	6
Protect the Cedar Creek bank with bulkheads or other creative hard solutions. The City is currently considering construction of a hurricane barrier (similar to Stamford) to address surge-related flooding in Cedar Creek.	C	E	H	1	3	3	1				8							-3	-3	5
Raise the height of two harbor breakwaters to protect the inner harbor, St. Mary's at Ash Creek and the Fayerweather lighthouse breakwater from the reach of higher waves and to reduce damage from wave action. The City is actively seeking funding for breakwater improvements. Hope to tie into comprehensive resilience barrier: Pleasure Beach pier wave fence, seawall/ jetty improvements, Seaside Park berm (see below), Cedar Creek hurricane barrier. This is a potential USACE project.	C	E	H	1	2	3	2				8							-3	-3	5
Implement physical enhancements of beach protection infrastructure, including breakwaters, groins, and hardscape along Seaside Park, in the Black Rock neighborhood and in the lower East Side, as necessary and appropriate. This project is anticipated to be included in the project above.	C	N	H	1	2	3	2				8							-3	-3	5
Acquire additional land as needed for the creation of a detention area. The City is in ongoing discussions with property owners regarding land acquisition.	I	E	MO		3	2	1			3	9	-1		-1				-2	-4	5

Table 4.4  
ACTION MATRIX - BRIDGEPORT

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL
Implement Flood Control Project to divert 400 cfs from Island Brook at Old Town Road to Ox Brook at Roger's Park. This flow is to be diverted back to Island Brook at Fairview Avenue through a large detention basin at Shriya Park. The final phase of the Ox Brook project will address this issue.	I	E	H		3	3	2				8							-3	-3	5
In the Northeast section, continue with the Feasibility/Flood Control Study that takes the downstream constriction at the GE Property into consideration, and implement recommendations as appropriate. The environmental study and preliminary design for this project has been completed.	I	E	H	1	2	3	1		1		8							-3	-3	5
Remove existing bridges at Feroletto Steel and Scofield Avenue and replace with new bridge that increases the base height of the structure and minimizes flood impacts.	I	E	H	1	3	3	1				8							-3	-3	5
Build in extra flood storage at Island Brook, Bruce Brook and Rooster River/Ash Creek.	C/I	N	H	1	3	3	1				8							-3	-3	5
Replace or maintain the culverts along the Ox Brook to adequately handle the flow of water.	I	N	H		3	3	1		1		8							-3	-3	5
Increase, and in some cases introduce, bank protection along the Yellow Mill Channel.	C	E	MO		2	3	1				6							-2	-2	4
Consider elevating Waterview Avenue, especially in connection with redevelopment projects.	C	E	H		2	2	3				7							-3	-3	4
Allow Barnum Boulevard to be submerged during storm surge. The City conducted an initial conceptual design of a berm in Seaside Park. The City is currently looking for funding sources, as FEMA did not fund the berm during the 2012 round of grants.	C	E	H		3	3			1		7							-3	-3	4
Consider elevating the road and parking lots in the Cedar Creek area, especially in connection with redevelopment projects.	C	E	H		2	2	3				7							-3	-3	4
Elevate low-lying roads, including the south end of Seaview Avenue, Waterview Avenue, Seabright Avenue and Gilman Street.	C	E	H		2	2	3				7							-3	-3	4
Raise the electrical boxes at Seaside Park in areas vulnerable to flooding. Some of this has occurred following Super Storm Sandy.	C	N	MO		3	3					6							-2	-2	4





Table 4.4  
ACTION MATRIX - BRIDGEPORT

Description	Hazard Type	Existing/New	Cost	Benefits							Subtotal	Costs						Subtotal	TOTAL				
				Social	Technical	Administrative	Political	Legal	Economic	Environmental		Social	Technical	Administrative	Political	Legal	Economic			Environmental			
Acquire open space in high risk areas. Identify and seek further conservation through acquisition of marsh "Advancement Zones" and riparian corridor restoration projects throughout the City.	C/I	N	MO	2	3	3				3	11								-1	-2	-3	8	
Implement the recommendations from the Pequonnock River Watershed Plan to improve water quality and alleviate flooding.	C/I	N	H	2	3	2	3			2	12									-3	-3	9	
Implement the recommendations from the Rooster River Watershed Plan to improve water quality and alleviate flooding.	C/I	N	H	2	3	2	3			2	12									-3	-3	9	
Plan for beach nourishment at Seaside Park.	C	E	H	2	2	2	3				9									-3	-3	6	
Implement dune restoration projects.	C	N	H	2	2	2	3			2	11									-3	-3	8	
Promote conservation and management of open spaces and wetlands within sea level rise areas. Restore and protect natural systems in Bridgeport including replanting the Remington Woods riparian zone, Pleasure Beach, along Ash Creek.	C	N	MO	2	3	3	1			3	12									-2	-2	10	
Identify parcels within the marsh advancement zone that could be acquired, including properties along Cedar Creek that have low potential for redevelopment.	C	N	MO	1	3	2	2			3	11									-2	-2	9	
Introduce land forms to minimize vulnerability to storm surge in the South End community.	C	N	H	3	3	2	2				10									-3	-3	7	
Mitigate erosion from flooding at Ash Creek.	C/I	N	H	1	3	2	1			3	10									-3	-3	7	
<b>Education &amp; Awareness</b>											<b>0</b>							<b>0</b>	<b>0</b>				
Implement outreach programs to educate citizens regarding flood management ordinances, flood insurance programs, and other flood relevant issues, including creditable activities in the CRS program and GIS.	C/I	N	MI	3	2	3	3			1	12											0	12
Increase community awareness and preparedness through education and outreach via the religious community, public libraries and higher education and implement neighborhood specific emergency and communications plans.	A	N	MI	3	3	3	2				11											0	11

Section 4: Mitigation

Table 4.4  
ACTION MATRIX - BRIDGEPORT

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL
Finalize specific neighborhood plans for emergency management and communications and implement plan provisions. Each plan should be translated into the top five languages spoken in the City of Bridgeport. The 2013 Clean Air Cool Planet fellow developed draft versions of Neighborhood Plans for the 3 coastal neighborhoods.	A	N	L	3	2	3	3				11							-1	-1	10
Increase education and communications on response procedures for residents of high density public housing areas, especially those located in the coastal area.	A	N	MI	3	2	3	2				10								0	10
Assess/augment local areas of the public refuge system across the City and ensure residents are aware of uses and procedures during emergencies.	A	N	L	2	3	3	2				10							-1	-1	9
Encourage homeowners to purchase flood insurance.	C/I	N	MI	2	3	3			1		9								0	9
Expand opportunities to collect household hazardous materials to proactively reduce the dispersment of toxic substances from flooded homes and facilities.	C/I	N	L	2	3	2	3				10							-1	-1	9
Strengthen existing communication systems with new technology to ensure widespread and rapid alert and continue implementing a Reverse 9-1-1 system to alert residents in the case of impending floods	A	N	MO	2	3	3	2				10							-2	-2	8
<b>Emergency Services</b>																				
Continue to follow the State Debris Management Plans and FEMA Regulations regarding coordinated post-disaster clean-up and contamination remediation efforts.	A	N	MO	2	3	3	2		3		13							-2	-2	11
In high density and public housing developments, address evacuation routes, communication, transportation needs and the age of basement utilities.	A	N	L	3	3	3	3				12							-1	-1	11
Additional snow removal equipment, such as back hoes and plows are needed for severe winter storms, such as Nemo.	W	N	MO	3	3	3	3				12							-2	-2	10
Reasses current capacity and needs of sheltering, cooling and medical network across City as well as adjoining municipalities in the Greater Bridgeport Region. The City has pre-identified mass care shelters, cooling/warming centers, and is discussing a regional approach to mass care sheltering.	A	N	L	2	3	3	2				10							-1	-1	9



Town of Easton

Table 4.5  
**RISK MATRIX - EASTON**  
**Monroe-Easton-Trumbull Hazards and Community Resilience Workshop - September 24, 2013**  
*Risk Matrix developed by The Nature Conservancy (01/2012)*

				HAZARDS					
Vulnerabilities/ Assets	Location	Ownership	Wind	Rain	Ice/Snow	Flooding	Priority for Action	Time	
<b>Infrastructure</b>									
V	Route 58/136	Town-Wide	State	Need to address flooding/drainage issues on Routes			H	S	
V	Emergency Telecom - Center Road	Various	Town, Utility	Need to maintain area clear of debris and vegetation			H	S	
V	Local Driveways	Town-Wide	Private						
S	Water Filtration Plant		Town(?)					Ongoing	
S	Schools - shelters	Various	Town					Ongoing	
S	Critical Facilities	Various	Town					Ongoing	
<b>Societal</b>									
V	Dispersed Elderly Population	Town-Wide	Private	Education on responses during disasters ongoing				Ongoing	
S	Resources of Residents	Town-Wide		Residents have means to cover expenses of sheltering elsewhere				Ongoing	
S	Active Residents	Town-Wide		Self sufficient and resourceful citizens				Ongoing	
<b>Ecosystem</b>									
V	White Pine Infestation		Town, Private	Need tree management plan to prioritize actions - tree removal			H	L	
S	Aspetuck/Easton Lake Reservoir			Non-developed circumference of Lake has served to reduce risk in Easton. Adjoining roads are vulnerable to flooding however				Ongoing	

Easton is sparsely developed and a large proportion of the Town is preserved as either existing or former water company owned lands. As such, the impacts from natural hazards are somewhat limited. In the 2006 NHMP, most recommendations for Easton were oriented to infrastructure projects so as to mitigate the impacts of flooding. These recommendations, such as warning of residents in areas that may become isolated or blocked during severe weather remain as priorities to the Town. However, since 2006, the public drinking water supply and tree management have received greater attention and increased in priority.

Easton is home to three reservoirs that are the primary source of public drinking water in the Region. A large filtration plant, located at the base of the Easton Lake Reservoir dam, was built several years ago to ensure clean and safe water. The Easton Emergency Management Director's primary concern is to ensure the plant remains operational during any hazard. Ensuring the public drinking water supply is a priority to the Town of Easton and the Greater Bridgeport Region.

Damage to trees, and the resulting power outages from downed trees and from severe winds during thunderstorms, hurricanes, tropical storms, nor'easters and snow storms have also impacted the Town of Easton.

Priority strategies to mitigate the impacts of these hazards include tree maintenance programs, education of residents on proper tree maintenance and coordination with utility tree trimming programs. During disasters, enhanced communications with utilities and access to emergency services (on roads blocked by downed trees, as well as snow) are necessary. Back-up and alternate power generation at key facilities has also become a high priority since the 2006 NHMP.

Recommended mitigation strategies for the Town of Easton include the following:

LEGEND			
<b>Hazard Type</b>			
C = Coastal flooding	C/I = Coastal and Inland Flooding	W = Wind	SR = Sea Level Rise
I = Inland Flooding		A = All Hazards	
<b>Existing/New</b>			
E = Existing	N = New		
<b>Cost</b>			
MI = Minimum: staff time or volunteer time	L = Low: less than \$10,000	MO = Moderate: between \$10,000 and \$100,000	H = High: \$100,000

Table 4.6  
ACTION MATRIX - EASTON

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL	
<b>Prevention</b>																					
Develop a tree management plan to prioritize actions and tree removal due to the white pine infestation.	W	N	MO	1	1	1	1	1	1	1	6			-1			-1		-2	4	
Implement a routine tree maintenance and inspection program and remove hazardous trees and branches.	W	N	MO	1	1	1	1	1	1	1	6	-1		-1			-1		-3	3	
<b>Property Protection</b>																					
Consider elevating homes at Morehouse Brook at Pond Road.	I	E	H	1	1	1	1	1	1	1	6						-1		-1	5	
<b>Structural</b>																					
Improve the culverts under Morehouse Road that carry Morehouse Brook and Cricker Brook.	I	E	MO	1	1	1	1	1	1	1	6						-1		-1	5	
Consider elevating Morehouse Road in the vicinity of its crossing over Morehouse Brook and Cricker Brook.	I	E	H	1	1	1	1	1	1	1	6						-1		-1	5	

Table 4.6  
ACTION MATRIX - EASTON

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL
Erect signs and install barricades at Silver Hill Road and at Wells Hill Road where they cross the Aspetuck River to prevent access during floods.	I	E	MI	1	1	1	1	1	1	1	6			-1					-1	5
Erect signs and install barricades at Beers Road where it crosses the East Branch of Cricker Brook to prevent access during floods.	I	N	MI	1	1	1	1	1	1	1	6			-1					-1	5
Maintain the Emergency Telecom/Center Road area to keep clear of debris and vegetation.	A	N	MO	1	1	1	1	1	1	1	6	-1					-1		-2	4
Continue to inspect and maintain the dam on Morehouse Brook in vicinity of Pond Road.	I	N	H	1	1	1	1	1	1	1	6			-1			-1		-1	4
Consider elevating Beers Road where it crosses the East Branch of Cricker Brook.	I	N	H	1	1	1	1	1	1	1	6						-1	-1	-2	4
Improve or construct a new culvert on Route 59 where it crosses Tatetuck Brook.	I	N	H	1	1	1	1	1	1	1	6						-1	-1	-2	4
Improve the culvert on Route 136 where it crosses Paterson Brook and remove debris from the culvert.	I	N	H	1	1	1	1	1	1	1	6						-1	-1	-2	4
Address flooding and drainage issues on Routes 58 and 136.	I	N	H	1	1	1	1	1	1	1	6						-1	-1	-2	4
Roads adjacent to the Aspetuck/Easton Lake Reservoirs are vulnerable to flooding.	I	N	H	1	1	1	1	1	1	1	6			-1			-1		-2	4
<b>Public Education &amp; Awareness</b>																				
Educate the dispersed elderly population on responses during disasters.	A	N	MI	1	1	1	1	1	1	1	6									6
<b>Emergency Services</b>																				
Improve warning of residents that would be isolated by flooding along Morehouse Brook at Pond Rd	I	E	MI	1	1	1	1	1	1	1	6			-1					-1	5
Improve warning of residents that would be isolated by flooding along Morehouse Brook at Dogwood Drive	I	E	MI	1	1	1	1	1	1	1	6			-1					-1	5
Improve warning of residents that may become be isolated by downed trees during an extreme weather event.	W	N	MI	1	1	1	1	1	1	1	6			-1					-1	5

## Town of Fairfield

Table 4.7  
**RISK MATRIX - FAIRFIELD**  
 Fairfield Hazards and Community Resilience Workshop - June 28, 2013  
 Risk Matrix developed by The Nature Conservancy (01/2012)

### HAZARDS

Vulnerabilities/Assets	Location	Ownership	Flooding	Ice & Snow	High Winds	Extreme Heat & Cold	Priority for Action	Time
<b>Infrastructure</b>								
V	Police, Fire, ECC, EOC	Reef Rd	Town	Consider alternate locations for ECC and EOC during weather events			H	Ongoing
V	Beach Area Homes - Frontage to Sound - Barrier/ Beach	Fairfield Beach Rd	Private	Elevation and code upgrade for flooding - differentiate between owner occupied and rental			H	Ongoing
V	Beach Area Homes - Inland	Beach Area	Private	Elevation and code upgrade for flooding; funding for elevation costs; prevent water from flooding; explore how to better evacuate water; GIS mapping of elevation; move utilities to higher elevation			H	Ongoing
V	Power Lines	Town wide	UI	Tree cutting and maintenance; tree planting guidelines; underground power lines; clarify relationship with UI			H	Ongoing
V	Waste Water Treatment Plant	1 Rod Highway	Town	Create a berm to protect against flooding and enhance the dikes in place			H	S
V	Pump Stations	Fairfield Beach Rd, Pine Creek	Town	Enhance flood protection/ barrier (immediate and surrounding areas)			H	S
V	Pine Creek Dike	S. Pine Creek (Along Creek)	Town	Maintain/ raise dike in cases of flooding			H	S
V	Flood Mitigation Systems and Storm Drains (at Culverts)	Coastal, Post Rd	Town	Update flood gates and update sluice gates capacity			H	S
V	Road System (280 miles)	Town wide	Town/ State	Tree management policy; snow clearing and road access during storms; provide water pump-outs during flooding and identify alternate routes to closed-off areas			H	L
V	Bridges and Culverts	Kings Hwy, Holland Hill, Sturges Rd	Town	Enlarge culverts at two specific sites (Rooster and Holland)			H	L
V	DPW Garage (Fuel Tanks vs. Rolling Stock)	1 Rod Highway	Town	Enhance flood protection (immediate and surrounding areas); study/explore how to evacuate water; consider feasibility of moving DPW garage to an alternate location; relocate equipment prior to a threatening event			M	L
V	Water System and Public System Wells	Town wide	Aquarion/ Private	Provide water/ ice/ showers for owners of private systems without power; purchase generators in case of power outages			M	L
V	Dams	Swamp and Lake Mohegan	Lake/Town	Assess current conditions and potential impact from catastrophic failure; assess previous inundation contingency plans			M	L
S	Fairfield University and Sacred Heart University	N. Benson and Park Ave	Private	Reinstitute MOU with EOC				Ongoing
S	Reverse 911	Town wide	Town	Pre-disaster communications (code red)				Ongoing

Table 4.7  
**RISK MATRIX - FAIRFIELD**  
**Fairfield Hazards and Community Resilience Workshop - June 28, 2013**  
*Risk Matrix developed by The Nature Conservancy (01/2012)*

**HAZARDS**

Vulnerabilities/Assets	Location	Ownership	HAZARDS				Priority for Action	Time	
			Flooding	Ice & Snow	High Winds	Extreme Heat & Cold			
<b>Societal</b>									
V	Operation Hope (Homeless Shelter)	Reef Rd	Private				Use vehicles (school buses, etc.) to transport vulnerable populations to shelters	H	Ongoing
V	Senior Center/ Adult Day Care Facilities						Use vehicles (school buses, etc.) to transport vulnerable populations to shelters	H	Ongoing
V	Town Services (Library and Independence Hall)	Various	Town				Protect/ flood-proof services and data; develop a plan for stockpiling food, water and gas in case of emergencies	H	S
V	Seniors and Disabled Citizens	Town wide	Various				Better identification of demographics; plan to prevent shut-ins; address emergency events; improve communication plans with WI	M	Ongoing
V	Lower Income Populations	Various	Various				Neighborhood emergency team and community support	M	S/L
V	Libraries	Fairfield Woods	Town				Equipment in basement vulnerable when flooding occurs	M	S/L
V	Cell Towers	Woodhouse Rd, BJs	Private				Ensure ability to generate power; talk to cell companies about generation/ disaster recovery plans	M	L
V	Penfield Beach/Fairfield Beach Area	S. of Old Post	Various				Communication with utilities; bury power lines	M	L
S	Libraries	Post Rd	Town				Provide cooling center during heat		Ongoing
S	Shelters - Fairfield Ludlowe High School	FLHS	Town				Sufficient generator capability for showers, lighting, heating, etc.		Ongoing
S	Strong Community Support	Town wide	Various				Robust and organized volunteerism		Ongoing
S	Communication from Town	Town wide	Town and Private				Press releases; ongoing code red calls; social media use; EOC communication		Ongoing
<b>Ecosystem</b>									
V	Tree Coverage/ Forest in N. Fairfield	Greenfield and Hoydams Hill	Various				Tree trimming: maintain and remove hazardous trees	H	Ongoing
V	Salt Marsh - Meadows Pine Creek Marsh	S. Pine Creek Area	Town				New sluice gate structure for flooding drainage; maintain detention ponds; purchase lands/ open space management	H	S/L
V	Beaches and Erosion (Fairfield, Southport, Sasco)	Coastal	Various				Create dune system as a bulwark against erosion, flooding, etc.	H	S/L
V	Marshes (Meadow Pine Creek Marsh)		Various				Acquire and maintain marshes; communicate about removing debris after storms	H	L
V	Watersheds	Town wide	Various				Maintain/ protect watershed and water company owned lands	M	S/ Ongoing



Table 4.7  
**RISK MATRIX - FAIRFIELD**  
**Fairfield Hazards and Community Resilience Workshop - June 28, 2013**  
*Risk Matrix developed by The Nature Conservancy (01/2012)*

Vulnerabilities/Assets	Location	Ownership	HAZARDS				Priority for Action	Time
			Flooding	Ice & Snow	High Winds	Extreme Heat & Cold		
V Marshes, Inland Wetlands, Rivers, Beaches	Town wide	Various	Better communication on removing yard debris pre and post storms; continued protection				M	S/ L
S Public Beaches and Marshes		Town	Beach replenishment post storms/ flooding; land acquisition/ zoning/ conservation groups examine feasibility of attaining property prone to flooding					Ongoing
S Flood Control Gates Maintenance	McLevy's Property	Town (Conservation)						Ongoing
S Drainage System Maintenance	Town wide	Town (DPW and Conservation)	Keep debris clear of drainage; plan for improvement/ implementing routine management					Ongoing
S Country Club of Fairfield	Sasco Creek		Acts as storage area for floodwaters and storm surge					Ongoing

In Fairfield, a lot more attention has been given to coastal areas since hurricanes Irene and Sandy hit the Town. Unprecedented coastal flood damage has renewed the focus on mitigating against future damage. A Coastal Resiliency Plan has been developed with the assistance of GBRC and The Nature Conservancy. Many residents have or are planning to have their homes elevated for storm protection and to lower flood insurance rates. Many neighborhoods are demanding better flood protection in the form of pump stations or dikes. The Town is also examining methods to harden its infrastructure and is assisting home owners to prevent future damage by elevating homes to achieve FEMA flood regulation compliance. Due to the impact of hurricanes, snow storms and weather related events, utility issues have been on the forefront.

Recommended mitigation strategies for the Town of Fairfield include the following:

LEGEND			
<b>Hazard Type</b>			
C = Coastal flooding	C/I = Coastal and Inland Flooding	W = Wind	SR = Sea Level Rise
I = Inland Flooding		A = All Hazards	
<b>Existing/New</b>			
E = Existing	N = New		
<b>Cost</b>			
MI = Minimum: staff time or volunteer time	L = Low: less than \$10,000	MO = Moderate: between \$10,000 and \$100,000	H = High: \$100,000

Table 4.8  
ACTION MATRIX - FAIRFIELD

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs						Subtotal	TOTAL
												Social	Technical	Administrative	Political	Legal	Economic		
<b>Prevention</b>																			
Enroll Fairfield in FEMA's Community Rating System (CRS) program to improve resilience and lower flood insurance premiums for residents and private entities in the National Flood Insurance Program.	A	N	MO	2	3	3	2		3	2	15	-1	-1			-2		-4	11
Develop a tree cutting and maintenance plan.	W	N	L	1	3	3	2			1	10					-1		-1	9
Require underground utilities on new streets.	A	N	H	2	3	2	3				10					-3		-3	7
Consider adopting standards to require two or more feet of freeboard when developing or redeveloping structures in tidally influenced floodplains.	C	E	L	1	2	3	2				8					-1		-1	7
Integrate hazard mitigation plans and policies into town building codes, planning and zoning regulations, and the Town's Plan of Conservation and Development.	A	N	MO	1	3	3				1	8					-2		-2	6
Develop a comprehensive protective infrastructure analysis of the Town's coast and waterways that incorporates natural infrastructure (salt marsh, beaches, dunes and floodplains) and existing engineered infrastructure.	C/I	N	H		2	3	2			2	9					-3		-3	6
Reassess the viability and cost-benefit of direct future capital investment in the coastal floodplain as an immediate and longer-term, proactive risk reduction action.	C	N	L	1	2	2				2	7					-1		-1	6
Consider expanding town-wide energy efficiency policies and building codes with the goal of substantially reducing Fairfield's carbon footprint.	A	N	L		3	2				1	6					-1		-1	5
Increase design standards for tidal flood control structures and improve inspection and maintenance requirements to avoid failures during future coastal storm events.	C	N	L	1	3	2					6					-1		-1	5
Assess the current conditions and potential impact from catastrophic dam failure; assess previous inundation contingency plans.	C/I	N	MO	1	2	2	2				7					-2		-2	5
Develop a better debris management plan with designated lead for flood control structures before and after extreme events, particularly for the 28 town-owned and three state-owned tide gates in Fairfield.	C	N	MO		3	2				1	6					-2		-2	4

Table 4.8  
ACTION MATRIX - FAIRFIELD

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL	
Modify and integrate building codes, land use policies, and zoning regulations to minimize the exposure to sea level rise, storm surge, and inland flooding of existing and future development, infrastructure, critical facilities, and natural resources.	C/I	N	L		2	2				1	5								-1	-1	4
Assess the safety and viability of existing water and sewer infrastructure in the coastal flood zone.	C	N	MO		2	2				1	5								-2	-2	3
Prepare an action plan to reduce the susceptibility of the low lying Fairfield Beach area to storm surges from Long Island Sound. Specifically the Plan should address the feasibility of installing a "hurricane barrier" and a storm water pump station.	C	N	MO		2	2					4								-2	-2	2
Reassess long-term viability of the wastewater treatment facility and determine the feasibility of hardening and flood proofing the existing structure versus siting a new facility in a lower risk area.	C	N	MO		2	2					4								-2	-2	2
Reassess the capacity of existing flood control structures (berms/dikes, tide gates, culverts, dams, reservoirs) in light of accelerating rates of sea level rise and likelihood of more significant precipitation events.	C	N	MO		2	2					4								-2	-2	2
Factor sea level rise into all critical infrastructure, development plans, and public amenity improvements and consider planning for a worse-case scenario based on 0.2% storm event or flood or a Category-3 Hurricane.	C	N	H	1	2	2					5								-2	-3	2
<b>Property Protection</b>																					
Strategically consider the acquisition of chronically flood prone and repetitive loss properties, as well as those properties that can assist in the implementation of flood drainage improvements to protect against storm surge or to allow flood waters to recede after a flood event.	C/I	N	MO	1	3	2	2			2	10								-2	-2	8
Address equipment in library basements to prepare for when flooding occurs.	C/I	N	L	1	2	2	2				7								-1	-1	6
Encourage home elevations for properties below the base flood elevation to comply with or exceed the standards of the National Flood Insurance Program.	C/I	N	MO	2	3	2					7								-2	-2	5
Promote elevating private properties in the flood hazard zones to the required base flood elevations plus a 2-to-3 foot freeboard above the base levels.	C/I	N	MO	2	3	2					7								-2	-2	5

Section 4: Mitigation

Table 4.8  
ACTION MATRIX - FAIRFIELD

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL
Ensure that the design criteria for future structures in the coastal floodplain include a determination of the probable factors of obsolescence during the structure's lifespan so that the design-service-life and value of a structure approximate the time when sea level rise or other factors would render the structure obsolete.	C/I	N	L		2	3					5							-1	-1	4
<b>Structural</b>																				
Install flood protection and harden existing berms to protect critical municipal facilities, including the wastewater treatment plant and pump station.	C	N	H	2	3	3	3			2	13							-3	-3	10
Raise the berm around the wastewater treatment plant.	C	N	H	2	3	3	3			2	13							-3	-3	10
Install storm water pump stations and upgrading storm systems to keep up with rising sea levels, especially in the area bounded by Old Post Road, Fairfield Beach Road, Reef Road and South Benson Road.	C	N	H	1	3	3	3			2	12							-3	-3	9
Increase the height of the dike along Pine Creek by 2' to 3' to provide additional protection for several hundred homes, the sanitary sewer pump station, the municipal athletic complex, and Town roads. This project will also reduce potential flooding from a FEMA-defined 1% storm.	I	N	H	2	3	3	3			1	12							-3	-3	9
Consider increasing beach nourishment.	C	E	H	1	3	3	3				10							-3	-3	7
Improve and elevate tide gates and dikes to keep up with rising sea levels.	C	E	H	1	3	3	3				10							-3	-3	7
Address the continued periodic tidal flooding of streets and properties in the coastal flood plain by making concerted efforts to design, construct, and maintain flood relief and drainage structures (e.g., dikes, tidegates, detention and natural marsh basins, stormsewers and natural channels) to ensure the discharge of flood waters during the receding tidal cycles immediately following the flood event.	C	N	H		3	3	2			2	10							-3	-3	7
Continue to maintain flood gates on the McLevy property.	I	N	MO		3	3	2				8							-2	-2	6
Continue to keep debris clear of drainage systems; plan for improvement/ implementing routine management.	C/I	N	MO		3	3	2				8							-2	-2	6
Waterproof manhole covers.	C/I	N	L		3	3					6							-1	-1	5

Table 4.8  
**ACTION MATRIX - FAIRFIELD**

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL	
Continue to perform culvert maintenance and debris removal in the the Rooster River, Ash Creek/Royal Avenue and Camden Street areas.	I	E	MO	3	3					1	7								-2	-2	5
Relocate the sanitary sewer transmission trunk line from the flood prone Rooster River and Ash Creek corridor.	I	N	H	3	3					2	8								-3	-3	5
Encourage green development and rehabilitation of existing impervious structures to reduce runoff generated in urbanized areas.	C/I	N	H	3	2					2	7								-3	-3	4
Explore building modifications, use of pervious road materials and green infrastructure designs to improve on-site storm water retention and reduce storm water inflows into Fairfield's wastewater treatment system.	C	N	H	3	2					2	7								-3	-3	4
Prior to a storm, lower the volume of water in the wastewater treatment plant to increase capacity.	C	N	MO	3	3						6								-2	-2	4
Design culverts for a 50-year or 100-year storm in the Rooster River, Ash Creek/Royal Avenue and Camden Street areas.	I	E	H	2	3	2					7								-3	-3	4
Consider improving the culvert at Merwins Lane.	I	E	MO	3	3						6								-2	-2	4
Evaluate methods to increase storage or improve drainage to alleviate flooding downstream of the Fairchild Wheeler golf course.	I	E	MO	3	2					1	6								-2	-2	4
Install on site detention, relay new storm lines, incorporate bioswales and/or rain gardens in developed areas to help reduce or redirect runoff that contributes to flooding. For example, in the Fairfield Center and Railroad parking lot.	I	N	MO	3	2					1	6								-2	-2	4
Continue to maintain/improve critical culverts and associated outlets/swales to remove debris, especially in advance of storms.	I	N	MO	3	3						6								-2	-2	4
Elevate Fairfield Beach Road as needed to keep up with rising sea levels.	C	E	H	2	3					1	6								-3	-3	3
Extend the dike system along the shoreline from the Riverside Drive and Post Road area to Sasco Hill. Obtain easements to extend and complete the system in areas where it does not presently exist.	C	E	H	3	3						6								-3	-3	3
Extend the dike in Southport along Harbor Road in the AE flood zone.	C	N	H	3	3						6								-3	-3	3
Improve the drainage system in the Downtown area, along Sanford and Reef Roads	I	E	H	3	3						6								-3	-3	3

Section 4: Mitigation

Table 4.8  
ACTION MATRIX - FAIRFIELD

Description	Hazard Type	Existing/New	Cost	Benefits						Subtotal	Costs						Subtotal	TOTAL				
				Social	Technical	Administrative	Political	Legal	Economic		Environmental	Social	Technical	Administrative	Political	Legal			Economic	Environmental		
Incorporate drainage improvements and best management practices to the Grasmere Brook watershed to reduce flooding.	I	N	MO	3	2				1	6										-3	-3	3
Consider acquisition of properties where it is prudent and feasible to extend and construct the dike system.	I	N	MO	3	2					5										-2	-2	3
Install pump stations to address flooding in the underpasses of New Haven rail line bridges.	I	N	H	3	3					6										-3	-3	3
Expand and repair flood gates along the Mill River.	I	N	H	3	3					6										-3	-3	3
Consider increasing the approved bulkhead elevation along Pine Creek to account for sea level rise.	C	E	H	2	3					5										-3	-3	2
Consider elevating all roads within the AE and VE flood zones, including Fairfield Beach Road and surrounding neighborhoods.	C/I	N	H	3	2					5										-3	-3	2
Implement a dike system in the the Rooster River, Holland Street, Ash Creek/Royal Avenue and Camden Street areas.	I	E	H	3	2					5										-3	-3	2
Consider elevating Merwins Lane. This would require the abutting property owner's permission and permits.	I	E	H	3	2					5										-3	-3	2
Reconstruct New Haven rail line bridges over town streets to prevent flooding, including at North Pine Creek Road, Mill Plain Road, and Round Hill Road.	I	N	H	3	2					5										-3	-3	2
Reconstruct and expand the culvert conveying Ash Creek and Rooster River under I-95 to reduce flooding in the Camden Street and Royal Avenue neighborhoods and to meet a 1% storm event. Include other local bridges on Rooster River in this project, so as to increase hydraulic capacity and reduce flooding.	I	N	H	3	2					5										-3	-3	2
Improve and install flood control outlet pipes and tide gates along Pine Creek and Ash Creek to increase the removal of flood waters.	I	N	H	3	2					5										-3	-3	2
<b>Natural Systems Protection</b>																						
Incorporate improvements listed in Rooster River Watershed based Plan.	C/I	N	L	2	3	2	2		2	11										-1	-1	10



Section 4: Mitigation

Table 4.8  
ACTION MATRIX - FAIRFIELD

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL
Utilize GIS to inform responders and residents during a severe weather event, or in the event of an evacuation.	A	N	L	1	3	3	1				8							-1	-1	7
Erect signs and install barricades on Merwins Lane to encourage residents to take alternate routes during flooding events.	C/I	E	L	1	3	3					7							-1	-1	6
<b>Emergency Services</b>																				
Address road access by prioritizing snow clearing during storms, providing water pump-outs during flooding and identifying alternate routes to closed-off areas.	A	N	L	3	3	3	2	1			12							-1	-1	11
Reassess needs and capacity for shelters, warming/cooling centers, and charging stations.	A	N	L	3	3	3	3				12							-1	-1	11
Continue use of pre-disaster communications (code red), social media and EOC communications.	A	N	L	3	3	3	3				12							-1	-1	11
Use vehicles (school buses, etc.) to transport vulnerable, senior and disabled populations to shelters.	A	N	L	3	3	3	3				12							-1	-1	11
Protect/ flood-proof town services and data. Develop a plan for stockpiling food, water and gas in case of emergencies.	A	N	L	3	3	3	3				12							-1	-1	11
Identify demographics to prevent shut-ins during emergency events.	A	N	L	3	3	3	3				12							-1	-1	11
Clarify relationship with UI for downed power lines.	W	N	L	3	3	3	2				11							-1	-1	10
Identify vulnerable neighborhood egress chokepoints and identify alternate access routes to neighborhoods and facilities when those chokepoints are not passable; harden and flood proof these chokepoints as necessary to ensure they remain open.	A	N	L	3	3	3	2				11							-1	-1	10
Reinstitute the Fairfield University and Sacred Heart University MOU with EOC.	A	N	L	2	3	3	3				11							-1	-1	10
Build redundancies into EOC/EEC emergency communications systems and networks to ensure continuity of communications between town emergency services and residents. Utilize existing community networks (churches, etc.) as supplements to "technological" methods of communication.	A	N	L	2	3	3	2				10							-1	-1	9
Provide and install generators at senior housing complexes and other complexes that serve vulnerable populations to allow them to shelter in place.	A	N	H	3	3	3	3				12							-3	-3	9



Table 4.8  
ACTION MATRIX - FAIRFIELD

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL
Provide adequate generators at evacuation facilities (Ludlowe High School, Warde High School and Ludlowe Middle School).	A	N	H	3	3	3	3				12						-3		-3	9
Ensure Emergency Operation Plans of private dam facilities are adequate, including Aquarion Water Company facilities at Aspetuck Reservoir and Hemlock Reservoir.	A	N	L	3	3	2	2				10						-1		-1	9
Enter into a mutual aid agreement with long term care facilities to share generators during an evacuation.	A	N	L	3	3	2	1				9						-1		-1	8
Provide water/ ice/ showers for owners of private systems without power.	A	N	L	3	2	2	2				9						-1		-1	8
Ensure the ability of cell phone towers to generate power; talk to cell companies about generation/ disaster recovery plans.	A	N	MO	2	3	2	3				10						-2		-2	8
Consider alternate locations for ECC and EOC during weather events	A	N	MO	1	3	3	2				9						-2		-2	7
Expand the energy reliability of critical Town facilities, including the use of distributed generation and micro-grids. Relocate IT equipment out of municipal building basements in low lying areas.	A	N	MO	1	3	2	2				8						-2		-2	6
Enhance flood protection at the DPW (immediate and surrounding areas) garage or consider feasibility of moving garage to an alternate location Study/explore how to evacuate water and relocate equipment prior to a threatening event.	C	N	MO	1	2	2	2				7						-2		-2	5
Conduct a study to identify the highest risk locations for prioritized mitigation and emergency response efforts before, during and/ or after an extreme event during a variety of hazard scenarios.	A	N	MO	1	2	2	1				6						-2		-2	4

Town of Monroe

Table 4.9  
**RISK MATRIX - MONROE**  
 Monroe-Easton-Trumbull Hazards and Community Resilience Workshop - September 24, 2013  
 Risk Matrix developed by The Nature Conservancy (01/2012)

				HAZARDS				
Vulnerabilities/Assets	Location	Ownership	Inland Flooding	Wind (Hurricane, Nor'easter)	Blizzards (Snow)	Priority for Action	Time	
<b>Infrastructure</b>								
V	Lack of Power at Critical Facilities	Various	Town	Upgrade power supply at critical facilities with new generators - Town Garage, High School, Jockey Hollow and Chalk Hill School		H+	S	
V	Critical Facility Upgrades	Various	Town	Upgrade windows at EOC, High School, and Shelter(s)		H	S	
V	Power Issues - Barn Hill and Webb Mtn Areas	NE Town	CL&P	Upgrade power lines and poles		H	S/L	
V	Undersized Culverts	Various	Town	Seek to replace or retrofit identified undersized culverts		M	L	
V	Flooded and Icy Roads	Various	Town	Evaluate flooding and sheetflow and seek engineered solution/drainage control to reduce risk and closure of roads - Gardner and Stanley Road		M/L	L	
V	Septic Systems	Town-Wide	Private	Assess the impacts and location of septic systems impacted by flooding		L	L	
S	Flood Control Project	North of Judd Rd	Town	Installation of new culvert to address flooding on Main Street			Ongoing	
S	Computer Server Upgrades	Monroe Elementary	Town	Upgraded surge protection on computer server			Ongoing	
<b>Societal</b>								
V	Senior Housing - Power	Various	Private	Assist with securing and installing additional power generators at facilities		H+	S	
V	Senior Center - Power		Town	Secure generator for Senior Center - serves as town shelter facility		H+	S	
V	Marian Heights - Power		Private	Incorporate additional power generation into new facility under construction		H+	S	
V	Storm Water Runoff	Town-Wide	Town	Conduct a hydrologic analysis of flooding/stormwater impacts and water conveyance needs to minimize risk to people and infrastructure		?	?	
<b>Ecosystem</b>								
V	Trees near roadways/ power lines	Town-Wide	Town, State	Review, establish and/or implement a town-wide tree maintenance plan		H	S	
A	Pequonnock River Initiative	Watershed	State, Town, Private	Seek to implement watershed plan; green infrastructure, wetland/floodplain buffers to reduce flooding		M	S/L	
V	Stepney Dam	RT 25	Aquarion	Seek to establish a pre-storm drawdown process of Stepney Dam to increase storage capacity and prevent down stream flooding		H	S	

While recommendations in the 2006 NHMP were most oriented to mitigating the impacts of flooding through maintenance and infrastructure improvements, both the range of hazards to prepare for and the range of strategies has expanded. This reflects a shift in priorities due to the impacts of heavy snow, ice and storms as well recognizing the role green infrastructure and natural features can play in mitigation.

Strategies to mitigate the impacts of snow, ice and wind include an expansion of the Town's tree maintenance program and improving communication with utilities. Warning residents who may become isolated by blocked roads and insuring adequate power generators at shelters were other recommendations made.

All properties in Monroe are served by on-site septic systems. Systems close to the Pequonnock River and the river's branches may fail due to heavy rains and subsequent flooding and cause an increase in pollutants entering the river. The recognition of the impact that a failing septic system may have on the quality of local waterways is a concern of the Monroe community that was not reflected in the 2006 NHMP. The need to upgrade septic systems to sanitary sewers in certain areas was emphasized by workshop participants and in the Town's Plan of Conservation and Development.

Since 2006, the Town of Monroe has diversified how storm water management and flooding are approached. Infrastructure projects and regular maintenance remain as strategies but low impact development best management practices have received greater focus. Zoning regulations have been revised to require improved landscaping and less pavement at developments. Riparian buffers along waterways and an emphasis on storm water retention and quality are further examples of the priority placed on the protection of natural features.

Recommended mitigation strategies for the Town of Monroe include the following:

LEGEND			
<b>Hazard Type</b>			
C = Coastal flooding	C/I = Coastal and Inland Flooding	W = Wind	SR = Sea Level Rise
I = Inland Flooding		A = All Hazards	
<b>Existing/New</b>			
E = Existing	N = New		
<b>Cost</b>			
MI = Minimum: staff time or volunteer time	L = Low: less than \$10,000	MO = Moderate: between \$10,000 and \$100,000	H = High: \$100,000

Table 4.10  
ACTION MATRIX - MONROE

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL	
<b>Prevention</b>																					
Evaluate flooding and sheetflow at Gardner and Stanley Roads and seek engineered solution/drainage control to reduce risk and closure	I	N	H	1	2	3	3	3	1	1	14	-1					-1	-1	-3	11	
Explore building modifications, use of pervious road materials, and green infrastructure designs to improve on-site storm water retention and reduce storm water runoff	I	N	H	2	2	2	2	2	2	3	15						-3		-3	12	
Establish a pre-storm drawdown process of Stepney Dam to increase storage capacity and prevent down stream flooding	I	N	MI	1	3	3	1	2			10							-1	-1	9	
Continue the diversion of the West Branch of the Pequonnock River to the Easton Laker Reservoir, especially during high flow events	I	E	MI	1	3	2		2	1		9							-1	-1	8	
Hold discussions with the Aquarion Water Company about the possibility of increasing the diversion of the Pequonnock River to the Easton Lake Reservoir in advance of a storm	I	N	MI	1	3	2	1	1			8								0	8	
Enforce rigorous storm water controls and encourage the installation of green infrastructure to reduce runoff generated at industrial and corporate parks, Strategies include on-site detention, bioswales and rain gardens	I	N	H		1	1		1	1	3	7	-1					-2		-3	4	
Assess the impacts and location of septic systems impacted by flooding	I	N	H		1	3	3	1	1	1	10			-1			-1		-2	8	
Conduct a town-wide hydrologic analysis of flooding/stormwater impacts and water conveyance needs to minimize risk to people and infrastructure	I	N	H	1	2	3	3	1	1	2	13						-2		-2	11	
Improve coordination between the Monroe Department of Public Works crews and local utility crews to make-safe areas with downed trees and allocate resources to priority locations.	W	E	L		2	2	3	2	2		11								0	11	
<b>Public Education &amp; Awareness</b>											0									0	0
Encourage residents to take alternate routes during flooding events on Pepper Street	I	N	MI		3	2		2	1		8	-1							-1	7	
Improve warning of residents that may become isolated by downed trees during an extreme weather event	W	E	L	3	2	2	3	2	2		14						-1		-1	13	

Table 4.10  
ACTION MATRIX - MONROE

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL		
<b>Natural Resources Protection Actions</b>											<b>0</b>									<b>0</b>	<b>0</b>	
Implement various strategies included in the Pequonnock River Initiative Watershed Management Plan, including increasing buffers, installing green infrastructure (rain gardens, bio-swales, storm water planters), and repairing stream channels.	I	E	H	1	2	3	3	2	1	3	15							-1	-1	14		
Continue and expand the proactive tree maintenance program by removing dead/diseased trees and branches and coordinate with the local utilities tree trimming program	W	E	MO	1	3	3	2	2	2		13	-1		-1				-1	-3	10		
<b>Emergency Services Protection Actions</b>											<b>0</b>										<b>0</b>	<b>0</b>
Upgrade the power supply at critical facilities with new generators, include the Town Garage, High School, Jockey Hollow and Chalk Hill School, all Town Shelters, the Emergency Operations Center, the Senior Center and senior housing facilities	A	N	MO	1	3	3	3	2			12							-1	-1	11		
Upgrade windows at the Emergency Operations Center, High School, and Shelters	W	N	MO	1	3	3	3	2			12							-1	-1	11		
<b>Structural</b>											<b>0</b>										<b>0</b>	<b>0</b>
Incorporate additional power generation into the new Marian Heights facility under construction	W	N	MO		3	3	2	2			10							-1	-1	9		
Upgrade the surge protection on the Town's computer server	A	N	L		2	3	3	2	2		12							-1	-1	11		
Replace and increase the size of culverts at key locations on Route 25 and Route 111, including in the vicinity of Chuck's Corner and Bart's Shopping Center	I	N	H	1	2	3	2	2	1	1	12							-1	-1	11		
Reconstruct and elevate a section of Route 25 in the vicinity of the West Pequonnock Reservoir	I	N	H		3	2	1	2	1	2	11	-1						-2	-3	8		
Replace or retrofit undersized culverts	I	N	H	1	2	3	2	2	1	1	12							-1	-1	11		
Install new culverts to address flooding on Main Street	I	N	H	1	2	3	3	2	1	1	13							-1	-1	12		
Remove the Beaver Dam on Sammis Brook and replace with a constructed dam that has water level controls	I	N	H		3	1			1	1	6	-1						-2	-3	3		
Replace with larger culvert culvert located at West Branch of the Pequonnock River under Pepper Street along Brook Street	I	N	H	1	2	3	2	2	1	1	12							-1	-1	11		

Section 4: Mitigation

Table 4.10  
ACTION MATRIX - MONROE

Description	Hazard Type	Existing/New	Cost	Benefits							Subtotal	Costs						Subtotal	TOTAL
				Social	Technical	Administrative	Political	Legal	Economic	Environmental		Social	Technical	Administrative	Political	Legal	Economic		
Consider elevating Pepper Street	I	N	H		3	2	1	2	1	2	11	-1					-2	-3	8
Consider elevating Garder Road in the vicinity of Sammis Brook	I	N	H		3	2	1	2	1	2	11	-1					-2	-3	8
Improve the culverts conveying at low-gradient stream under Bart Road and along Verna Road under Bart Road and remove debris and blockages of the channel to maintain free flow	I	N	H	1	2	3	3	2	1	1	13						-1	-1	12
Construct a proper channel for the swale of the tributary of the West Branch of the Pequonnock River in the backyards of residences along Pastor's Walk and Wiltan Drive	I	N	H		2	1	1	2	1	1	8	-1						-1	7
Upgrade power lines and poles in the vicinity of Barn Hill and Webb Mountain	W	N	MO	2	2	3	3	2	2		14						-1	-1	13
Remove debris and clear blockages of culverts at key river crossings throughout the Town, including the West Branch of the Pequonnock River at Route 25, Purdy Hill Road and Pepper Street, the Boys Halfway River at Cottage Street and the Far Mill River at Moose Hill Road	W	E	L	2	3	2	3	2	2	1	15							0	15

## Town of Stratford

Table 4.11  
**RISK MATRIX - STRATFORD**  
**Stratford Hazards and Community Resilience Workshop - October 4, 2013**  
*Risk Matrix developed by The Nature Conservancy (01/2012)*

Vulnerabilities/Assets	Location	Ownership	HAZARDS				Priority for Action	Time	
			Coastal Flooding	Inland & Riverine Flooding	Winter Storms (Ice & Snow)	Wind			
<b>Infrastructure</b>									
V	Railroad Viaducts	Multiple	Town	Complete the West Broad renovation project; assess feasibility of other locations in need (Bruce Avenue, King Street, East Main); utilize green infrastructure to reduce drainage "upstream" from viaducts (catchment basins, swales, stormwater gardens, etc...)				H	Ongoing
V	Waste Water Treatment Plant	Birdseye	Town (DPW)	Conduct investigation to examine implications of various flooding scenarios on facility and identify appropriate and feasible responses (raise berm); increase capacity of system by reducing inflows - flood proof manhole covers				H	S
V	Pump Stations (16 total - 2 currently vulnerable)	Town-Wide	Town	Assess and scope feasibility of hardening facilities associated with 2 pump stations; assess impact of temporary loss of multiple pump stations; consider alternative sites for relocation of vulnerable stations longer-term				H	S
V	Durham Bus Company	Yard Near Airport	Private	Need for contingency plan and notification process to ensure buses are relocated prior to flooding events				H	S
V	Gas Main to Bridgeport	Peck's Mill Pond	Utility	Assess vulnerability due to exposure of high pressure gas main to extreme weather events and sea level rise - main gas line for Bridgeport				H	S
V	Transportation Routes	Town-Wide	State, Town	Update evacuation plans that factor in lack of access during peak events (Cat-3); integrate into notification of voluntary and mandatory evacuation orders				H	S-L
V	Power Lines	Town-Wide	Utility (UI)	Work with UI to harden utilities (bury lines); maintain contractor on call list; tree trimming and maintenance efforts; secure funding for tree removal are needed				H	S-L
V	Stratford Housing Authority	Multiple	Non-Profit	Housing units (500+) dispersed across multiple neighborhoods with many in flood zones; need to assessment feasibility of power supply via generators to units				H- M	S-L
V	Buildings South of Stratford Avenue	Multiple	Town, Private, Community	Flood proof critical buildings, raise equipment and generators, install projectile proof windows (municipal buildings, private residences, community buildings)				H	L
V	Businesses - Main Enterprise	Near Airport	Private	Need for businesses to find solutions to minimize impact to facilities and improve business continuity after major events; additional generators needed				M	S
V	Schools (Alpha) Lordship	Birdseye	Town	Critical sheltering facility; requires improved access up Birdseye Avenue during flooding events to enhance operations and access to facility				M	S
V	Businesses - Lordship Blvd District	Lordship Blvd.	Private	Need for businesses to find solutions to minimize impacts to facilities and improve business continuity; additional generators needed				M	S
V	Dams	Multiple	Private, State	Assess current condition and impacts of catastrophic failure; access previous inundation contingency plans; Beaver Dam, Brewster Pond Dam, Peck's Mill Pond Dam, Cooks Pond Dam				M	S-L

Table 4.11  
**RISK MATRIX - STRATFORD**  
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Vulnerabilities/Assets	Location	Ownership	HAZARDS				Priority for Action	Time
			Coastal Flooding	Inland & Riverine Flooding	Winter Storms (Ice & Snow)	Wind		
V Senior Center	Specific	Town	Prioritize site use for storm events; generator needed for senior center; need warming center w/generators (Bunnell)				M	L
V Main Street	Multiple	Town	Assess feasibility of elevating Main Street - from 5 1/2' to 7'				M	L
V Birdseye Complex	Birdseye Avenue	Town	Reduce flooding on Birdseye Avenue: Manage trees to protect people and buildings; Ensure access to BMC is prioritized during response and recovery efforts				M	L
V Police Station	Long Brook Avenue	Town	Relocate technical equipment to upper floors; raise parking area; reevaluate communication tower (s) design to withstand high winds				M	L
V Animal Shelter	Birdseye	Town	Consider Integrating Shelter into improvements at WWTP - extend protective berm around Shelter				M	L
V Birdseye Boat Docks and Ramp	Specific	Town	Assess approaches to maintain functionality of facilities under flooded conditions to ensure continued use during disasters				L	L
S UI - Work Safe Program	Town-Wide	UI, Town	Deenergizing areas for workers, follow lockout/tagout when appropriate					Ongoing
S Lordship Fire House	Specific	Town	Source of emergency supplies, food, and water needs - generators in place					Ongoing
S Stratford Crossings (Home Depot Complex)	Specific	Private, Town	Maintain as critical location for statging and recovery					Ongoing
<b>Societal</b>								
V South End - Employment Growth Area		Town	Reassess existing and future risks to employment growth areas identified in Stratford Plan of C&D; Plan should consider all costs of redeveloping land in vulnerable areas and consider less vulnerable areas; elevate existing buildings and ensure new building are higher then unelevated existing ones; identify building codes that would reduce flood risk in at-risk locations				H	S
V Sheltering Facilities	Multiple	Town	Need to secure generators for Bunnell High School and Baldwin Senior Center				H	S
V Gas Stations without Generators	Multiple	Private, Town	Need support and funding to provide generators to enable gas pumping				H	S
V Private Contractors Equipment In Flood Areas	Multiple	Private	Relocate equipment to secure flood proofed location prior to events; Surf Avenue, Barnum Avenue, Bow Avenue, Greenfield Avenue, Albright Avenue;				H	S
V Restaurants without Generators	Various	Private, Town	Encourage private entities throughout town to acquire and install back-up generators to increase food preparation and ice availability				H	S
V Raymark Waste - Ferry Creek/Lockwood Avenue		Private	Privately owned property that requires cooperation to ensure planting and stabilization of land to prevent mobilization during events				H	L
V Response Coordination - Utilities	Multiple	Town, Utilities	Need to improve coordination in response to disasters; need to increase "make safe" crews				H	L



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			HAZARDS						
Vulnerabilities/Assets	Location	Ownership	Coastal Flooding	Inland & Riverine Flooding	Winter Storms (Ice & Snow)	Wind	Priority for Action	Time	
							M	L	
V	Stratford High School Ball Fields	Town	Evaluate for ways to use location to increase protection of downtown area				M	L	
V	South End (Senior Housing, Housing Authority)	Multiple	Various	Advance buy-out programs for repetitive loss properties; voluntary acquisition of properties				M	L
V	Response Coordination - Neighborhoods	Multiple	Town, Private	Need to clearly define roles of CERT teams to minimize response functions of emergency services - fire department.				L	L
S	Sikorsky Airport	Private	Serves as a supply depot during events with power generation capabilities					Ongoing	
S	Sheltering Facilities	Multiple	Town	Continue to maintain services; Bunnell High School, Birdseye Complex, Baldwin Senior Center (overall capacity for 7,000 people)					Ongoing
S	Hospital Services	Multiple	Private	Bridgeport - Saint Vincent's Hospital; Paid Fire Department					Ongoing
S	Fire Department	Multiple	Town	Paid Fire Department with full time staff					Ongoing
S	EOC Communications	Multiple	Town	UI liaison present with EOC team during recent extreme weather events					Ongoing
S	Housing Authority - Funding Allocated	Multiple	Town	Secured generators for community centers					Ongoing
S	Town Reverse 911	Town-Wide	Town	Push messages; economic development outreach to businesses					Ongoing
S	Clery Association Assistance at Centers	Multiple	Private, Town	On-site support at community centers during disasters					Ongoing
S	Disaster Response Support	Town-Wide	Various	Regional Medical Reserve Corps; Region 1 EM; CERT; Ham Radio Operators					Ongoing
S	Vulnerable Population Database	Multiple	Town	Locations of at risk population maintained in Town database					Ongoing
<b>Ecosystem</b>									
V	Norway Maple	Multiple	Town, Private	Need to conduct assessment of age and distribution to inform removal and trimming efforts; risk to life and property from falling; urban tree inventory (UVM - GBRC)				H	S
V	Natural Resources	Multiple	Town	Assess the impacts of hazards on natural areas: Roosevelt Forest, Boothe Memorial Park, Far Mill River, Wooster Park; identify ways to enhance defensive/protective features for additional flood protection longer-term				H	S
V	Long Beach - Pleasure Beach	Multiple	Town(s)	Assess the impacts on adjoining National Wildlife refuge and built structures (roads, commercial/industrial, residential, airport) from breach of barrier island during future extreme weather events; cost/benefit analysis of beach restoration/ replenishment over time				H	L
V	Short Beach	Multiple	Town	Coordinate with federal agencies to conduct a cost/benefit analysis for Short Beach replenishment over time; look to define Short beach as an Engineered Beach				M	L

Table 4.11  
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**Stratford Hazards and Community Resilience Workshop - October 4, 2013**  
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Vulnerabilities/Assets	Location	Ownership	HAZARDS				Priority for Action	Time
			Coastal Flooding	Inland & Riverine Flooding	Winter Storms (Ice & Snow)	Wind		
V Russian Beach		Town	Assess the ongoing and longer-term impacts from hazards towards developing a sustainable course of action				M	L
S Freshwater Wetlands and Riverine Areas		Town	Bruce Brook, Long Brook, Tanner Brook, Wooster Pond - maintain flood storage capacity					Ongoing
S Roosevelt Forest Red Maple Marsh		Town	Need to conduct ongoing maintenance and identify restoration projects as needed to enhance defensive features					Ongoing
S Salt Marshes	Multiple	Town, Federal	Need to conduct ongoing maintenance and identify restoration projects as needed to enhance defensive features					Ongoing
S Long Beach - Pleasure Beach		Town(s)	Critical natural infrastructure that provides long-term defense against extreme weather events and sea level rise; habitat improvements underway (invasive species removal plan/efforts)					Ongoing
S Other Natural Resource Areas		Town	Park Blvd Bluffs, Danoke Shores					Ongoing

Recommendations made in the 2008 annex to the NHMP were primarily focused on flood mitigation through infrastructure improvements and regular maintenance of infrastructure. Due to more severe weather events since 2008, recommendations made in this update also emphasize the importance of pre-disaster planning and coordination, the utility of natural features for flood mitigation and the impact of hazards related to wind, ice and snow.

Greater understanding of the urban tree canopy, encouraging utilities to follow recommended arboriculture practices and a regular tree maintenance plan are new strategies that address pre-disaster planning and hazards not related to flooding – such as the impacts of wind, ice and snow. Insuring adequate power generators at shelters, encouraging restaurants and businesses to install backup generators and educating the public on preparing for severe weather are other recommendations that reflect planning and preparation as a community priority.

Like the coastal jurisdictions of Bridgeport and Fairfield, the impacts of hurricanes Irene and Sandy have expanded and diversified the range of mitigation strategies that the Town of Stratford is considering since the 2008 update. Additional improvements to facilities and infrastructure so as to protect against flooding were identified – such as the waste water treatment plant and pump stations. The Town has placed a greater priority on low impact development techniques, ordinances to reduce storm water runoff, increased protection and maintenance of Stratford’s beaches and enhancing the flood protection features of all natural areas (such as forests, marshes and open space) since the 2008 update. The Roosevelt Forest Management Plan is one such example of the Town’s commitment to management and protection of its natural areas.

Recommended mitigation strategies for the Town of Stratford include the following:

**LEGEND**

Hazard Type			
C = Coastal flooding	C/I = Coastal and Inland Flooding	W = Wind	SR = Sea Level Rise
I = Inland Flooding		A = All Hazards	
Existing/New			
E = Existing	N = New		
Cost			
MI = Minimum: staff time or volunteer time	L = Low: less than \$10,000	MO = Moderate: between \$10,000 and \$100,000	H = High: \$100,000

Table 4.12  
**ACTION MATRIX - STRATFORD**

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL
<b>Prevention</b>																				
Integrate Low Impact Development techniques in the land use process, as well as in the new zoning regulations for the Transit Centered Development District in the vicinity of the Town Center.	A	N	MO	1	2	2	1	1	2	3	12	-1	-1	-1	-2				-5	7
Flood audits on Masarik Avenue & Benton Street: after the permitting process has been completed, begin cleaning a downstream channel from Benton Street to Hathaway Drive.	C	E	H	2	1	1	3		1	1	9		-1	-1				-2	-4	5
Adopt ordinances that call for reductions in stormwater runoff in new developments	C/I	E	MO	1	1	1		1	1	3	8	-2		-1	-1	-1	-1		-6	2
Evaluate ways to use the Stratford High School ball fields to increase protection of the Downtown.	I	N	H	1	1	1	1				4	-1			-2				-3	1
<b>Property Protection</b>																				
Develop a contingency plan and notification process to ensure buses are relocated prior to flooding events.	A	N	MI	3	2	2	3		1		11									11
Elevate structures in the Lordship area to meet or exceed FEMA requirements for Base Flood Elevation	C	E	MI	3	1	2	2	1	2		11									11
Reasses existing and future risks to the South End and employment growth area identified in Stratford Plan of Conservation and Development. The Plan should consider all costs of redeveloping land in vulnerable areas and consider less vulnerable areas; evaluate existing buildings and ensure new building are higher than unelevated existing ones; identify building codes that would reduce flood risk in at-risk locations.	A	N	MO	3	3	2	3	1	3		15	-1	-2	-2	-1				-6	9

Section 4: Mitigation

Table 4.12  
ACTION MATRIX - STRATFORD

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL
Flood proof structures in the Lordship area where appropriate.	C	E	MO	2	1	1	2	1	2		9									9
Flood proof structures and construct drainage improvements in the Town Center, as well as encourage Low Impact Development techniques to mitigate flooding in this area.	C/I	E	H	2	3	2	3	1	2	3	16	-1	-1	-1	-2	-1	-1		-7	9
Relocate private contractor's equipment in flood zones to secure flood proofed location prior to events; Surf Avenue, Barnum Avenue, Bowe Avenue, Greenfield Avenue, Albright Avenue.	C	N	MI	1	2	1	2		2		8									8
Consider acquiring properties that have experienced repetitive loss from storms and flooding and maintain a list of properties with owner interest for future acquisition, and as NRCS funding becomes available.	C/I	N	H	1	1			1		3	6	-2	-1	-2	-1				-6	0
<b>Structural</b>																				
Proceed with roadway reconstruction on the Lordship Boulevard/ State Route 113. The Connecticut Department of Transportation has initiated a project to elevate Route 113 in the vicinity of Sikorsky Airport.	C	E	MI	3	3	3	3	3	3	3	21									21
Continue to clean catch basins on a regular basis.	I	E	MO	3	3	3	3	1	3	3	19									19
Complete the elevation of Route 113 in the vicinity of Sikorsky Airport.	C	E	MI	3	3	3	3	1	3	3	19									19
Address recurring flooding on Surf Avenue at the I-95 overpass.	C	N	H	3	2	3	3	1	3	3	18						-1		-1	17
Complete the design phase and initiate construction to replace multiple culverts and channels at Barnum Avenue between Sage Avenue and Bowe Avenue to alleviate flooding of Barnum Avenue and West Avenue.	I	E	H	3	2	3	3	1	3	3	18						-1		-1	17
Maintain the project to replace and enlarge the structured channel and culverts conveying Tanners Brook from the ball fields at Stratford High School, from Broadbridge Avenue and King Street and along the New Haven rail line.	I	N	H	2	3	3	3	1	2	3	17						-1		-1	16
Develop a maintenance protocol with the US EPA to address flood mitigation strategies at the Raymark (Superfund) site. Work with the Raymark waste site at Ferry Creek and Lockwood Avenue to ensure planting and stabilization of land to prevent mobilization during events.	A	N	L	3	2	2	3	2	3	3	18			-1	-1				-2	16
Assess feasibility of elevating Main Street - from 5 1/2' to 7'.	C	N	H	3	2	2	3	1	2	3	16				-1				-1	15

Table 4.12  
ACTION MATRIX - STRATFORD

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs						Subtotal	TOTAL						
												Social	Technical	Administrative	Political	Legal	Economic			Environmental					
Coordinate a full scale survey of Short Beach with the Army Corp of Engineers so that it may meet FEMA's definition of an engineered beach.	C	N	MO	3	2	2	2	1	2	2	14							0	14						
Increase protection around the wastewater treatment plant by raising the existing flood control berm.	C	N	H	3	2	3	2	1	2	2	15							-1	-1	14					
In the South End neighborhood, evaluate installing twin 6' X 8' box culvert with regulating tide gate to allow tidal flushing while preventing tidal flooding up to elevation 9' on Lordship Boulevard.	C/I	N	H	3	2	1	2	1	2	2	13									13					
Work with the local utility to harden utilities (bury lines); maintain contractor on call list; tree trimming and maintenance efforts; secure funding for tree removal.	W	N	H	3	2	2	3	1	3	2	16							-1	-2	-3	13				
Continue with the project to increase the width of the channelized stream downstream of Broadbridge Ave. to reduce flooding at a condominium parking lot. The replacement and enlargement of the structured channel and natural channel that conveys Tanners Brook from Broadbridge Avenue South to King Street has been designed and is in the permitting phase. Funds have been allocated for construction.	I	E	H	3	2	2	3	1	2	2	15							-2	-1	-3	12				
Complete the bridge project to elevate Broad Street over Ferry Creek.	C	N	H	3	2	1	3	1	2	3	15							-1	-1	-1	-3	12			
Increase the capacity of the wastewater treatment system by reducing inflows, such as with flood proofed manhole covers.	C/I	N	H	1	3	1	2	1	3		11										11				
Complete the design phase for a 36" relief pipe to Long Brook and proceed to construction.	I	E	H	2	2	2	2	1	2	1	12										-1	-1	11		
Complete the bridge project to elevate Broad Street over Ferry Creek.	C	E	H	3	2	1	2	1	2	3	14										-1	-2	-3	11	
Complete the West Broad railroad viaduct renovation project. Assess the feasibility of other locations in need (Bruce Avenue, King Street, East Main). Utilize green infrastructure to reduce drainage "upstream" from viaducts (catchment basins, swales, stormwater gardens, etc...).	I	N	H	2	3	2	1	2	2		12												-1	-1	11

Section 4: Mitigation

Table 4.12  
ACTION MATRIX - STRATFORD

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal							Subtotal	TOTAL		
												Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic			Costs - Environmental	
Consider a quantitative study to determine which manhole covers within the existing or new flood zones to waterproof to prevent inundation of flood waters into the sanitary sewer system, and secure funding for this project.	C/I	N	H	2	1	1	1		2	3	10									10	
Drainage improvements on Lordship Boulevard/State Route 113.	C	E	H	3	2	1	1	1	2	1	11								-1	-1	10
Respond to future needs as appropriate at Oronoque Village.	A	E	MI	2	2	2	3	1			10										10
Harden sewage pump stations against flooding.	C/I	N	H	2	2	1	2	1	2		10								-1	-1	9
Flood proof critical buildings south of Stratford Avenue: raise equipment and generators, install projectile proof windows (municipal buildings, private residents, community buildings).	C	N	H	1	2	2	2	1	2		10								-1	-1	9
Complete the replacement of storm water culverts under Old Spring Road with new box culverts.	I	E	H	2	1	1	2		1	3	10								-1	-1	9
The Town has selected a consultant to design a 7X3 culvert as part of the West Broad St roadway improvements. This will alleviate flooding at the West Broad St RR underpass at Tanner's Brook.	I	E	H	3	1	1	2	1	2		10								-1	-1	9
Proceed with increasing the size of the culvert at Reed St. to 500' of 12' X 4' box culvert. The town had started property acquisition procedures.	I	E	H	2	2	1	2	1		2	10								-1	-1	9
An assessment of drainage system components through specific areas of Oronoque Village is underway. Continue to monitor improvements to the drainage system completed by Association in 2004.	I	E	H	2	2	2	3	1			10								-1	-1	9
Consider installing twin 6' X 8' box culverts on Lordship Boulevard with regulating tide gate to allow tidal movement while preventing flooding in the South End neighborhood.	C	N	H	1	3	1	1		2	1	9								-1	-1	8
Consider replacing the storm water culverts under Quail Street with new box culverts. Due to the status of an adjacent Superfund site, the Town has been unable to proceed with this project.	I	E	H	3	2	3	2	1	1	3	15	-1	-1	-1	-2				-2	-7	8
Flood proof structures and construct drainage improvements in the vicinity of Masarik Avenue, Benton Street and Harding Avenue.	C	N	H	1	2	2	1		2		8										8

Table 4.12  
ACTION MATRIX - STRATFORD

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs						Subtotal	TOTAL		
												Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic			Costs - Environmental	
Conduct an investigation to examine the implications of various flooding scenarios on the wastewater treatment plant and identify appropriate and feasible responses, such as raising the berm.	C	N	H	2	2	2	2	1	2		11	-1	-1	-1				-1	-4	7	
Assess approaches to maintain the functionality of the Birdseye boat docks and ramp under flooded conditions to ensure continued use during disasters.	C	N	MI	1	2	1	2	1			7									7	
Structural flood proofing on Massarik Avenue/Benton Street.	C	E	H	1	1	1	2	1	2		8							-1	-1	7	
Evaluate a flood control structure at Stratford High School ball field on King St. to create 2.5 MG of flood storage for a 1% storm event	I	E	H	1	1	2	1	1	2	2	10							-2	-1	-3	7
Consider bank erosion protection east of Diane Terrace.	C	E	H	1	1	1	2			2	7										7
Reconstruct New Haven rail line bridges over Town streets to prevent flooding, including at Bruce Avenue, West Broad Street, Route 113 and Route 110.	I	N	H	1	1	1	1	1	2		7										7
Maintain the Beaver and Brewster dam studies (inspection reports conducted by the State of Connecticut) and continue to identify mitigation actions to reduce loss. Assess current condition and impacts of catastrophic failure for all dams. Access previous inundation contingency plans for the Beaver Dam, Brewster Pond Dam, Pecks Mill Pond Dam, Cooks Pond Dam.	I	N	MO	2	2	2	2		1		9	-1	-1	-1						-3	6
Assess the vulnerability due to exposure of high pressure gas main in Pecks Mill Pond area to extreme weather events and sea level rise. This is the main gas line for Bridgeport.	A	N	MO	2	1	1	2	1	2		9		-2						-1	-3	6
Consider integrating the animal shelter into improvements at the wastewater treatment plant, such as by extending the protective berm around the shelter.	C	N	MO	1	1	2	1		1		6										6
Strengthen and extend the Lordship Beach seawall.	C	N	H	2	1	1	2	1	2		9							-2	-2	-4	5
Assess and scope the feasibility of hardening facilities associated with 2 pump stations; assess impact of temporary loss of multiple pump stations; consider alternative sites for relocation of vulnerable stations longer term	C	N	MO	2	2	1	2	1	2		10	-1	-2	-1				-2	-1	-7	3

Table 4.12  
ACTION MATRIX - STRATFORD

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs					Subtotal	TOTAL	
												Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal			Costs - Economic
<b>Natural Systems Protection</b>																			
Protect and maintain Long Beach as an effective barrier beach.	A	N	MI	3	3	3	3		3	3	18							18	
Implement a routine tree maintenance and inspection program and remove hazardous trees and branches.	W	N	H	3	2	3	3	3	3	3	20			-1		-2	-1	-4	16
Protect and maintain Short Beach, including replenishing the beach (engineered beach) after a major event. Coordinate with federal agencies to conduct a cost/benefit analysis for Short Beach replenishment over time.	C	N	L	3	2	2	2	1	2	3	15								15
Assess the impacts on Long Beach/Pleasure Beach and adjoining National Wildlife refuge and built structures (roads, commercial/ industrial, residential, airport) from breach of barrier island during future extreme weather events; cost/benefit analysis of beach restoration/replenishment over time.	A	N	MO	3	2	2	1	1	2	3	14					-1	0	-1	13
Renourish and replenish beaches and regenerate dunes after major events.	C	N	H	3	2	2	3		2	2	14					-2	0	-2	12
Secure funding for and initiate the urban forest canopy study (an application for funding through an America the Beautiful grant was submitted in November 2013)	W	N	L	2	2	3	1		2	3	13			-1			-1	-2	11
Assess the impacts of hazards on natural areas: Roosevelt Forest, Booth Memorial Park, Far Mill River, Wooster Park; identify ways to enhance defensive/protective features for additional flood protection longer-term.	A	N	MO	2	2	1	2	1	2	3	13			-1		-1		-2	11
Work with private land owners to understand the importance and benefits of maintaining and leaving vegetation in place to stabilize riverbanks	A	N	MO	3	2	2			2	3	12			-1				-1	11
Consider a "Living Shoreline Plan" for the Stratford coastline.	C	N	MO	2	2	3	2		2	3	14	-1	-1	-1	-1			-4	10
At Russian Beach, assess the ongoing and longer-term impacts from hazards towards developing a sustainable course of action.	C	N	H	2	2	2	3		2	3	14		-1	-1		-1	-1	-4	10
Work with local utilities to develop a replanting plan and maintenance plan for trees consistent with recommended arboriculture practices and is supportive of "right tree, right place" policy	W	N	L	2	1	3	2	1	2	2	13		-1	-1	-1	-1		-4	9
Complete a natural resources management plan.	A	N	L		1	1	1			2	5								5



Table 4.12  
ACTION MATRIX - STRATFORD

Description	Hazard Type		Existing/New	Cost	Benefits								Subtotal	Costs						Subtotal	TOTAL					
					Social	Technical	Administrative	Political	Legal	Economic	Environmental	Social		Technical	Administrative	Political	Legal	Economic	Environmental							
<b>Education and Awareness</b>																										
Highlight the Living Shoreline project on Stratford Point.	C	N	MI	2	2	2	3		2	3	14								-1	-1	13					
Utilize GIS for the purposes of notification, evacuation and awareness of the location of floodplains and mitigation projects.	A	N	MI	2	2	2	3	1	2		12								-1		-1	11				
Focus public education on safety tips and reminders to individuals about how to prepare for cold weather, heat waves and severe weather events.	A	N	MI	2	2	2	2				8								-1		-1	7				
Businesses in the Main Enterprise and Lordship Boulevard areas need to find solutions to minimize impact to facilities and improve business continuity after major events; additional generators needed.	A	N	MI	2	1	2	2			3	10								-1	-1	-1	-3	7			
Implement outreach programs to educate citizens regarding Ordinances, Insurance, and other flood relevant issues.	A	E	L	1	1	1	2	1	1		7								-1			-1	6			
Encourage restaurants throughout town to acquire and install backup generators to increase food preparation and ice availability.	A	N	MI	2	1	2	2			1	8								-1		-1	-2	6			
Use signage and public information to make the public aware of evacuation routes and available shelters, especially those individuals living within hurricane storm surge evacuation zones.	C	N	MO	2	2	1	2	1			8								-1	-1		-1	-3	5		
Continue use of QAlert (online) system for complaint tracking to maintain a database of calls received by the Town.	A	E	MI	1	1	1	1	1			5								-1	-1	-2		-4	1		
<b>Emergency Services</b>																										
Continue to implement and operate the Stratford Electronic Notification System to alert residents and businesses in the case of impending storms and floods.	A	E	MI	3	2	3	3	3	1		15													0	15	
Use of GIS to document evacuation plans.	A	N	MI	3	2	3	3	2	2		15								-1	-1				-2	13	
Improve coordination with utilities in response to disasters and increase "make safe" crews.	A	N	MI	3	3	3	3		1		13														13	
Provide adequate back-up power to Bunnell High School, Birdseye Municipal Complex, Flood Middle School, Stratford Housing Authority units and the Baldwin Senior Center.	A	N	H	3	2	3	3	3	1		15								-1					-2	-3	12

Section 4: Mitigation

Table 4.12  
ACTION MATRIX - STRATFORD

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL
Update evacuation plans to factor lack of access to transportation routes during peak events (CAT-3). Intergrate into notification of voluntary and mandatory evacuation orders.	A	N	L	3	3	2	3	1	2		14	-1	-1	-1					-3	11
Prioritize use of evacuation sites/warming centers for storm events.	A	N	L	3	3	2	3	1	2		14	-1	-1	-1					-3	11
The Birdseye Municipal Complex is a critical sheltering facility, and access to the complex needs to be prioritized during response and recovery efforts. Reduce flooding on Birdseye Avenue and manage trees to improve access during flooding events.	A	N	MO	2	2	2	3	1	1		11									11
Police Station: relocate technical equipment to upper floors; raise parking area; reevaluate communication tower (s) design to withstand high winds.	A	N	H	1	2	3	1	1			8									8
Clearly define roles of the Community Emergency Response Teams (CERT) to minimize response functions of emergency services.	A	N	MI	2	1	2	3		1		9	-1	-1						-2	7
Address gas stations without generators by securing support and funding to provide generators to enable gas pumping.	A		MI	2	1	1	3				7									7
Work with the Stratford Housing Authority to develop evacuation plans.	A	N	MI	3	1	1	2	1			8	-1	-1						-2	6
Improve warning of residents that may become isolated by downed trees during an extreme weather event.	A	N	L	2	1	1	1		2		7	-1	-1				-1		-3	4

## Town of Trumbull

Table 4.13

### RISK MATRIX - TRUMBULL

**Monroe-Easton-Trumbull Hazards and Community Resilience Workshop - September 24, 2013**

*Risk Matrix developed by The Nature Conservancy (01/2012)*

Vulnerabilities/Assets	Location	Ownership	HAZARDS				Priority for Action	Time
			Flooding	Ice & Snow	High Winds	Extreme Heat & Cold		
<b>Infrastructure</b>								
V Drainage Easements	Town-Wide	Town, Private	Conduct a comprehensive assessment of all drainage easements in Town; GIS mapping, condition assessment; ranking of top priorities; develop action plan				H	Ongoing
V Downed Trees - road blockage	Town-Wide	State, Town, Private	Improve tree management, outreach, and public education				H	Ongoing
V Waste Water Treatment Pump Stations	Floodplains	Town	Flood-proof exposed pump stations in low-lying, floodprone areas				H	S
V Power Lines - power outages	Town-Wide	UI, AT&T, Cable	Improve make safe plan - communication and cooperation				H	S
V Dams	Pine Woods Lake	Pine Woods Lake Assoc.	Improve dam management in advance of extreme rain events				H	L
V Dams	Town-Wide	Town, Private	Reexamine Class A and B dams - safety and condition; Canoe Brook Lake				H	L
V Culverts - White Plains Road; RT 127@Town Center	Specific	State	Conduct a drainage study at critical locations know to flood				M	Ongoing
V Culvert - Twin Brooks Drive	Specific	Town (?)	Continue to ensure culvert maintenance plan is updated and implemented - particularly in advance of major rain event				M	Ongoing
V Culvert - RT 15	Specific	State	Coordinate with State to improve flood water conveyance in this location				M	Ongoing
V Infrastructure in Floodplains	Across Town above BFE	Town, Private	Assess and identify in GIS the location and extent of exposure from flooding for all structures within SFHA.				M	S
V Road Flooding		State, Private	Replacement of high capacity flood control/conveyance structures (Twin Brooks, Trumbull Center)				M	L
V Long Hill Drainage Corridor	Long Hill	Town, Private	Conduct flood drainage study across the Long Hill corridor				M	L
V Road Flooding	Across Town	State, Town	Hydrologic study along floodplain particularly at culverts and road crossings				M	L
S Generators - Town Hall, Police Station, Pump Station	Specific	Town	Continue to secure and install generators at top priority facilities					Ongoing
S Communications on power restoration/poles	Town-Wide	UI	Continue to improve communication and coordination with Cable and AT&T on power poles (See above as Vulnerability)					Ongoing
S Power Restoration Priority List (Top 10)	Town-Wide	Town	Continue to revisit top 10 list of first power restoration sites					Ongoing
S Response Equipment		Town	Recently upgraded equipment for snow removal beneficial during recent events; seek to upgrade further where needed					Ongoing

Table 4.13  
**RISK MATRIX - TRUMBULL**  
**Monroe-Easton-Trumbull Hazards and Community Resilience Workshop - September 24, 2013**  
*Risk Matrix developed by The Nature Conservancy (01/2012)*

HAZARDS

Vulnerabilities/Assets	Location	Ownership	HAZARDS				Priority for Action	Time
			Flooding	Ice & Snow	High Winds	Extreme Heat & Cold		
S Generator Capacity Improved	Critical Facilities	Town	Continue to examine longer-term needs for power continuity and generator placement					Ongoing
<b>Societal</b>								
V Lack of adequate staff for facilities	Across Town	Town	Review workforce availability and increase disaster training as needed to ensure adequate and trained workforce				H	S
V Residents with medical conditions	Across Town		Improve access to information on services for at-risk populations during disasters				H	S
V Gas Stations without Generators	Multiple	Private, Town	Need support and funding to provide generators to enable gas pumping				H	S
V Community Rating System enrollment	Town-Wide	Town, GBRC	Seek enrollment in FEMA's CRS program				H	S
S MOU with Region #1/ SHMO		Town	Annual review of MOU and work to improve communications				H	Ongoing
S Town and Regional Websites	Town-Wide	Town, GBRC	Continue to update websites with information and maps to aid in preparedness and mitigation				H	Ongoing
S UI Plan for Municipal Center		Town	Periodically revisit critical locations for immediate power restoration				H	Ongoing
S EMS - superior well trained/practiced team		Town - EOC	Continue to explore opportunities to improve communications and coordination				H	S
S Neighborhood-based Assistance Network	Across Town	Residents	Increase outreach and awareness amongst existing neighborhood groups				M	Ongoing
S Town Reverse 911	Town-Wide	Town						Ongoing
S Trumbull Shopping Center Charging Station	TSC	Town, Private						Ongoing
S Shelters			Secured generator for High School					Ongoing
<b>Ecosystem</b>								
V Impacts of Development and Lack of Education	Town-Wide	Town, Private	Seek to expand the awareness and implementation of green infrastructure, pervious pavement; and update drainage requirements with new development and redevelopment				H	Ongoing
V Wetlands	Town-Wide	Town, Private	Conduct hydrologic study of water conveyance opportunities and obstacles in watershed(s); improve drainage maintenance of vegetated swales				H	S
S/V Tree Lined Streets	Town-Wide	Town	Improve tree management plan				H	S
S Large Areas of Open Space - Pequonnock River	Town-Wide	Town, Private	Seek to expand green infrastructure; increase awareness amongst residents				H	Ongoing
S Watershed Plans - Pequonnock and Rooster	Town-Wide	Town, Private	Implement watershed plans				H	Ongoing
S Open Space	Town-Wide	Town, Private	Conduct inventory of trees				H	Ongoing

Table 4.13  
**RISK MATRIX - TRUMBULL**  
**Monroe-Easton-Trumbull Hazards and Community Resilience Workshop - September 24, 2013**  
*Risk Matrix developed by The Nature Conservancy (01/2012)*

Vulnerabilities/Assets	Location	Ownership	HAZARDS				Priority for Action	Time
			Flooding	Ice & Snow	High Winds	Extreme Heat & Cold		
S Wetlands	Town-Wide	Town, Private	Outreach to residents on importance of wetlands and drainage swales for risk reduction from flooding; look to increase protection of additional floodplains				H	S
S Town stormwater policy	Town-Wide	Town	Review policy for credit for green infrastructure projects				H	S
S Existing Open Space, Parks, Bike Path	Town-Wide	Town, Private	Assess the flood storage capacity of existing open space as part of upcoming inventory				M	S

Mitigating the impacts of inland flooding in certain areas of the Town of Trumbull, tree maintenance, coordinated power restoration and assisting residents during severe weather events are priorities in the Town of Trumbull. Recommendations in the 2006 NHMP were primarily oriented to infrastructure improvements so as to mitigate flooding. Like the other communities discussed in the NHMP, recommendations made by Trumbull stakeholders have expanded to include a diverse set of measures to mitigate the impacts caused by a variety of natural hazards.

The draft of the Town's Plan of Conservation and Development promotes low impact development and green infrastructure approaches to protect natural resources as development occurs. Assessing the capacity of open space for flood storage, education to residents about green infrastructure solutions and wetland protection and the implementation of the Pequonnock River and Rooster River watershed based plans are some of the recommendations that recognize the utility of natural features as a flood mitigation method. The importance of natural features is a new priority since the 2006 NHMP.

Inland flooding continues to be a concern for the Town of Trumbull. In addition to natural mitigation measures, improvements to infrastructure and structures is a town priority as well. This priority has not changed since the 2006 NHMP. However, the number of recommendations regarding infrastructure and structural improvements have increased since 2006.

A reliant and resilient electrical system is a key concern in Trumbull's draft POCD and has increased in priority since long term power outages after hurricanes Irene and Sandy and Winter Storm Alfred (in October of 2011). Tree lined streets play an important role in the Town's atmosphere and quality of life, but downed limbs and trees also brought power lines down and prevented access to many roads – further delaying power restoration. Balancing the importance of trees to the Town with a proactive maintenance plan for trees close to power lines is necessary for both these priorities to be realized.

In addition to tree maintenance, additional recommendations were made to assist residents during long term power outages and for improved power restoration. Improved access to information about services for at-risk residents during disasters, adequate generators at shelters, charging stations and multiple avenues for communications with residents are some examples of recommendations in regards to community assistance. A variety of opportunities to restore power more quickly were identified, including town staff workforce availability, enhanced communication with utilities, periodically revisiting the critical locations for immediate power restoration and updated maps/GIS.

Section 4: Mitigation

While downed trees and tree limbs knock out power, they also block roads and prevent residents from accessing emergency services. Snow and ice storms limit access to emergency services and emergency responders as well. Since Trumbull is served by hospitals in Bridgeport, this access is a regional priority. The importance of access to the regional services located in the City of Bridgeport became apparent during Winter Storm Nemo, as the amount of snow that needed to be cleared severely burdened public works crews throughout the region.

Recommended mitigation strategies for the Town of Trumbull include the following:

LEGEND			
<b>Hazard Type</b>			
C = Coastal flooding	C/I = Coastal and Inland Flooding	W = Wind	SR = Sea Level Rise
I = Inland Flooding		A = All Hazards	
<b>Existing/New</b>			
E = Existing	N = New		
<b>Cost</b>			
MI = Minimum: staff time or volunteer time	L = Low: less than \$10,000	MO = Moderate: between \$10,000 and \$100,000	H = High: \$100,000

Table 4.14  
ACTION MATRIX - TRUMBULL

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs						Subtotal	TOTAL
												Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic		
<b>Prevention</b>																			
Participate in FEMA's Community Rating System (CRS) program.	A	N	MO	2	3	2	2		3	2	14	-1	-1		-2		-4	10	
Improve the tree management plan.	W	N	L	2	3	3	2		2	2	14	-1		-1	-1	-1	-4	10	
Conduct a comprehensive assessment and study of all drainage easements in the Town to assess condition, map locations, prioritize and develop action plans for maintaining and upgrading as needed.	I	N	H		3	3	2		2	2	12				-3		-3	9	
Modify regulations to provide incentives and/or credits for installation of green infrastructure for the on-site retention and control of storm water runoff.	I	N	L	2	2	3				3	10				-1		-1	9	
Conduct an assessment of the tree canopy in Trumbull and identify locations for planting of trees. Conduct an inventory of trees. An application for an America the Beautiful grant to fund an urban tree canopy for the Greater Bridgeport Region has been submitted.	W	N	L	2	2	3	2			2	11			-1	-1		-2	9	
Conduct a drainage study at critical locations known to flood, including White Plains Road and Route 127 at the Town Center.	I	N	H		3	2	2		2	1	10				-3		-3	7	



Section 4: Mitigation

Table 4.14  
ACTION MATRIX - TRUMBULL

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL	
Continue catch basin maintenance in the Pequonnock River watershed, along Pequonnock River tributaries and Pinewood Lake.	I	E	L	3	3	1				1	8								-1	-1	7
Continue to maintain critical culverts and remove debris, especially in advance of storms.	I	N	L	3	3	1				1	8								-1	-1	7
Flood-proof exposed pump stations in low-lying, floodprone areas.	I	N	H	2	3	1			2	2	10								-3	-3	7
Continue to inspect and maintain existing dams in the Horse Tavern Brook area.	I	E	L	3	3	1					7								-1	-1	6
Coordinate with the State to improve flood water conveyance at the culvert on Route 15.	I	N	H	3	2	2			2		9								-3	-3	6
Continue to inspect and maintain existing dams and reexamine the safety and condition of Class A and B dams, including Canoe Brook Lake.	I	N	MO	3	3	2					8								-2	-2	6
Install back-up generation at sewage pump stations through the Town.	A	N	H	3	3	2					8								-3	-3	5
Improve management of and conduct controlled drainage of Pinewood Lake prior to storm events to maximize retention capacity.	I	E	H	2	3	2				1	8								-3	-3	5
Complete storm sewer projects in the Pequonnock River and Pinewood Lake drainage basin.	I	E	H	3	3	1				1	8								-3	-3	5
Replace existing culverts conveying the Pequonnock River at Daniels Farm Road, in the Twin Brooks area and at the Merritt Parkway with higher capacity structures.	I	N	H	3	3	1			1		8								-3	-3	5
Install green infrastructure, including bioswales, rain gardens, vegetative roofs and use of permeable pavement, to retain storm water runoff and promote infiltration.	I	N	MO	2	2	1				2	7								-2	-2	5
Continue to ensure the culvert maintenance plan is updated and implemented, particularly in advance of a major rain event and specifically in the Twin Brooks area.	I	N	MO	3	3						6								-2	-2	4
Regrade the floodplain at the bend in the Pequonnock River at Route 127 to improve conveyance.	I	E	MO	2	2					2	6								-2	-2	4
Assess the condition of existing dams in Town, including Canoe Brook Lake and Pinewood Lake, install new drainage valves and other control devices necessary to draw down water levels in advance of approaching storms and limit the potential hazards to downstream properties.	I	N	H	3	3						6								-3	-3	3





Section 4: Mitigation

Table 4.14  
ACTION MATRIX - TRUMBULL

Description	Hazard Type	Existing/New	Cost	Benefits - Social	Benefits - Technical	Benefits - Administrative	Benefits - Political	Benefits - Legal	Benefits - Economic	Benefits - Environmental	Subtotal	Costs - Social	Costs - Technical	Costs - Administrative	Costs - Political	Costs - Legal	Costs - Economic	Costs - Environmental	Subtotal	TOTAL
Increase warning and notification of anticipated flood events to residents, especially those who live along the Pequonock River and in the Manor Drive area.	I	E	MI	1	2	3	1				7								0	7
<b>Emergency Services Protection</b>																				
Improve the Town's make safe plan for downed power lines and power outages. Improve communication and cooperation with local utilities.	A	N	MI	3	3	2	3	2	2		15								0	15
Continue to periodically revisit top 10 list of first power restoration sites and critical locations in the Town Center for immediate power restoration.	A	N	MI	3	3	3	2		3		14								0	14
Wire the Trumbull Library to serve as a recharging location for personal electronic devices.	A	N	L	3	3	3	3				12						-1		-1	11
Improve access to and availability of information on services during an emergency.	A	N	MI	3	2	3	2				10								0	10
Continue to operate and deploy a reverse 9-1-1 system.	A	N	L	3	2	3	2				10						-1		-1	9
Improve coordination and communications during an extreme weather event.	A	N	L	3	2	3	2				10						-1		-1	9
Continue to examine longer-term needs for power continuity and generator placement.	A	N	MI	2	2	3	2				9								0	9
Review workforce availability and increase disaster training as needed to ensure adequate and trained workforce for facilities during emergencies.	A	N	MI	2	3	3	2				10						-1		-1	9
Secure and install back-up generation equipment at critical and priority facilities, especially for adequate back-up power at Trumbull High School.	A	N	H	3	3	3	2				11						-2		-2	9
Secure support and funding to provide generators at gas stations to enable gas pumping.	A	N	MO	3	3	2	3				11						-2		-2	9
Annual review of Region 1 Memorandum of Understanding and work to improve communications with the SHMO.	A	N	MI	1	2	3	2				8								0	8
Continue to explore opportunities to improve communications and coordination with the EMS Department.	A	N	L	2	2	2	2				8						-1		-1	7
Evaluate the need for emergency access into and from the Trumbull Corporate Park and the Westfield/Trumbull Shopping Mall and construct access roads as deemed necessary.	A	N	MO	1	3	3	1				8						-2		-2	6

# 5

## Implementation

This section describes the process with which recommendations from Section 4 (Mitigation) will be implemented. The parties responsible for the adoption and overall implementation of the update to the multi-jurisdictional Natural Hazard Mitigation Plan (NHMP) recommendations are detailed.

The funding sources and planning mechanisms through which recommendations will be implemented are described.

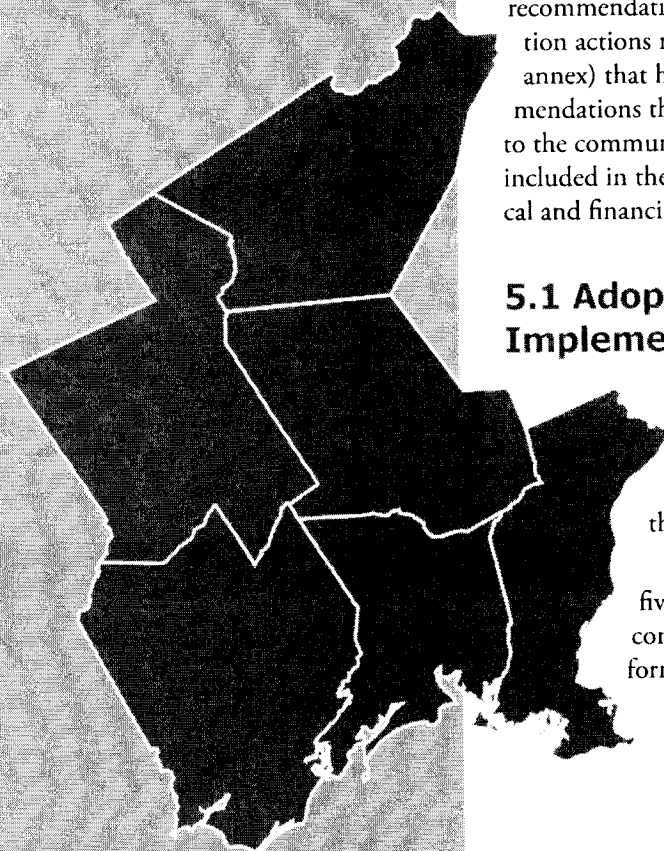
Plan monitoring and evaluation, public participation and the role that the Conservation Technical Advisory Committee (CTAC) and Community Rating System (CRS) program will play in these activities is explained.

The strategies with which to implement mitigation recommendations are discussed at the local and regional scales. The mitigation action matrices from the previous section have been used as the framework to form an implementation plan for each community. These matrices identify the parties and departments responsible for implementation, funding sources, the planning mechanism through which an action may be implemented and an anticipated time frame. Using the results of the STAPLE+E method, these recommendations have been prioritized. At the local scale, mitigation actions recommended in the 2006 plan (and 2008 Stratford annex) that have been implemented are identified. Those recommendations that were not implemented but still have relevance to the community, or are in the process of being implemented are included in the current recommendations. A description of technical and financial resources concludes this section.

### 5.1 Adoption & Responsibilities for Implementation

The Greater Bridgeport Regional Council (GBRC) will guide the updated NHMP through the FEMA approval process and will assist the governing bodies of member communities throughout the process of adopting the updated NHMP.

The updated NHMP will be considered current for five years from the date that the first Greater Bridgeport community adopts the plan. Once the plan has been formally adopted by the community's governing body,



the community is eligible for certain funding programs administered by FEMA. Communities that have not adopted the plan will not be eligible for these programs but will not prevent the eligibility of other communities that have adopted the plan.

After adoption by the community and as funding becomes available, local officials will be responsible for assigning the appropriate resources to implement mitigation actions. As recommendations of the NHMP are implemented, they will most likely be implemented by the municipal departments that oversee these activities. These departments include Engineering Departments, Departments of Public Works, Planning Departments and Offices of Emergency Management. The GBRC will work with local communities to pursue mitigation actions by providing technical assistance to identify and pursue funding opportunities detailed later in this section.

## 5.2 Planning Mechanisms

Each Greater Bridgeport Region community will integrate recommendations of the NHMP through existing planning mechanisms, such as Plans of Conservation and Development, Zoning Regulations, Capital Improvement Plans, operating budgets and local programs or initiatives. By taking advantage of existing mechanisms, the recommendations of the NHMP are more likely to be successfully implemented.

The implementation matrices for each community will detail the existing planning mechanisms that recommendations may be implemented through. These include:

**Administrative:** Departmental and/or organizational work plans, policies, procedures and staffing considerations that integrate the NHMP into daily operations.

**Budgetary:** Local capital and operating budgets that include a line item for natural hazard mitigation and/or recommendations of the NHMP. Federal and state funding sources may supplement local budgets.

**Regulatory:** Executive orders, directives and ordinances authorized by the Chief Elected Official or local governing body.

As these hazard mitigation recommendations become institutional practices throughout the Greater

Bridgeport Region, new mechanisms to implement these actions are anticipated. New public-private partnerships, strengthened relationships with community organizations and local incentives will further realize the goals of the NHMP.

## 5.3 Progress Monitoring, Public Participation and Plan Maintenance

The Conservation Technical Advisory Committee (CTAC) of the Greater Bridgeport Regional Council will monitor the progress of the NHMP implementation. Each Greater Bridgeport municipality is formally represented on the CTAC with a member of the local Conservation Commission and a staff member with responsibilities related to conservation. Meetings of the CTAC are held monthly and are open to the public. In addition to the appointed members, meeting attendees typically include local conservation organizations, residents, staff of the Connecticut Department of Energy and Environmental Protection and other regional stakeholders. Throughout the process of developing the NHMP, the CTAC has provided guidance and will continue to monitor the implementation of mitigation actions post-adoption.

The agenda of each monthly CTAC will include an item regarding the NHMP. CTAC members will provide updates on the implementation of recommended NHMP mitigation actions in their respective communities. The GBRC will keep track of these updates through the implementation matrix framework.

The GBRC will annually report on the progress of implementing NHMP recommendations and will be responsible for coordinating an annual meeting with the CTAC to review the plan. In addition to CTAC members, participants in the review will include representatives of the departments listed in the implementation matrices. Matters to be reviewed will include an assessment of the goals and objectives of the original plan, a review of hazards or disasters that occurred during the preceding year, an evaluation of the mitigation activities that have been accomplished to date, a discussion of why implementation of mitigation activities may be behind schedule, and recommendations for new projects and revised activities.

“The maintenance schedule for the NHMP (post adoption) is below:”

Table 5.1  
**Post-Adoption Plan Maintenance Schedule**

2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
GBRC staff will seek funding for regional projects and provide technical assistance to municipalities for local funding opportunities.	GBRC staff will seek funding for regional projects and provide technical assistance to municipalities for local funding opportunities.	GBRC staff will seek funding for regional projects and provide technical assistance to municipalities for local funding opportunities.	GBRC staff will seek funding for regional projects and provide technical assistance to municipalities for local funding opportunities.	GBRC staff will seek funding for regional projects and provide technical assistance to municipalities for local funding opportunities.
Municipalities will integrate NHMP recommendations into local plans, ordinances and budgets.	Municipalities will integrate NHMP recommendations into local plans, ordinances and budgets.	Municipalities will integrate NHMP recommendations into local plans, ordinances and budgets.	Municipalities will integrate NHMP recommendations into local plans, ordinances and budgets.	Municipalities will integrate NHMP recommendations into local plans, ordinances and budgets.
"8-10 meetings of the Conservation Technical Advisory Committee, hosted by the GBRC. Meeting agendas will include an item for municipalities to provide updates on the status of natural hazard mitigation actions."	"8-10 meetings of the Conservation Technical Advisory Committee, hosted by the GBRC. Meeting agendas will include an item for municipalities to provide updates on the status of natural hazard mitigation actions."	"8-10 meetings of the Conservation Technical Advisory Committee, hosted by the GBRC. Meeting agendas will include an item for municipalities to provide updates on the status of natural hazard mitigation actions."	"8-10 meetings of the Conservation Technical Advisory Committee, hosted by the GBRC. Meeting agendas will include an item for municipalities to provide updates on the status of natural hazard mitigation actions."	"8-10 meetings of the Conservation Technical Advisory Committee, hosted by the GBRC. Meeting agendas will include an item for municipalities to provide updates on the status of natural hazard mitigation actions. The CTAC will serve as a forum to discuss the status of the NHMP update."
CTAC and GBRC staff will prepare a report on plan progress, any mitigation actions implemented and an evaluation of the effectiveness of mitigation actions.	CTAC and GBRC staff will prepare a report on plan progress, any mitigation actions implemented and an evaluation of the effectiveness of mitigation actions.	CTAC and GBRC staff will prepare a report on plan progress, any mitigation actions implemented and an evaluation of the effectiveness of mitigation actions.	CTAC and GBRC staff will prepare a report on plan progress, any mitigation actions implemented and an evaluation of the effectiveness of mitigation actions.	GBRC, CTAC and municipalities will implement a public outreach strategy to begin the process of updating the NHMP.
GBRC will submit the annual report to FEMA and publicize report via social media, newsletter and website.	GBRC will submit the annual report to FEMA and publicize report via social media, newsletter and website.	GBRC will submit the annual report to FEMA and publicize report via social media, newsletter and website.	GBRC will submit the annual report to FEMA and publicize report via social media, newsletter and website.	GBRC, CTAC, municipalities and regional stakeholders will prepare the draft update of the NHMP.
"GBRC will integrate NHMP recommendations into the Regional Plan of Conservation & Development. GBRC and municipalities will complete the Urban Tree Canopy Assessment."			GBRC staff will work with municipalities to seek funding for the 2019 update of the NHMP.	GBRC, CTAC, municipalities and regional stakeholders submit the draft update of the NHMP to CT DEEP and FEMA. Ultimate adoption of NHMP by local legislative bodies.

Continued public involvement will be sought regarding the monitoring, evaluation of and updating of the NHMP. Public input may be solicited through community meetings and input to web-based information gathering tools. Public comment on changes to the Plan may be sought through notifications posted to the websites of the Greater Bridgeport Regional Council, as well as through the websites of individual municipalities.

## 5.4 Community Rating System Program

FEMA's Community Rating System (CRS) is a voluntary program that offers discounts on flood insurance premiums to communities that undertake activities beyond minimum flood insurance standards. Activities include public outreach and information on flood protection, open space protection, storm water management and floodplain mitigation. Several municipalities in the Greater Bridgeport Region have expressed interest in applying to this program. Due to the rigorous requirements of the CRS Program, the NHMP will be monitored, evaluated and updated as a CRS activity.

The CRS program requires that communities with ten or more repetitive loss properties (Category C communities) prepare a floodplain management plan that covers the repetitive loss areas. All coastal Greater Bridgeport Region communities are Category C repetitive loss communities. Multi-jurisdictional Natural Hazard Mitigation Plans that are prepared in accordance with the CRS Floodplain Management Planning process qualify for floodplain management planning credit in the CRS Program. CRS Program requirements for the NHMP, post-adoption, are as follows:

- An annual evaluation report on progress towards plan implementation must be prepared at least once each year and submitted with the community's annual CRS recertification. The report must be submitted to the governing body, released to the media, and made available to the public.
- If a community receives credit as a result of participation in a multi-jurisdictional plan that includes action items for each community, the annual evaluation report must cover those action items. This can be done either by a multi-jurisdictional planning committee or through separate submittals by each community. However, a community will not receive credit if it did not participate in the meeting at which the annual report was prepared. Therefore, the submittal needs to show who participated in the preparation of the report.
- The community must update the plan at least every five years. The update is due by October 1, five years after the plan was adopted. The

update must follow a detailed process described in the CRS Coordinator's Manual.

As public information activities are an important and required component of CRS, NHMP public participation requirements and recommendations of the NHMP regarding public education and awareness will be implemented through the CRS Program.

## 5.5 Implementation

While development patterns in the region have not significantly changed since the 2006 NHMP, FEMA's updated digital flood insurance rate maps (DFIRMs) and the impacts of Hurricanes Sandy and Irene have impacted communities throughout the Greater Bridgeport Region. For many coastal communities, the Coastal V (Velocity) Zone has widened to include structures that had previously been located in the A Zone (standard coastal flood zone). The revised DFIRMs have required communities to enforce local floodplain regulations for structures that were once been located outside of the floodplain. Thus recommendations from the 2006 plan regarding increased elevation standards and extending V Zone regulations to the A Zone have been implemented or partially realized by several communities.

The impacts of Hurricanes Irene and Sandy have also strengthened local awareness of the need to plan for and mitigate the potential impacts from flooding and high winds. While flooding had long-term devastating impacts on many properties along the coast, widespread power outages that lasted several days to a week or longer had severe impacts on residents, businesses and institutions throughout the region. Improved tree maintenance programs, enhancing communication with utilities and prioritizing critical access roads to clear blockages from fallen tree limbs are underway in several Greater Bridgeport communities.

The table below lists and prioritizes actions that are relevant to municipalities throughout the Greater Bridgeport Region. Regional best practice approaches to implementing these actions are provided for each recommendation in the table. However, as most of these recommendations will need local support for implementation, and implementation mechanisms vary by community, community specific implementation processes have been detailed in each local implementation matrix.

**LEGEND - IMPLEMENTATION MATRIX - REGION**

Hazard Type			
C = Coastal flooding	C/I = Coastal and Inland Flooding	W = Wind	SR = Sea Level Rise
I = Inland Flooding		A = All Hazards	
Existing/New			
E = Existing	N = New		
Cost			
MI = Minimum: staff time or volunteer time	L = Low: less than \$10,000	MO = Moderate: between \$10,000 and \$100,000	H = High: \$100,000

Table 5.2  
**IMPLEMENTATION MATRIX - REGION**

Description	Hazard Type	Existing/New	Process of Implementation	Schedule	Cost	Benefits Subtotal	Cost Subtotal	Total Score
<b>Prevention</b>								
Enforce flood management regulations	C/I	E	Continue local enforcement of regulations and amend regulations as necessary. Work with the GBRC's Conservation Technical Advisory Committee (CTAC) to research best practices that will go above and beyond minimum NFIP requirements.	2013-	L	11	-1	10
Conduct hydrologic and hydraulic studies to evaluate risks and flood mitigation	C/I	N	Work through CTAC to acquire funds through State and Federal grants to conduct Regional and Watershed-based evaluations	2015-2021	H	12	-2	10
Develop regional watershed councils to prepare watershed management plans	I	E	Develop ordinances and coordinate with municipalities through CTAC to create watershed councils.	2013-2015	L	9	-1	8
Comply with NFIP and maintain FEMA elevation certificates	C/I	E	Through CTAC ensure that all towns comply with NFIP and maintain elevation certificates. As more towns express desire to enter CRS this action will be maintained.	2013-	L	12	-4	8
Develop storm water management regulations and programs	I	E	Continue local implementation of storm water management regulations and programs. Work through CTAC to develop Regional storm water management plans and identify existing local mechanisms through which plan recommendations may be implemented.	2013-	L	7	0	7
Implement floodplain management techniques above and beyond minimum NFIP requirements, including increasing "Freeboard" heights, adopting "No Adverse Impact" policies, notifying repetitive loss property owners, and participating in the Community Rating System (CRS) program	C/I	N	GBRC is leading the effort to have all member towns with frequent flooding concerns enter the CRS program. GBRC acts as a central GIS warehouse and will fulfill the mapping requirements. Additionally, GBRC acts as the coordinating body between towns and FEMA for the NHMP.	2013-2015	H	11	-4	7
Incorporate flood mitigation in local land use regulations	C/I	E	Continue local implementation of flood mitigation techniques in land use regulations. Work through CTAC to develop best practices and identify existing local mechanisms through which they may be implemented.	2013-	M	9	-3	6

Table 5.2  
IMPLEMENTATION MATRIX - REGION

Description	Hazard Type	Existing/New	Process of Implementation	Schedule	Cost	Benefits Subtotal	Cost Subtotal	Total Score
Improve storm water management planning and adopt policies to reduce storm water runoff, such as, requiring development project have " zero discharge"	I	N	Coordinate efforts between towns through CTAC to develop watershed-based policies that cross town borders.	2013-	H	8	-3	5
Consider requiring new buildings in the floodplain to be protected from the highest recorded flood level	C/I	N	Work with building departments to enact stricter building codes	2013--	M	5	-2	3
<b>Public Education &amp; Awareness</b>								
Increase awareness of flood risk and safety	C/I	E	Through the CRS program, the GBRC plans to develop a Regional GIS flood viewer which will allow the public to search for their property and to see if is located in a floodplain.	2013-	MI	10	0	10
Encourage homeowners to purchase flood insurance	C/I	E	Through the CRS program, the GBRC plans to develop a Regional GIS flood viewer which will allow the public to search for their property and to see if is located in a floodplain. Providing information about flood insurance is a requirement of the CRS program.	2013-	MI	10	0	10
Educate citizens about safety during flood conditions	C/I	E	Work through CTAC to develop flood safety materials that can be distributed through web pages and pamphlets	2013-	MI	10	0	10
Conduct outreach to educate and advise homeowners about risks to life, health and safety	A	E	Advise member towns of the importance of outreach to citizens and hold Regional meetings	2013-	MI	10	0	10
Hold workshops to facilitate dissemination of information on technical assistance programs	A	E	Work with member towns to coordinate regional workshops.	2013-	L	10	-1	9
<b>Natural Resources Protection Actions</b>								
Protect and restore riverbanks, wetlands and dunes	C/I	E	Seek grant opportunities for these projects. Work with state and federal agencies to develop a restoration plan.	2013-	L	11	-1	10
Use vegetative buffers	C/I	E	Through CTAC, educate property owners on the importance of vegetative buffers. Consider integrating the use of vegetative buffers into existing parks and public works department processes.	2013-	L	11	-1	10
Establish riparian buffers	I	E	Through CTAC, educate property owners on the importance of riparian buffers. Consider integrating the use of riparian buffers into existing parks and public works department processes.	2013-	MO	11	-1	10
Preserve floodplains and wetlands as open space	C/I	E	Investigate opportunities for floodplain easements on properties and consider having discussions with property owners regarding land preservation. Use GIS to identify priority parcels.	2013-	L	9	0	9
Protect and restore natural flood mitigation features	C/I	E	Through CTAC, educate the public on the importance of natural system to mitigate flooding. Research grant opportunities for restoration of these features and develop a prioritization plan.	2013-	L	10	-2	8



Table 5.2  
IMPLEMENTATION MATRIX - REGION

Description	Hazard Type	Existing/New	Process of Implementation	Schedule	Cost	Benefits Subtotal	Cost Subtotal	Total Score
Acquire floodplain lands and wetlands for open space	C/I	E	Investigate grant opportunities for land acquisition. Use GIS to identify priority parcels.	2013-	H	10	-2	8
Develop stream buffer ordinances	I	N	Research best practices for stream buffer ordinances and work with Inland Wetland and P&Z Commissions to develop an ordinance.	2013-	M	6	0	6
Continue beach nourishment programs	C	E	Assess priority areas. Develop a plan and cost estimate for these projects.	2013-	H	8	-2	6
Establish a green infrastructure program that requires more trees to be planted or preserved, encourages the use of porous pavement, and planting of vegetative buffers	I	N	Research best practices for green infrastructure programs. Consider integrating program elements into existing public works and parks department projects.	2015-	H	7	-2	5
<b>Emergency Services Protection Actions</b>								
Locate critical facilities, such as wastewater treatment plants, EOCs, police and fire stations, and emergency shelters outside flood-prone areas	C/I	N	Use GIS to identify priority facilities and alternative locations. Research grant opportunities that will support this recommendation.	2015-2020	MO	5	0	5
Flood proof critical facilities in vulnerable locations, such as wastewater treatment plants, EOCs, police and fire stations, and emergency shelters	C/I	N	Use GIS to identify priority facilities. Develop preliminary plans for the preferred flood proofing option. Research grant opportunities that will support this recommendation.	2015-2020	H	6	-2	4
<b>Structural</b>								
Maintain drainage systems by clearing sediment, removing debris and routinely repairing and cleaning storm drains	I	E	Continue annual maintenance programs.	2013-	MO	10	-1	9
Prohibit filling in floodplain areas	C/I	N	Research ordinances and best practices to support this recommendation.	2013-	MI	8	0	8
Limit or restrict development in floodplain areas	C/I	N	Research ordinances, best practices and incentives to support this recommendation.	2013-	L	9	-2	7
Limit the amount of impervious surface	I	N	Research best practices for incentives and ordinances that will reduce impervious surfaces in new and existing developments. Work with Inland Wetland and P&Z Commissions to develop an ordinance.	2013-	L	7	-2	5
Increase capacity of detention and retention ponds and basins	I	N	Use GIS to identify priority locations. Research grant opportunities to implement this recommendation.	2015-	MO	5	-1	4
Install bioengineered bank stabilization techniques	C	N	Use GIS to identify priority areas. Develop preliminary designs (or hire a consultant to develop designs) and research funding opportunities.	2015-2020	H	6	-2	4
Increase capacity of storm water drainage systems and separate combined sewer systems	I	E	During road construction, upgrade to a separated sewer system and improve drainage systems as needed.	2015-	H	5	-2	3
Construct flood control measures, such as, berms and dikes, and use hardened material to prevent erosion	C/I	E	Use GIS to identify priority areas and potential impacts to property owners or right of way issues. Develop preliminary designs (or hire a consultant to develop designs) and research funding opportunities.	2015-2020	H	5	-3	2

Table 5.2  
IMPLEMENTATION MATRIX - REGION

Description	Hazard Type	Existing/New	Process of Implementation	Schedule	Cost	Benefits Subtotal	Cost Subtotal	Total Score
Elevate structures, roads, and bridges above base flood elevation	C/I	N	Use GIS to identify priority infrastructure and potential impacts to property owners or right of way issues. As infrastructure is improved (and if feasible), consider elevation as part of the project scope. Research funding opportunities.	2015-2020	H	3	-2	1
<b>Property Protection</b>								
Adopt and enforce building codes and increase "freeboard" requirements	C/I	N	Work through CTAC to develop model ordinances.	2013-	L	5	-1	4
Encourage elevation of structures	C/I	E	Work through CTAC to develop model ordinances and incentives. Research funding opportunities to encourage elevation.	2013-	MO	6	-2	4
Removing existing structures from flood-prone areas	C/I	E	Use GIS to identify priority structures. CTAC and GBRC can assist municipalities with applying for State and Federal funding.	2013-2020	H	5	-3	2

**City of Bridgeport**  
**LEGEND - STRATEGIC ACTIONS - BRIDGEPORT**

**Hazard Type**

C = Coastal Flooding    I = Inland Flooding    W = Wind, Snow & Ice    A = All Hazards

Table 5.3  
**STRATEGIC ACTIONS - BRIDGEPORT**  
*from the 2006 Regional Natural Hazard Mitigation Plan*

Hazard Type	Description	2006 Status	2014 Status	Result
C	Enforce V-zone requirements in sections of coastal A zones located waterward of waterfront roadways	2007-2012	Completed: city ordinances are modeled to FEMA standards. Applicable ordinances are amended as FIRM maps are revised.	Not Enough Time to Determine Result
C	Consider adopting standards to require two or more feet of freeboard when developing or redeveloping structures in tidally influenced floodplains	2007-2013	Deferred: more stringent standards have not been officially adopted. However, the City uses two feet of freeboard as minimum guidelines on design projects. The city would like to adopt these eventually.	
I	Adopt a drainage maintenance program for inspections of private drainage facilities to be maintained and cleaned.	2007-2012	Completed: the City has developed a drainage manual for all new construction. The manual includes regulations for storm water quality, quantity and infiltration. The property owner is required to have a plan in place for drainage facility maintenance.	Not Enough Time to Determine Result
I	Adopt stream dumping regulations.	2007-2013	Deferred: a stream dumping ordinance has not been officially adopted. Property owners are responsible for clearing any obstruction in streams that run through their property. The City will clear obstructions on non-private property. However, outreach to property owners was conducted in the development of the Pequonnock and Rooster River Watershed-Based Plans.	
I	Adopt ordinances that call for reduction in storm water runoff in new developments.	2006	Completed: the City's Storm Water Management Manual was adopted in 2008. The Public Facilities department has the power to amend storm water regulations by city ordinance. Creation of a Storm Water Authority is under consideration.	Not Enough Time to Determine Result. The city awaiting DEEP funding to begin stormwater authority feasibility study. Consultant selected.
<b>Structural &amp; Infrastructure</b>				
C	Raise the height of two harbor breakwaters to protect the inner harbor from the reach of higher waves and to reduce damage from wave action in the harbor.	2007-2012	In Progress: the Army Corp of Engineers will be going out to bid on a project to repair/replace breakwaters on Bridgeport harbor. The bid process is anticipated to begin in March of 2014.	
I	Continue to clean all catch basins annually.	2006 plan did not specify a year	Completed: this is scheduled maintenance. The WPCA and Public Facilities department have a yearly catch basin cleaning program.	Met Targeted Result. WPCA & City of Bridgeport clean approximately 9,000 catchbasins annually.
I	Continue to reach annual milestones of cleaning 8,500 catch basins, 158,400 linear feet of sewer lines, and TV inspections of 158,400 linear feet of sewer lines.	2006 plan did not specify a year	Completed: this is scheduled maintenance. The City has surpassed this milestone and continues this annual maintenance and cleaning program.	Met Targeted Result. WPCA & City of Bridgeport clean approximately 9,000 catchbasins annually.
I	Continue to clean streets prior to forecasted storms to keep storm grates clear and accommodate higher flows.	2006 plan did not specify a year	Completed: this is scheduled maintenance. The City continues this program.	Met Targeted Result. WPCA targets catchbasin top cleaning in low-lying areas prone to ponding. City of Bpt Lines and Signs crews put temporary traffic barriers in areas prone to ponding in advance of flood events to restrict vehicular access.

Table 5.3  
**STRATEGIC ACTIONS - BRIDGEPORT**  
*from the 2006 Regional Natural Hazard Mitigation Plan*

Hazard Type	Description	2006 Status	2014 Status	Result
I	Continue aggressive street sweeping program.	2006 plan did not specify a year	Completed: this is scheduled maintenance. The City continues this program.	Met Targeted Result. City of Bridgeport Public Works typically cleans each street 3 to 4 times per year.
<b>Seaview Avenue &amp; the Lower East End</b>				
C	Introduce a mixture of hard and soft shoreline protection measures	2006 plan did not specify a year	Deferred: funding received but then rescinded from USDA for remediation and naturalization of Johnson's Creek shoreline.	
C	Flood-proof structures.	2006 plan did not specify a year	Completed: work related to storm water infrastructure to prevent backflow and flooding has been done at several businesses.	Met Targeted Result
C	Consider elevating Seaview Avenue.	2007-2012	Deferred: due to cost. Should be carried over to 2014.	
C	Elevate structures as they are renovated or constructed.	2007-2012	Deferred: several projects in pipeline that would be elevated.	
<b>Yellow Mill</b>				
C	Increase, and in some cases introduce, bank protection.	2006 plan did not specify a year	Completed: completed at new MOVE yacht club site but not elsewhere.	Not Enough Time to Determine Result
C	Consider elevating Waterview Avenue, especially in connection with redevelopment projects.	2007-2020	Deferred: due to cost. Should be carried over to 2014.	
<b>Seaside Park</b>				
C	Continue using a mix of hard and soft beach protection measures.	2006 plan did not specify a year	Completed: due to budget and time constraints. City of Bridgeport Hazard Mitigation Grant Submittal after Irene appealed to STATE DEMHS (Not sure of the status of this appeal). Repairs after Sandy to sidewalks and rocks beside to sidewalks. Fayerweather Lighthouse Historic Protection Grant submitted by Central Grants. Relocation of certain park amenities such as a swingset in the grove and possible reconfiguring ball field usage to areas of the park less susceptible to water inundation. Parking lot improvements to Seaside Park Diamond #1 have planned rain gardens in construction plan.	Not Enough Time to Determine Result. The City of Bridgeport has submitted a HMGP application with a Benefit Cost Analysis as required in March 2014 and we are waiting on the State of CT along with FEMA regarding approval or denial of project. The City has submitted all damage costs associated with Irene and have received funding for damage costs in all instances except for the Al Bennet Fishing pier that was approved in November 2013 by FEMA. Sandy damage costs and projects have been submitted and the City is waiting for approval from FEMA.
C	Plan for beach nourishment.	2007-2012	Deferred: due to budget and time constraints. US Army Corps has contacted the City through CTDEEP regarding their "policy for referencing project elevation grades to nationwide vertical datums". There was a meeting on a project US Army Corps is in progress on to repair breakwaters in progress Post Sandy in Bridgeport Harbor. Rebuild by Design is also considering possible solutions to alter bathymetry adjacent to the beach at Seaside in ways that would ensure long term sustainability of the area.	

Table 5.3  
**STRATEGIC ACTIONS - BRIDGEPORT**  
*from the 2006 Regional Natural Hazard Mitigation Plan*

Hazard Type	Description	2006 Status	2014 Status	Result
C	Allow Barnum Boulevard to be submerged during storm surge.	2006 plan did not specify a year	Deferred: due to budget and time constraints. Tied to Irene Hazard Mitigation Grant submittal. The Bridgeport Rebuild by Design team is investigating watershed and neighborhood strategies to utilize green infrastructure in ways that allow neighborhoods to work with water and thus minimize damage. Submerging Barnum Boulevard could be an option under their proposal	
<b>Cedar Creek</b>				
C	Protect bank with bulkheads or other creative hard solutions.	2007-2012	Deferred: budgetary constraints	
C	Consider elevating the road and parking lots, especially in connection with redevelopment projects.	2007-2020	Deferred: budgetary constraints	
C	Consider retreat from shoreline where vacant properties have little probability of expansive redevelopment.	2007-2020	Deferred: budgetary constraints	
<b>Black Rock</b>				
C	Improve beach protection.	2007-2012	Completed: the City is investigating coastal resiliency at St. Mary's by the Sea with Coastal Engineers at the Beach area. Engineering Survey in process. Dune Plantings completed in 2013 by the City of Bridgeport Parks and Recreation Department, Groundwork Bridgeport and the Ash Creek Conservation Association. Ongoing investigation to resiliency efforts and interface with Ash Creek Association in progress as well as follow up with CTDEEP to be initiated.	Not Enough Time to Determine Result.
C	Elevate houses as they are renovated or constructed.	2007-2012	Completed: any new construction in a flood zone is constructed higher than the BFE. Renovations are reviewed on a case by case basis depending on amount of improvement. This is a citywide policy.	Met Targeted Result. Houses are elevated at or above the BFE as part of the City's Ordinance revisions and new building code requirements.
C	Consider elevating Seabright Avenue.	2007-2020	Deferred: no plan to elevate Seabright Avenue currently.	
C	Consider elevating Gilman Street	2007-2012	Deleted: Gilman Street was not elevated but some storm water improvements were made and curbing introduced. This project was completed.	
<b>Ox Brook</b>				
I	Create a storm water detention area at the north end of the project in Roger's Park.	2007-2020	In Progress: the design phase of the project has been bonded. The project's scope and fee negotiation for design is anticipated to be complete by the end of 2013.	
I	Acquire additional land as needed for the creation of a detention area.	2006 plan did not specify a year	In Progress: the City is in ongoing discussions with property owners regarding land acquisition.	
<b>Island Brook</b>				
I	Encourage DEP to move forward with implementation of the preferred design alternative for the Lake Forest Dam.	2007	Completed: reconstruction of the Lake Forest dam was completed in 2010 by CT DEEP. A new emergency plan for Lake Forest has been developed.	Met targeted result. Construction completed and emergency plan implemented in 2010

Table 5.3  
**STRATEGIC ACTIONS - BRIDGEPORT**  
*from the 2006 Regional Natural Hazard Mitigation Plan*

Hazard Type	Description	2006 Status	2014 Status	Result
I	Resolve issues with the Lake Forest Association regarding leasing of the dam.	2007	Completed: since 2006, the dam was been reconstructed and lease issues resolved.	Met targeted result. Long term lease is in place
I	Facilitate the release funding from the State Bonding Commission to complete the Island Brook and Lake Forest Dam improvements.	2007	Completed/In Progress: The Lake Forest dam project has been completed. A request has been made to the state legislature for funding for the Island Brook flood control project.	Met targeted result for dam construction. Funding for downstream improvements has been requested through local state representatives.
I	Implement Flood Control Project to divert 400 cfs from Island Brook at Old Town Road to Ox Brook at Roger's Park. This flow is to be diverted back to Island Brook at Fairview Avenue through a large detention basin at Shrivva Park.	2007-2012	In Progress:the final phase of the Ox Brook project will address this issue.	
<b>Northeast Area</b>				
I	Contract for a Feasibility/ Flood Control Study that takes the downstream constriction at the GE Property into consideration, and implement recommendations as appropriate.  Bruce Brook	2007-2012	In Progress: the environmental study and preliminary design for this project has been completed.	
I	Consider culvert improvements in Barnum Avenue to realign the stream and soften the bends, from Sage to Bowe Streets.	2007-2012	In Progress: The Town of Stratford has initiated a project for culvert improvements on Sage and Bowe streets. Completion is anticipated for 2017.	
I	Continue to frequently clean the racks at Bowe Street.	2006 plan did not specify a year	Completed: this is scheduled maintenance. The City continues this program.	Met Targeted Result. Part of ongoing maintenace schedule with the Town of Stratford.
<b>Flooding at Viaducts</b>				
I	Use signage and large, visible staffs to indicate depths of water so that vehicles can avoid viaducts when necessary.	2007-2012	Completed: flood markers have been installed at viaducts. The City is considering the installation of signs.	Met targeted result. Markers are present at viaducts
I	Improve drainage when completing roadway projects in the future.	2006 plan did not specify a year	Completed: During full road reconstruction and the installation of new roads, drainage improvements are required.	Met Targeted Result. City has been upgrading new roads, and underlying sewers, as streets are repaved. Monthly utility coordination meetings continue.
<b>Rooster River/Ash Creek</b>				
I	Upgrade improvements from 50-year storm to 100-year storm.	2007-2012	Deleted: resources have been allocated for other flood control projects in areas with more pressing needs.	
I	Create dike and pumping system for low-lying areas.	2007-2012	Deleted: resources have been allocated for other flood control projects in areas with more pressing needs.	

Table 5.3  
**STRATEGIC ACTIONS - BRIDGEPORT**  
*from the 2006 Regional Natural Hazard Mitigation Plan*

Hazard Type	Description	2006 Status	2014 Status	Result
I	Aggressively maintain culverts and remove debris from channels.	2006 plan did not specify a year	Completed: this is scheduled maintenance. The City continues this program.	Met Targeted Result. City has continued maintenance in this area. Stakeholder outreach was conducted in conjunction with the Rooster River Watershed-Based Plan as well.
I	Remove bridges at Feroletto Steel and Scofield Avenue and replace with new bridge.	2007-2020	In Progress: This project has been initiated by the Town of Fairfield.	
I	Encourage the owner of the rail line to make improvements to the railroad bridge.	2007-2012	In Progress: At Fairfield Avenue and State Street, the road was widened and drainage system improved.	
I	Encourage the owner of the rail line to raise the grade of the railroad.	2007-2013	In Progress: the project has been initiated and completion is anticipated for 2015.	
<b>Education &amp; Awareness</b>				
A	Implement outreach programs to educate citizens regarding Ordinances, Insurance, and other flood relevant issues.	2007-2012	Completed: the City provides over 200 seminars on flooding and public safety each year. Specific neighborhood plans are in development, with completion anticipated for 2014.	Met Targeted Result. The City provides education outreach through its website, community seminars and community training on the issues of prevention, preparedness and recovery.
A	Implement a complaint tracking system to maintain a database of calls received by the City.	2007-2012	Completed: the BConnected Citizen Services System provides automatic and immediate contact with the department responsible for a service request.	Met Targeted Result. BConnected gathers information pertaining to all hazards that includes flooding and damages.
A	Implement a reverse 911 system to alert residents in the case of impending floods.	2007-2013	Completed: the Reverse 911 system is utilized for prevention, preparation and emergency response. The EverBridge system is provided by the State of Connecticut and may only be utilized for specific emergencies.	Met Targeted Result. Our three Community Alerting Systems, City's Website and Social medial links provide alerts to all residents about peniding hazards and the associated impacts from flooding.

The City of Bridgeport has demonstrated a commitment to implementing 2006 NHMP recommendations regarding regulations, infrastructure and public education and awareness. A storm water management manual was updated in 2008 and the Public Facilities department has the authority to amend the City's storm water regulations. The State of Connecticut Department of Energy and Environmental Protection completed reconstruction of the Lake Forest dam in 2010. Over 200 seminars on flooding and public safety are provided to residents by the City of Bridgeport every year. A Reverse 911 system and the online BConnected Citizen Services Request system keeps residents informed and engaged.

The table below lists and prioritizes actions that can be implemented throughout the region.

**LEGEND - IMPLEMENTATION MATRIX - BRIDGEPORT**

Hazard Type			
C = Coastal flooding	C/I = Coastal and Inland Flooding	W = Wind	SR = Sea Level Rise
I = Inland Flooding		A = All Hazards	
Existing/New			
E = Existing	N = New		
Responsible Department			
OPED = Office of Planning and Economic Development. The Land Use Construction and Review, Zoning and Building departments fall under OPED.			
PF = Public Facilities. The Office of Sustainability, the Engineering Department and the Parks and Recreation Department fall under Public Facilities.			
OS = Office of Sustainability			
EMHS = Office of Emergency Management & Homeland Security			
GBT = Greater Bridgeport Transit			
WPCA = Water Pollution Control Authority			
HSS = Health & Social Services			
BHA = Bridgeport Housing Authority			
NRZ = Neighborh			
Cost			
MI = Minimum: staff time or volunteer time	L = Low: less than \$10,000	MO = Moderate: between \$10,000 and \$100,000	H = High: \$100,000
Funding Source			
OB = Operating Budget	CI = Capital Improvement Plan	PV = Private	* = Grants
Planning Mechanism			
A = Administrative	B = Budgetary	R = Regulatory	



Table 5.4  
**IMPLEMENTATION MATRIX - BRIDGEPORT**

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Consider enrolling and participating in FEMA's Community Rating System (CRS) program. Identify and integrate building codes, land use policies and zoning regulation modifications that minimize exposure of existing buildings, future development and critical infrastructure to natural hazards and extreme weather.	C/I	N	PF/GBRC	The City of Bridgeport has a well developed public engagement program that educates residents about flooding and flood preparation The Greater Bridgeport Regional Council is preparing a regional GIS, with information about flooding, which is another CRS activity.	2014-2019	MO	OB	A	15	-4	11
Adopt stream dumping regulations.	C/I	E	PF/OPED	Property owners are responsible for clearing any obstructions in streams that run through their property. The City will clear obstructions on non-private property.	2014-2019	L	CI	R	10	-1	9
Identify and integrate building code, land use policies and zoning regulation modification that minimize exposure of existing and future development and critical infrastructure and facilities.	A	N	OPED	Building codes are promulgated by state statute and adopted by state agency for local enforcement.	2014-2019	L	CI	R	9	-1	8
Continue the policy of "Universal" shelters, "Universal" means specific needs and pets are allowed for.	A	N	EMHS	Continue to follow our strategy as outlined in our All Hazards Emergency Operations Plan Annex F Mass Care Emergency Shelters; identifying opportunities for resiliency centers through Rebuild by Design process	2013-2019	MI	OB	A	8	0	8
Consider tapping into new or alternate sources of funding for resilience/hazard mitigation projects.	A	N	City Wide	Work with GBRC to locate other potential funding streams	2013-2019	MI	OB	A	8	0	8
Consider adopting standards to require two or more feet of freeboard when developing or redeveloping structures in tidally influenced floodplains. Initiate longer-term opportunity to adapt the City to flooding through new building siting to elevations well above FEMA's 100-year flood zones (i.e., 500-year standard).	C	N	OPED	Officially adopt these standards in the zoning and building codes; currently working on draft floodplain overlay	2014-2019	L	OB	R	9	-1	8
Investigate opportunities for floodplain easements on properties.	C/I	N	OPED	The City was awarded a Natural Resource Conservation Service Easement Grant for areas in Johnson's Creek that was subsequently rescinded. We will continue to seek other comparable sources.	2013-2019	MI	OB	R	8	-1	7
Encourage low impact development techniques and green infrastructure for new developments.	C/I	N	PF/OPED	Part of the City's current B Green initiative; new low-impact development standards adopted in 2012	2013-2019	L	OB	A	8	-1	7

Table 5.4  
IMPLEMENTATION MATRIX - BRIDGEPORT

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Secure funding for and initiate an urban forest canopy study. A study was conducted in 2010 but needs to be updated.	W	N	PF	Work with GBRC to utilize new planimetric data to do a regional analysis with UVM.	2014-2019	L	OB	A	7	-1	6
Factor climate change impacts into all critical infrastructure improvement plans (i.e., bridges, bus route realignment).	SR	N	PF, GBT	Use higher standards in infrastructure improvement plans to accommodate climate change; Steel Point Infrastructure being raised outside of flood plain evidence of how this can be successful	2014-2019	MO	CI	B	8	-2	6
Continue to implement the comprehensive urban forest management plan.	W	N	PF	Working directly with the local utility, the City has begun implementing a "right tree, right place" tree replanting strategy, due to the recent decline in large growth trees.	2013-2019	L	OB	A	8	-2	6
Continue to expand Energy Improvement Districts	A	N	PF	Energy Improvement District covers entire city; achieved success in locating over 15MW of renewable generation; pilot community for micro-grid implementation; continuing to work on an additional 10MW + of renewable generation	2013-2019	MO	OB	R	8	-2	6
Continue to amend the storm water management manual as necessary.	C/I	N	PF	Engineering Department has Council approval to modify regulations as needed	2013-2019	MI	OB	R	6	0	6
Conduct a study to assess and prioritize the highest risk locations across the City.	AH	N	EMHS	Hire a consultant to perform a risk analysis	2014-2019	L	CI	A	7	-1	6
Continue to enforce V-zone requirements in sections of coastal A zones located waterward of waterfront roadways. Applicable ordinances are amended as FIRM maps are revised.	C	E	OPED	City Ordinance for Flood Damage Prevention (15.44) are currently up to date per FEMA requirements. They will be amended as required	2013-2019	L	OB	R	6	-1	5
Pending funding, proceed with the Storm water Authority Feasibility Study. Consider incentives to reduce the amount of impervious surface in the City.	C/I	N	PF	Use GIS to assess impervious surface cover.	2014-2019	MO	CI	A	6	-2	4
Encourage property owners to elevate electrical and heating systems above the base flood elevation.	C/I	N	Citizens	Utilizing \$500,000 through a Robin Hood Foundation Grant utilities in Seaside Village are being raised and upgraded. Utilize similar funding source to duplicate task to other areas. During Rebuild By Design leaders engaged residents at neighborhood meetings to recognize the value of these modifications.	2013-2019	L	CI*, PV*	B	10	-1	9

Table 5.4  
**IMPLEMENTATION MATRIX - BRIDGEPORT**

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Continue to flood-proof structures, especially in the Seaview Avenue/Lower East End neighborhoods.	C/I	E	Citizens/ BHA	Ordinances regarding flood proofing are amended as FIRM maps are revised.	2013- 2019	MO	CI*, PV*	B	10	-2	8
Elevate houses as they are renovated or constructed in the Black Rock Area.	C	E	Citizens	Required as part of City Flood Ordinance. Only implemented when a building application is filed.	2013- 2019	MO	PV*	B	10	-2	8
Encourage property owners to elevate structures above the base flood elevation.	C/I	N	Citizens	Required as part of City Flood Ordinance. Only implemented when a building application is filed.	2013- 2019	MO	PV*	B	10	-2	8
Consider moving sediment to preserve the hydrologic function of Ash Creek.	C/I	N	PF	Public Facilities and engineering to work together and assess feasibility and effectiveness. May need to hire a consultant to do in depth analysis.	2014-2019	MO	CI*	B	12	-2	10
Expand the separation of sanitary and storm drainage sewers. Implement and install green infrastructure and building modifications to improve on-site storm water management, retention and infiltration.	C/I	N	PF/WPCA	On site Stormwater improvements required as part of the City's Stormwater Management Regulations	2014-2019	H	CI*	B	13	-3	10
Improve the drainage and catch basin system.	C/I	N	"PF/ WPCA/ CT DOT"	During road construction, upgrade to a separated sewer system.	2014- 2019	H	CI*	B	13	-3	10
Improve ability of drinking water supply reservoirs to accommodate high intensity, short duration rain events.	I	N	Aquation	Divert water before large storm events.	2014- 2019	MO	PV	A	12	-2	10
Minimize the impact of new development	C/I	N	PF	Continue to utilize low impact development techniques and green infrastructure for new developments and continue to work with the Office of Planning and Economic Development and the WPCA to coordinate development and sewer separation projects.	2013-2019	MO	CI*	B	11	-2	9
Expand the separation of sewer and surface runoff across more of the City's water/sewer infrastructure (i.e., CSO separation).	C/I	N	PF/WPCA	Continue to improve the communication of Long Term Control Plan (LTCP), CSO master planning document. Continue to map and strategically plan separation projects.	2014-2019	H	CI*	B	12	-3	9

Table 5.4  
IMPLEMENTATION MATRIX - BRIDGEPORT

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Consider retreat from the Cedar Creek shoreline where vacant properties have little probability of expansive redevelopment.	C	E	OPED	The City is working through Rebuild by Design process to identify sites along Cedar Creek for fortification and sites for retreat to combine into a comprehensive resiliency strategy for the area.	2014-2019	MO	CI*	B	11	-2	9
Address the number of derelict structures in the City.	A	N	OPED	Work with the GBRC to establish a Brownfields inventory and web viewer which will support the redevelopment of these areas; City recently completed demolition of approximately 250,000 square feet of derelict structures; City working with developers on the repositioning and rehabilitation of nearly 3 million square feet of currently derelict structures.	2014-2019	MO	CI*	B	12	-3	9
Continue to protect vital transportation infrastructure working with GBT, local, state and federal Agencies as well as providing safe and secure access to and from transit hubs as preparation for any future storm response and/or evacuation.	A	N	"EMHS/GBT/CT DOT"	Continue to work with our transportation providers to develop a strategy that will be reviewed before June 1st and December 31st each year.	2013-2019	MO	CI*	B	10	-2	8
Continue to implement the recommendations from the Pleasure Beach Master Plan. Phase I work is in construction. The City is seeking funding for Phase II and hopes to build in more resilience measure into plans.	C	N	PF	City Ordinance for Flood Damage Prevention (15.44) are currently up to date per FEMA requirements. They will be amended as required	2013-2019	H	CI*	B	11	-3	8
Implement recommendations made by the Seaside Park flood control study.	C	N	PF	Follow the recommendations in the Seaside Park Flood Control Study; City seeking funding from State and Federal governments to implement first phase of South End berm project; City working through Rebuild by Design process to refine and fund a comprehensive fortification, naturalization, and retreat strategy for the South End shoreline and floodplain.	2014-2019	H	CI*	B	11	-3	8
Initiate a waterfront recapture program and consider waterfront easements.	C	N	PF	City working to expand public ownership along waterfront including Phase III of Knowlton Park and City working to acquire easements along waterfront as well as increase zoning enforcement to remove private encroachment on public waterfront land.	2014-2019	H	CI*	B	11	-3	8

Table 5.4  
IMPLEMENTATION MATRIX - BRIDGEPORT

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Improve drainage as part of road improvement projects.	C/I	N	PF/CT DOT	Integrate the Complete Streets Policy into the annual paving regiment.	2014-2019	MO	CI*	B	10	-2	8
Initiate strategically placed green infrastructure and roof leader and other building modification projects to improve on-site storm water runoff retention and infiltration. Continue working to find physical locations for 'green solutions' called for in the WPCA Long Term Control Plan (LTCP).	C/I	N	PF	Ongoing as part of requirements of the City's Stormwater Management Regulations	2014-2019	H	CI*	B	10	-3	7
Protect beach at Seaside Park	C	E	PF	Continue using a mix of hard and soft beach protection measures at Seaside Park.	2014-2019	H	CI*	B	10	-3	7
Continue to clean catch basins annually.	C/I	E	PF/ WPCA	The WPCA and Public Facilities department have a yearly catch basin cleaning program.	2013-2019	MO	OB	A	9	-2	7
Continue the aggressive street sweeping program and cleaning streets prior to forecasted storms to keep storm grates clear and accommodate higher flows.	C/I	E	PF/ WPCA	Public Facilities and WPCA to continue this program before storms	2013-2019	MO	OB	A	9	-2	7
Continue to frequently clean the racks at Bowe Street.	I	E	PF/ WPCA	Ongoing scheduled maintenance	2013-2019	MO	OB	A	9	-2	7
Aggressively maintain culverts and remove debris from channels along Ash Creek/ Rooster River.	C/I	E	PF	Public Facilities to continue to actively clear debris.	2014-2019	MO	OB	A	9	-2	7
Use signage and large, visible staffs to indicate depths of water so that vehicles can avoid flooded viaducts when necessary.	A	E	EMHS	Close down viaducts with barricades prior to large scale flooding forecasts	2014-2019	L	CI*	B	8	-1	7
Aggressively maintain culverts and remove debris from channels along Johnson Creek, Pequonnock River, and Yellow Mill.	C/I	N	PF	Public Facilities and WPCA to continue to actively clear debris.	2014-2019	MO	OB	A	9	-2	7
Install an automated flood control gate system to measure flooding at viaducts. This system will insure timely police response to close the viaducts and prevent cars from getting stuck. The City has installed flood depth signage and posts to indicate the depth of water at critical locations to inform motorists to avoid flooded viaducts when necessary and has developed well-marked, color-coded evacuation routes for residents to follow.	C/I	N	PF/EMHS	Continue to demo various mitigation systems that will automatically close down viaducts to eliminate motorists from getting stuck or install flood control measures. Ascertain funding to install systems.	2014-2019	H	CI*	B	9	-3	6

Table 5.4  
IMPLEMENTATION MATRIX - BRIDGEPORT

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Improve beach protection in the Black Rock Area.	C	E	PF	Engineering department to assess area and develop mitigation plans. St. Mary's by the Sea resiliency study currently in progress with consultant.	2014-2019	H	CI*	B	9	-3	6
Proceed with creation of a storm water detention area at the north end of Roger's Park. The design phase of the project has been bonded. The project's scope and fee negotiation for design is anticipated to be complete by the end of 2013.	I	E	PF	Design phase will commence in May 2014. Construction will begin in 2015-16 depending on availability of funds and permit process requirements	2014-2019	H	CI*	B	9	-3	6
Improve drainage when completing roadway projects in the future to address flooded viaducts.	C/I	E	PF	During road construction, upgrade to a separated sewer system and improve and widen culverts where need	2014-2019	MO	CI*	B	8	-2	6
Continue the drainage maintenance program for inspections of private drainage facilities to be maintained and cleaned.	C/I	N	PF	Drainage system maintenance is the responsibility of the property owner and a narrative of maintenance procedures is required as part of the permit approval process	2013-2019	MO	OB	A	9	-3	6
Systematically replace culverts and bridges and upgrade drainage systems.	C/I	N	PF/CT DOT	Ongoing. The City is considering a bridge and culvert inspection program RFQ to help facilitate structure inspection and repair procedures.	2014-2019	H	CI*	B	9	-3	6
Repair/replace the State Street Ext/ Commerce Drive Bridge and upgrade the catch basins and drainage system.	I	N	PF	Town of Fairfield has submitted application to the GBRC for replacement of the bridge deck. Would be a joint town/ city project.	2014-2019	H	CI*	B	9	-3	6
Protect the Cedar Creek bank with bulkheads or other creative hard solutions.	C	E	PF	The City is currently considering construction of a hurricane barrier (similar to Stamford) to address surge-related flooding in Cedar Creek.	2014-2019	H	CI*	B	8	-3	5
Raise the height of two harbor breakwaters to protect the inner harbor, St. Mary's at Ash Creek and the Fayerweather lighthouse breakwater from the reach of higher waves and to reduce damage from wave action.	C	E	PF	The City is actively seeking funding for breakwater improvements. Hope to tie into comprehensive resilience barrier: Pleasure Beach pier wave fence, seawall/jetty improvements, Seaside Park berm (see below), Cedar Creek hurricane barrier. This is a potential USACE project.	2014-2019	H	CI*	B	8	-3	5

Table 5.4  
IMPLEMENTATION MATRIX - BRIDGEPORT

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Implement physical enhancements of beach protection infrastructure, including breakwaters, groins, and hardscape along Seaside Park, in the Black Rock neighborhood and in the lower East Side, as necessary and appropriate.	C	N	PF	This project is anticipated to be included in the project above.	2014-2019	H	CI*	B	8	-3	5
Acquire additional land as needed for the creation of a detention area.	I	E	PF	The City is in ongoing discussions with property owners regarding land acquisition.	2014-2019	MO	CI*	B	9	-4	5
Implement Flood Control Project to divert 400 cfs from Island Brook at Old Town Road to Ox Brook at Roger's Park. This flow is to be diverted back to Island Brook at Fairview Avenue through a large detention basin at Svihra Park. The final phase of the Ox Brook project (above) will address this issue.	I	E	PF	This is part of the phased approach to Ox Brook Flood Control Project and will be contingent on the Phase 1 work above as well as other phases of the project.	2014-2019	H	CI*	B	8	-3	5
In the Northeast section, continue with the Feasibility/Flood Control Study that takes the downstream constriction at the GE Property into consideration, and implement recommendations as appropriate.	I	E	PF	The environmental study and preliminary design for this project has been completed.	2014-2019	H	CI*	B	8	-3	5
Remove existing bridges at Feroletto Steel and Scofield Avenue and replace with new bridge that increases the base height of the structure and minimizes flood impacts.	I	E	PF	Town of Fairfield Project.	2014-2019	H	CI*	B	8	-3	5
Build in extra flood storage at Island Brook, Bruce Brook and Rooster River/Ash Creek..	C/I	N	PF	Create retention ponds and implement green infrastructure to reduce runoff.	2014-2019	H	CI*	B	8	-3	5
Replace or maintain the culverts along the Ox Brook to adequately handle the flow of water.	I	N	PF	Part of Phased approach to the Ox Brook Flood Control Project. See phase 1 above.	2014-2019	H	CI*	B	8	-3	5
Increase, and in some cases introduce, bank protection along the Yellow Mill Channel.	C	E	PF	This project is being scoped by the Public Facilities department to understand funding and designs for implementation.	2014-2019	MO	CI*	B	6	-2	4
Consider elevating Waterview Avenue, especially in connection with redevelopment projects.	C	E	PF/OPED	A portion of Waterview Avenue will be raised as part of the Steel Pointe Infrastructure project and other portions are being explored in conjunction with redevelopment of Crescent Crossing at former Father Panik site.	2014-2019	H	CI*	B	7	-3	4

Table 5.4  
IMPLEMENTATION MATRIX - BRIDGEPORT

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Allow Barnum Boulevard to be submerged during storm surge.	C	E	PF	The City conducted an initial conceptual design of a berm in Seaside Park. The City is currently looking for funding sources, as FEMA/STATE DEMHS did not fund the berm during the 2012 round of grants. City is considering competing in the 404 Hazard Mitigation Grants as well as meeting with FEMA's R1 Mitigation team for an open discussion on future applications if pursued by the City.	2014-2019	H	CI*	B	7	-3	4
Consider elevating the road and parking lots in the Cedar Creek area, especially in connection with redevelopment projects.	C	E	PF/OPED	These items are under discussion by the Public Facilities and Planning/Economic Development departments to assess funding sources and understand the project design.	2014-2019	H	CI*	B	7	-3	4
Elevate low-lying roads, including the south end of Seaview Avenue, Waterview Avenue, Seabright Avenue and Gilman Street.	C	E	PF	These items are being scoped by the Public Facilities department to understand funding, prioritization, phasing and designs for implementation.	2014-2019	H	CI*	B	7	-3	4
Raise the electrical boxes at Seaside Park in areas vulnerable to flooding.	C	N	PF	Some raising of electrical boxes has occurred following Super Storm Sandy especially at the ball fields adjacent to Iranistan Avenue. Additional actions are anticipated which will follow the existing process.	2013-2019	MO	CI*	B	6	-2	4
Protect the banks along Cedar Creek and upstream of Black Rock Harbor with construction of a hurricane barrier, bulkheads and other hardscape and elevated streets and parking lots in vicinity of or adjacent to Cedar Creek.	C	N	PF	The City is currently considering construction of a hurricane barrier (similar to Stamford) to address surge-related flooding in Cedar Creek.	2014-2019	H	CI*	B	7	-3	4
Upgrade the Bridgeport Harbor Seawall.	C	N	PF	Public Facilities has begun to research funding sources to support this project.	2014-2019	H	CI*	B	7	-3	4



Table 5.4  
IMPLEMENTATION MATRIX - BRIDGEPORT

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Upgrade improvements along Ash Creek/ Rooster River from 50-year storm to 100-year storm.	C/I	E	PF	These items are being scoped by the Public Facilities department to understand costs, feasibility and effectiveness. Coordination with the Town of Fairfield regarding this project will be required. Rooster River Watershed Plan as well consistency with protection of natural habitat as identified in the Ash Creek Conservation Association Master Plan.	2014-2019	MO	CI*	B	6	-2	4
Encourage the owner of the rail line to raise the grade of the railroad.	I	E	MTA/ Metro North RR	This item requires extensive coordination with MTA and Metro North Rail.	2014-2019	H	CI*	B	7	-3	4
Replace the Charcoal Pond dam (private).	I	N	Citizens	Recommendations made to Charcoal Pond Dam association and DEP requirements in 2009. We can assist the association as needed.	2014-2019	H	CI*	B	7	-3	4
Realign Bruce Brook and soften the bends from Sage Street to Bowe Street.	I	E	PF	Construct culvert improvements on Barnum Avenue to support this action.	2014-2019	H	CI*	B	6	-3	3
Create dike and pumping system for low-lying areas along Ash Creek/Rooster River.	C/I	E	PF	These items are being scoped by the Public Facilities department to understand implementation and design costs, as well as potential funding sources. Coordination with the Town of Fairfield will be required.	2014-2019	H	CI*	B	6	-3	3
Continue to monitor the replaced dam at Lake Forest.	I	N	PF/CT DEEP	Ongoing.	2013-2019	MO	CI*	B	5	-2	3
Install a hurricane barrier to connect Black Rock to Seaside Park to minimize storm surge and act as a flood control gate.	C/I	N	PF	The City is actively seeking funding for breakwater improvements. This is a potential USACE project.	2014-2019	H	CI*	B	5	-3	2
Reconstruct New Haven rail line bridges over city streets to prevent flooding.	I	N	MTA/ Metro North RR	This item requires extensive coordination with MTA and Metro North Rail.	2014-2019	H	CI*	B	5	-3	2
Natural Systems Protection					2014-2019				0	0	0

Table 5.4  
IMPLEMENTATION MATRIX - BRIDGEPORT

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Preserve open space and wetlands in high risk areas.	C/I	N	PF	The City has investigated opportunities for floodplain easements on properties and continues to have discussions with property owners regarding land preservation. Consistent with the City's Parks Master Plan outline of the regional ecology of Bridgeport and surrounding towns. Also identified in the Pequonnock River Watershed Plan.	2013-2019	MO	CI*	B	11	-3	8
Utilize GIS to map open space, wetlands and ecologically valuable areas.	C/I	N	PF/GBRC	Work with GBRC to utilize new aerial and planimetric data.	2013-2019	L	OB	A	7	-1	6
Protect and restore natural buffers, natural systems on the watershed and full coastline scales.	C/I	N	PF	Replant Remington Woods Riparian Zone, Pleasure Beach, inland wetlands and tidal wetlands (East End, Stratford Great Meadows, Harbor areas, Ash Creek). Identified as key initiative in the City's Parks Master Plan and Waterfront Recapture program.	2014-2019	MO	CI*	B	14	-2	12
Acquire open space in high risk areas. Identify and seek further conservation through acquisition of marsh "Advancement Zones" and riparian corridor restoration projects throughout the City.	C/I	N	OPED	Utilize GIS to identify and prioritize properties. Working with property owners and investigating easements are actions that may further support this recommendation.	2014-2019	MO	CI*	B	11	-3	8
Implement the recommendations from the Pequonnock River Watershed Plan to improve water quality and alleviate flooding.	C/I	N	PF/OPED	Recommendations may be realized through ordinance/regulatory changes, property acquisition and many of the structural projects recommended in this plan.	2013-2019	H	CI*	B	12	-3	9
Implement the recommendations from the Rooster River Watershed Plan to improve water quality and alleviate flooding.	C/I	N	PF/OPED	Recommendations may be realized through ordinance/regulatory changes, property acquisition and many of the structural projects recommended in this plan.	2014-2019	H	CI*	B	12	-3	9
Plan for beach nourishment at Seaside Park.	C	E	PF	Public Facilities to assess area and develop plans for review with State and Federal agencies as required.	2014-2019	H	CI*	B	9	-3	6
Implement dune restoration projects.	C	N	PF	Public Facilities to develop a plan and cost estimate for these projects. St. Mary's by the Sea Beach Resiliency Study and Management Plan currently under review.	2014-2019	H	CI*	B	11	-3	8

Table 5.4  
IMPLEMENTATION MATRIX - BRIDGEPORT

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Promote conservation and management of open spaces and wetlands within sea level rise areas. Restore and protect natural systems in Bridgeport including replanting the Remington Woods riparian zone, Pleasure Beach, Seaside Park and along Ash Creek as well as within but not limited to riparian buffer zones on the Pequonnock, Rooster River, Yellow Mill and Johnson Creek.	C	N	PF	Provide public education on the importance of open space, wetlands and natural areas especially in vulnerable areas. Coordinate with private property owners and adjacent municipalities to manage ecologically important areas.	2014-2019	MO	CI*	B	12	-2	10
Identify parcels within the marsh advancement zone that could be acquired, including properties along Cedar Creek that have low potential for redevelopment.	C	N	PF/OPED	Use GIS to identify and prioritize parcels.	2014-2019	MO	CI*	B	11	-2	9
Introduce land forms to minimize vulnerability to storm surge in the South End community.	C	N	PF	The City is actively seeking funding for breakwater improvements. This is a potential USACE project.	2014-2019	H	CI*	B	10	-3	7
Mitigate erosion from flooding at Ash Creek.	C/I	N	PF	Public Facilities and Engineering to work together to assess effective strategies. May need to coordinate with the Town of Fairfield.	2014-2019	H	CI*	B	10	-3	7
Implement outreach programs to educate citizens regarding flood management ordinances, flood insurance programs, and other flood relevant issues, including creditable activities in the CRS program and GIS.	C/I	N	"EMHS/HSS"	Hold 10 seminars in our known flood zone areas to educate the public on the hazard. Develop new outreach mechanisms to educate on flood survival.	2013-2019	MI	OP	A	12	0	12
Increase community awareness and preparedness through education and outreach via the religious community, public libraries and higher education and implement neighborhood specific emergency and communications plans.	A	N	"EMHS/HSS"	Continue to hold seminars for the public on our implemented Neighborhood Plans	2013-2019	MI	OP	A	11	0	11
Finalize specific neighborhood plans for emergency management and communications and implement plan provisions. Each plan should be translated into the top five languages spoken in the City of Bridgeport. The 2013 Clean Air Cool Planet fellow developed draft versions of Neighborhood Plans for the 3 coastal neighborhoods.	A	N	"PF/EMHS/NRZs"	October 1, 2014 deadline for all plans to be finalized.	2013-2019	L	OP	A	11	-1	10
Increase education and communications on response procedures for residents of high density public housing areas, especially those located in the coastal area.	A	N	EMHS/BHA	Hold seminars at key infrastructures on emergency preparedness, response and recovery	2013-2019	MI	OP	A	10	0	10

Table 5.4  
IMPLEMENTATION MATRIX - BRIDGEPORT

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Assess/augment local areas of the public refuge system across the City and ensure residents are aware of uses and procedures during emergencies.	A	N	EMHS	Hold seminars to go over the expectations of Mass Care Shelters	2014-2019	L	CI*	B	10	-1	9
Encourage homeowners to purchase flood insurance.	C/I	N	OPED	Integrate this topic into existing seminars and outreach mechanisms.	2013-2019	MI	OP	A	9	0	9
Proactively reduce the disbursement of toxic substances from flooded homes and facilities.	C/I	N	PF	Expand opportunities and programs to collect household hazardous materials.	2014-2019	L	OP	A	10	-1	9
Strengthen existing communication systems with new technology to ensure widespread and rapid alert and continue implementing a Reverse 9-1-1 system to alert residents in the case of impending floods	A	N	EMHS	Continue to encourage and register the public into our Reverse 9-1-1 Community Alerting System.	2014-2019	MO	CI*	B	10	-2	8
Continue to follow the State Debris Management Plans and FEMA Regulations regarding coordinated post-disaster clean-up and contamination remediation efforts.	A	N	EMHS/PF	Hold two seminars a year with our ESF 3 Public Facilities Team on the Debris Management Plans currently in place and the required data needed for FEMA	2013-2019	MO	OP	A	13	-2	11
In high density and public housing developments, address evacuation routes, communication, transportation needs and the age of basement utilities.	A	N	EMHS/BHA	Continue to work with community groups and the Housing Authority on mitigation tips and preparedness	2014-2019	L	CI*	B	12	-1	11
Additional snow removal equipment, such as back hoes and plows is needed for severe winter storms, such as Nemo.	W	N	EMHS/PF	EMHS and Public Facilities Departments to identify equipment and research grants for this equipment.	2014-2019	MO	C/I*	B	12	-2	10
Reassess current capacity and needs of sheltering, cooling and medical network across City as well as adjoining municipalities in the Greater Bridgeport Region. The City has pre-identified mass care shelters, cooling/warming centers, and are discussing a regional approach to mass care sheltering.	A	N	EMHS/adj. municipalities	Continue to build partnerships to assist in carrying out our strategy currently in our EOP	2014-2019	L	CI*	B	10	-1	9
Install a warning siren system in areas vulnerable to inland and coastal flooding to alert residents to evacuate.	C/I	N	EMHS/PF	Research and go after grants to help us incorporate a new warning systems and technology.	2014-2019	L	CI*	B	10	-1	9

Table 5.4  
**IMPLEMENTATION MATRIX - BRIDGEPORT**

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Continue to increase the effectiveness of the current emergency communication system and infrastructure with residents (i.e., communication trees) and commuters. Reassess effectiveness and shortfalls of emergency systems and infrastructure after major events.	A	N	EMHS	Ensure that information sharing is a continual process before, during and after all emergencies.	2013-2019	L	OP	A	10	-1	9
Implement a system for the GPS tracking of trucks used for snow removal and cleanup.	W	N	EMHS/PF	Assess whether existing and planned for GIS applications can support this item.	2014-2019	MO	CI*	B	11	-2	9
In coastal and low-lying areas, raise/repair bridges for evacuation routes, viaducts for pumping stations and back up generators.	C	N	PF	These items are being scoped by the Public Facilities and Emergency Management departments to understand costs, prioritization and phasing - as well as potential funding sources. Possible coordination with state agencies may be necessary.	2014-2019	H	CI*	B	11	-3	8
Upgrade Emergency Operations Center equipment to include a complete camera board for Situational Awareness and display board for public facilities equipment tracking.	A	N	EMHS	Propose a capital project and/or apply for grants that will incorporate our strategy.	2014-2019	H	CI*	B	10	-3	7
Update and integrate new technology across multiple platforms within the City, State and Federal storm response activities and provide additional training to staff.	A	N	EMHS	Integration of a new EOC common operating platform is taking place currently to fulfill this task	2014-2019	H	CI*	B	10	-3	7
Install a camera system to more thoroughly understand storm surge and to enhance evacuation.	C	N	EMHS	Propose a capital project and/or apply for grants that will incorporate our strategy.	2014-2019	MO	CI*	B	9	-2	7
Develop an annex to the All Hazards Emergency Operations Plan to specify police, fire and public facilities protocols for varying levels of snowfall. The City conducted a study of management operations following the 2013 Nemo Snowstorm and is working to increase mapping and emergency response protocols.	W	N	EMHS	Review of our All Hazards Emergency Operations Plan is currently underway and will incorporate this task. Plan should be finalized by December 31, 2014.	2014-2019	L	CI* & OP	B	8	-1	7

## Town of Easton

### LEGEND - STRATEGIC ACTIONS - EASTON

**Hazard Type**

C = Coastal Flooding    I = Inland Flooding    W = Wind, Snow & Ice    A = All Hazards

Table 5.5  
**STRATEGIC ACTIONS - EASTON**  
from the 2006 Regional Natural Hazard Mitigation Plan

Hazard Type	Description	2006 Status	2014 Status	Result
I	Erect signs and/or barricades to prevent access during floods. <b>Aspetuck River at Wells Hill Road</b>	2006	Completed: Temporary signs and barricades are put in place when necessary.	Met targeted results.
I	Erect signs and/or barricades to prevent access during floods. <b>Morehouse Brook at Pond Road</b>	2006	Completed: Temporary signs and barricades are put in place when necessary.	Met targeted results.
I	Continue to inspect and maintain the dam. <b>Morehouse Brook at Morehouse Road</b>	2006 plan did not specify a year	Completed: Button Mill Dam , private Dam on Private Property. Maintained by homeowner.	Refer to State of Ct. DEEP Dam Safety Program
I	Improve the culverts under Morehouse Road.	2007-2020	Deferred: Budgetary & Regulatory	
I	Consider elevating Morehouse Road.	2007-2020	Deferred: Budgetary & Regulatory	
	<b>East Branch of Cricker Brook at Beers Road</b>			
I	Use signs and/or barricades to prevent access during floods.	2006	Completed: Temporary signs and barricades are put in place when necessary.	Met targeted results.
I	Consider elevating Morehouse Road.	2007-2020	Deferred: Budgetary & Regulatory	
	<b>Cricker Brook and Tributary at Morehouse Road</b>			
I	Use signs and/or barricades to prevent access during floods.	2006	Completed: Temporary signs and barricades are put in place when necessary.	Met targeted results.
I	Consider elevating Morehouse Road.	2007-2020	Deferred: Budgetary & Regulatory	
I	Improve the culvert under Morehouse Road.	2007-2020	Deferred: Budgetary & Regulatory	
I	Consider elevating Morehouse Road.	2007-2020	Deferred: Budgetary & Regulatory	
	<b>Headwater of Patterson Brook at Route 136</b>			
I	Keep the culvert under Route 136 clear of obstructions	2006 plan did not specify a year	Deferred: this is a State road.	
I	Improve the culvert under Route 136	2007-2020		
I	Lower the elevation of the pond	2007-2012	Deferred: this is a State road.	
	<b>Tatetuck Brook at Route 59</b>			
I	Improve the culvert or construct a box culvert under Route 59	2007-2020	Deferred: this is a State road.	
	<b>Morehouse Brook at Pond Road</b>			
I	Improve warning of residents that would be isolated by flooding.	2007-2020	Completed: Temporary signs and barricades are put in place when necessary.	Met targeted results.
	<b>Morehouse Brook at Dogwood Drive</b>			
I	Improve warning of residents that would be isolated by flooding.	2007-2020	Completed: Temporary signs and barricades are put in place when necessary.	Met targeted results.

Section 5: Implementation

The Town of Easton continues to ensure the safety of residents by erecting barricades at roads vulnerable to flooding during heavy rain events and by warning residents that may become isolated by flooded roads or downed trees. Tree management and maintenance plans, as well as structural projects to mitigate the impact of flooding on state and local roads are new recommendations.

In addition, the 2006 plan was influential in adopting amending Zoning Regulations, (Article 10, Flood Plain management) in 2010. The town also constructed bridge on Wells Hill Road which provides greater flood flow capacity. Finally, the Planning and Zoning Commission prepared a plan for improved emergency communication.

The table below lists and prioritizes actions that can be implemented throughout the region.

<b>LEGEND - IMPLEMENTATION MATRIX - EASTON</b>			
<b>Hazard Type</b>			
C = Coastal flooding	C/I = Coastal and Inland Flooding	W = Wind	SR = Sea Level Rise
I = Inland Flooding		A = All Hazards	
<b>Existing/New</b>			
E = Existing	N = New		
<b>Responsible Department</b>			
NO CHART LISTED IN STAPLE+E DOC			
<b>Cost</b>			
MI = Minimum: staff time or volunteer time	L = Low: less than \$10,000	MO = Moderate: between \$10,000 and \$100,000	H = High: \$100,000
<b>Funding Source</b>			
OB = Operating Budget	CI = Capital Improvement Plan	PV = Private	* = Grants
<b>Planning Mechanism</b>			
A = Administrative	B = Budgetary	R = Regulatory	

Table 5.6  
IMPLEMENTATION MATRIX - EASTON

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Develop a tree management plan to prioritize actions and tree removal due to the white pine borer infestation.	W	N	DPW	Continue to implement a tree management plan and prioritize removal based on white pine borer	2014-2019	MO	OB	B	6	-2	4
Implement a routine tree maintenance and inspection program and remove hazardous trees and branches.	W	N	DPW	plan for hazardous trees and works with utilities to remove hazardous trees within 10' of wires.	2014-2019	MO	OB	A	6	-3	3
Improve the culverts under Morehouse Road at Cricker brook	I	E	DPW	The culvert under Morehouse at Cricker Brook was improved, no more flooding.	2014-2017	MO	*	B	6	-1	5
Consider elevating Morehouse Road in the vicinity of its crossing over Morehouse Brook at Morning Glory Drive	I	E	DPW	The Town would have to make this a joint Capital Improvement Project with the town of Fairfield.	2015-2018	H	*	B	6	-1	5
Erect signs and install barricades at Silver Hill Road and at Wells Hill Road where they cross the Aspetuck River to prevent access during floods.	I	E	DPW	Wells Hill Bridge was replaced in 2009. The Town will continue to erect signs during flooding events on Silver Hill and Wells Hill Road.	2013-2019	MI	OB	A	6	-1	5
Erect signs and install barricades at Beers Road where it crosses the East Branch of Cricker Brook to prevent access during floods.	I	N	DPW	The Town erect signs when the road floods	2014-2019	MI	OB	A	6	-1	5
Maintain the Emergency Telecom/Center Road area to keep clear of debris and vegetation.	A	N	DPW	DPW is called to remove anything that blocks the road in an emergency.	2014-2019	MO	OB	A	6	-2	4
Consider elevating Beers Road where it crosses the East Branch of Cricker Brook.	I	N	DPW	The Town is working on improving the culvert under Beers Road, a plan has been worked up.	2014-2019	H	CI	B	6	-2	4
Educate the dispersed elderly population on responses during disasters.	AH	N	EM	Can schedule classes at the Senior Center to educate the elderly.		MI	OB	OB	6	0	6
Improve warning of residents that would be isolated by flooding along Morehouse Brook at Pond Road	I	E	EM	Call residents when flooding is forecast for these areas		MI	OB	A	6	-1	5
Improve warning of residents that would be isolated by flooding along Morehouse Brook at Dogwood Drive	I	E	EM	Call residents when flooding is forecast for these areas		MI	OB	A	6	-1	5
Improve warning of residents that may be isolated by downed trees during an extreme weather event.	W	N	EM	Call residents when trees are down in isolated areas if phone service is not out in that area.		MI	OB	A	6	-1	5



**Town of Fairfield**  
**LEGEND - STRATEGIC ACTIONS - FAIRFIELD**

Hazard Type			
C = Coastal Flooding	I = Inland Flooding	W = Wind, Snow & Ice	A = All Hazards

Table 5.7  
**STRATEGIC ACTIONS - FAIRFIELD**  
*from the 2006 Regional Natural Hazard Mitigation Plan*

Hazard Type	Description	2006 Status	2014 Status	Result
C	Enforce NFIP V-zone requirements in sections of coastal A zones located waterward of waterfront roadways.	2007-2012	Completed: FEMA's new FIRMS adopted in July 2013 have expanded V Zones landward.	Met targeted result- Now part of Zoning regulations.
C	Consider adopting standards to require two or more feet of freeboard when developing or redeveloping structures in tidally influenced floodplains.	2007-2012	In Progress: the requirement that under floor mechanicals and duct work be at or above BFE is effectively achieving two or more feet of freeboard in new construction and substantial improvement. Changes to insurance rates and participation in the CRS program will expedite the formal implementation of this recommendation, starting in 2014.	
I	Implement new zoning regulations to comply with NPDES Phase II Storm water Program.	2006	Completed: Zoning Regulation amendments were adopted on 1/8/13 that require compliance with the DEEP Storm Water Quality manual and also encourages low impact development best management practices	Met targeted result- Sign offs from TPZ, Conservation and Engineering are required for Building permits to ensure compliance.
I	Encourage compliance with the roof retention system policy.	2007-2012	Completed: updated July 1, 2011, Engineering Dept. Policy requires impervious surfaces that are over 200 square feet to be retained. This includes roofs, paves surfaces etc.	Met targeted result- Every building permit with impervious surface over 200 sf requires Engineering Dept. approval.
C	Consider elevating homes and structures according to the above freeboard standard.	2007-2012	In Progress: over 40 homes have been elevated to date and the Town is seeking grant assistance for owners of 69 additional homes.	
C	Consider increasing beach nourishment.	2007-2012	Completed: through March 2013-Jan 2014. Town has renourished Penfield and Jennings beaches with approved dredged sand spoils and imported sand. Additional sand replenishment and beach nourishment anticipated in 2014/2015.	Met targeted result- Jennings and Penfield Beaches have received additional sand. Sasco, Southport and Pine Creek beaches appear to have received additional sand from SS Sandy. These will be confirmed in 2014 by the Town Engineering Department Surveyors.
C	Improve and elevate tide gates and dikes to keep up with rising sea level.	2007-2020	In Progress: the Town is seeking funding sources (grants) and has started preliminary design of Pine Creek Dike and Riverside/ So. Benson Dike.	
C	Consider increasing the approved bulkhead elevation along Pine Creek to account for sea level rise.	2007-2012	Completed: in 2010 the Flood and Erosion Board established bulkhead elevations to coincide with sea level.	Not enough time to determine result- Although there have been many owners elevating homes, there has been minimal bulkhead proposals. Also require CT DEEP permits.

Table 5.7  
**STRATEGIC ACTIONS - FAIRFIELD**  
*from the 2006 Regional Natural Hazard Mitigation Plan*

Hazard Type	Description	2006 Status	2014 Status	Result
C	Elevate Fairfield Beach Road as needed to keep up with rising sea level.	2007-2020	In Progress: June 2013, Engineering expanded current plan to include Fairfield Beach Road and other roads in AE and VE coastal flood zones.	
	Rooster River/Ash Creek at the Royal Avenue/Camden Street neighborhood			
I	Design culverts for a 50-year or 100-year storm.	2007-2012	Deferred: budget reasons and current Cost/Benefit ratio is low.	
I	Implement a dike system.	2007-2012	Deferred: budget reasons and current Cost/Benefit ratio and public support are low.	
I	Perform culvert maintenance and debris removal.	2006 plan did not specify a year	Completed: Conservation and DPW crews perform quarterly inspections and biannual cleaning/removal of debris.	Met targeted results- DPW has compiled list of headwalls and inlets (aka Header list) that are checked before each predicted storm. DPW performs maintenance and inspections quarterly.
I	Encourage the owner of the rail line to make improvements to the railroad bridge.	2007-2012	"Deleted: ConnDOT determined that the structure location overrides conveyance to reduce flooding."	
I	Encourage the owner of the rail line to raise the grade of the railroad.	2007-2020	"Deleted: ConnDOT determined that the structure location overrides conveyance to reduce flooding."	
	Great Brook at Merwins Lane			
I	Consider elevating Merwins Lane.	2007-2012	Deferred: due to budget restraints and current public opposition.	
I	Consider improving the culvert at Merwins Lane.	2007-2012	Deferred: due to budget restraints, current public opposition	
I	Continue to use signs to encourage residents to take alternate routes during flooding events.	2006	Completed: currently DPW posts signs/sawhorses prior to storm events.	Met targeted results- Notification to public.
	Urban drainage problems downtown (Sanford and Reef Road)			
I	Improve the drainage systems.	2007-2012	Completed: Stormline bypass under US 1 constructed in Spring 2010. Engineering started promoting Green Infrastructure in 2012. Designing detention for gazebo area in 2014. Preliminary detention and rerouting proposed storm sewer system for RR station parking lot in 2014/2015.	Not enough time to determine result- Situation seems to be improved slightly but no major storm events since implementation. Also seeking additional grants to retrofit existing impervious surfaces. New construction (strip mall) provided green infrastructure.
I	Evaluate methods to increase storage or improve drainage to alleviate downstream flooding.	2007-2020	Completed: DPW improved inlet and reconstructed headwall in 2007. Cleaned storm system in 2007, 2010.	Met targeted result- within Town system. Will continue to monitor any proposed development in watershed.

Section 5: Implementation

The Town of Fairfield has made significant strides in implementing many of the 2006 NHMP recommendations by adopting Zoning, Building and Stormwater regulations ( ex. EPA Stormwater phase 2 requirements, new FIRM), designing conceptual or preliminary flood control plans, (completing Post Road drainage bypass, proposed height increase for Pine Creek Dike and new culvert under Pine Creek dike). The Town has provided public education and public participation for coastal resiliency plan and natural Hazard Mitigation workshops and has developed DPW and Conservation inspection and maintenance plans for headwalls, tide gates and culverts. Other highlights include NPDES phase 1& 2 annual reports, groundwater recharge, detention regulations, elevating mechanicals and structures/ homes above the BFE, beach nourishment and replenishment, and has conceptual/ preliminary plans for raising dike and hardening WPCF Plant. The Town of Fairfield's coastline was severely impacted by coastal flooding and storm surge from super storms Irene and Sandy, the Town has adopted FEMA's new FIRMs in 2013. Over 40 homes and 69 others (pending) are in the process of elevating their homes

The table below lists and prioritizes actions that can be implemented throughout the region.

**LEGEND - IMPLEMENTATION MATRIX - FAIRFIELD**

Hazard Type			
C = Coastal flooding	C/I = Coastal and Inland Flooding	W = Wind	SR = Sea Level Rise
I = Inland Flooding		A = All Hazards	
Existing/New			
E = Existing	N = New		
Responsible Department			
C = Conservation Department		DPW = Department of Public Works	
CERT = Community Emergency Response Team		OEM = Office of Emergency Management	
E = Engineering Department		WPCA = Water Pollution Control Authority	
P&Z = Planning and Zoning Department			
Cost			
MI = Minimum: staff time or volunteer time	L = Low: less than \$10,000	MO = Moderate: between \$10,000 and \$100,000	H = High: \$100,000
Funding Source			
OB = Operating Budget	CI = Capital Improvement Plan	PV = Private	* = Grants
Planning Mechanism			
A = Administrative	B = Budgetary	R = Regulatory	

Table 5.8  
IMPLEMENTATION MATRIX - FAIRFIELD

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Enroll Fairfield in FEMA's Community Rating System (CRS) program to improve resilience and lower flood insurance premiums for residents and private entities in the National Flood Insurance Program.	A	N	P&Z	The Town of Fairfield intends to enroll in FEMA's CRS program in 2014/2015.	2014-2019	MO	OB	A	15	-4	11
Develop a tree cutting and maintenance plan.	W	N	DPW	Town has drafted Forest Vision Plan, tree inventory and is working on DPW and UI maintenance plans.	2014-2019	L	OB	A	10	-1	9
Require underground utilities on new streets.	A	N	DPW/TPZ	Listed in Zoning regulations. New subdivisions are required to have underground utilities. New RR access road has underground utilities.	2014-2019	H	OB	R	10	-3	7
Consider adopting standards to require two or more feet of freeboard when developing or redeveloping structures in tidally influenced floodplains.	C	E	P&Z	This will require an amendment to the Zoning Regulations	2013-2019	L	OB	R	8	-1	7
Integrate hazard mitigation plans and policies into town building codes, planning and zoning regulations, and the Town's Plan of Conservation and Development.	A	N	P&Z	This will require amendments to the Zoning Regulations as noted above as well as coordination to integrate appropriate parts of the plan into the update of the POCD	2013-2019	MO	CI	R	8	-2	6
Develop a comprehensive protective infrastructure analysis of the Town's coast and waterways that incorporates natural infrastructure (salt marsh, beaches, dunes and floodplains) and existing engineered infrastructure.	C/I	N	C/E	Town has hired Consultant to develop protective plan for public areas hit by SS Sandy. Town has begun preliminary study to develop protective infrastructure and coastal resiliency plan in cooperation with Nature Conservancy.	2014-2019	H	CI*	B	9	-3	6
Reassess the viability and cost-benefit of directly future capital investment in the coastal floodplain as an immediate and longer-term, proactive risk reduction action.	C	N	C/E	Town has developed a plan containing over 20 hazard areas for structural and non structural measures. Town recently applied for FEMA grant to implement 4 of these measures.	2014-2019	L	OB	A	7	-1	6
Consider expanding town-wide energy efficiency policies and building codes with the goal of substantially reducing Fairfield's carbon footprint.	A	N	E	DPW to implement solar panels for Rec Bldg and parking lot, Fire House, theater and Operation Hope Bldg. Town has natural gas filling station.	2014-2019	L	CI*	R	6	-1	5
Increase design standards for tidal flood control structures and improve inspection and maintenance requirements to avoid failures during future coastal storm events.	C	N	E	Conservation and DPW maintain tide gates. Conservation tide gates are self regulating and have adjustment capability for large storms or rising sea levels. DPW maintains flap gates and repaired 3 of them along Fairfield Beach Road in Fall 2013/ Spring 2014.	2014-2019	L	OB	R	6	-1	5

Table 5.8  
**IMPLEMENTATION MATRIX - FAIRFIELD**

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Assess the current conditions and potential impact from catastrophic dam failure; assess previous inundation contingency plans.	C/I	N	E	As required by CT DEEP, Auarion Company and Lake Hills Association has Emergency Plans for their privately owned Dams. Lake Hills is currently update their plan in 2014.	2014-2020	MO	OB	A	7	-2	5
Develop a better debris management plan with designated lead for flood control structures before and after extreme events, particularly for the 28 town-owned and three state-owned tide gates in Fairfield.	C	N	DPW	DPW to include tide gates on their "Header" Inspection Plan prior to large storm events. Conservation performs quarterly inspections on their SRTs. Calls for debris removal have been made to CT DOT for their tide gates along Westway Road near I-95.	2014-2019	MO	OB	A	6	-2	4
Modify and integrate building codes, land use policies, and zoning regulations to minimize the exposure to sea level rise, storm surge, and inland flooding of existing and future development, infrastructure, critical facilities, and natural resources.	C/I	N	P&Z	Sea Level rise was considered in the May 2011 Commerce Drive Area update to the POCD. A more comprehensive approach will be undertaken when the overall POCD is reviewed and updated	2014-2019	L	CI*	B	5	-1	4
Assess the safety and viability of existing water and sewer infrastructure in the coastal flood zone. Town will begin dialogue regarding coastal water lines with Aquarion at next Utility meeting.	C	N	WPCA	WPCA has continued their I and I study. Rugby and Beaumont Street sewers were repaired march 2014 from that I and I study. Continue I and I study thru budget process.	2013-2019	MO	OB	A	5	-2	3
Prepare an action plan to reduce the susceptibility of the low lying Fairfield Beach area to storm surges from Long Island Sound. Specifically the Plan should address the feasibility of installing a "hurricane barrier" and a storm water pump station.	C	N	C	DPW in cooperation with OEM to develop a plan and hold public hearings. Town to submit applications for grant funding.	2014-2019	MO	CI*	B	4	-2	2
Reassess long-term viability of the wastewater treatment facility and determine the feasibility of hardening and flood proofing the existing structure versus siting a new facility in a lower risk area.	C	N	WPCA	Town and Consultant have developed preliminary plans for hardening of WPCF. Town applied for and will continue to apply for grant assistance.	2014-2019	MO	CI*	B	4	-2	2
Reassess the capacity of existing flood control structures (berms/dikes, tide gates, culverts, dams, reservoirs) in light of accelerating rates of sea level rise and likelihood of more significant precipitation events.	C	N	E	Town and Consultant have developed preliminary plans and semi final plans for raising dikes and increasing culvert capacities along Pine Creek Avenue, Fairfield Beach Road and Old Dam Road. Town applied for and will continue to apply for grant assistance.	2014-2019	MO	CI*	B	4	-2	2
Factor sea level rise into all critical infrastructure, development plans, and public amenity improvements and consider planning for a worse-case scenario based on 0.2% storm event or flood or a Category-3 Hurricane.	C	N	E	DPW will implement this measure through Administrative means during design and/or review of capital or development projects.	2014-2019	H	CI*	B	5	-3	2

Table 5.8  
IMPLEMENTATION MATRIX - FAIRFIELD

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Strategically consider the acquisition of chronically flood prone and repetitive loss properties, as well as those properties that can assist in the implementation of flood drainage improvements to protect against storm surge or to allow flood waters to recede after a flood event.	C/I	N	P&Z	A repetitive loss plan is required to be prepared as part of the Town's participation in the FEMA CRS program	2013-2019	MO	OB	A	10	-2	8
Address equipment in library basements to prepare for when flooding occurs.	C/I	N	Library/DPW	Town has installed internal pump system with manual transfer switch for backup generator. FWL acts as a backup for town hall data system.	2014-2019	L	CI*	B	7	-1	6
Encourage home elevations for properties below the base flood elevation to comply with or exceed the standards of the National Flood Insurance Program.	C/I	N	P&Z	The Town is actively assisting 69 homeowners in grant applications to elevate their homes. In addition, 40 other homes have been elevated already.	2013-2019	MO	PV*	B	7	-2	5
Promote elevating private properties in the flood hazard zones to the required base flood elevations plus a 2-to-3 foot freeboard above the base levels.	C/I	N	P&Z	The Town is actively assisting 69 homeowners in grant applications to elevate their homes. Zoning advises Homeowners to raise Home elevations higher than BFE for reduction in flood insurance premiums.	2013-2019	MO	PV*	B	7	-2	5
Ensure that the design criteria for future structures in the coastal floodplain include a determination of the probable factors of obsolescence during the structure's lifespan so that the design-service-life and value of a structure approximate the time when sea level rise or other factors would render the structure obsolete.	C/I	N	E	This can be implemented by the administrative permit process thru Building and Engineering Departments. May involve regulatory action as Public may contest this action.	2013-2019	L	OB	R	5	-1	4
Install flood protection and harden existing berms to protect critical municipal facilities, including the wastewater treatment plant and pump station.	C	N	E/DPW/WPCA	DPW/Engineering and Consultant have preliminary plans for new dike locations, raising elevations of existing dikes and other flood protection and relief measures. Budgetary and Public concerns are key stumbling blocks. Town would hold public meetings and apply for grant assistance.	2014-2019	H	CI*	B	13	-3	10
Raise the berm around the wastewater treatment plant.	C	N	EWPCA	DPW and Consultant have developed preliminary plans for hardening WPCF plant. Town to apply for grant assistance and further develop plans.	2014-2019	H	CI*	B	13	-3	10

Table 5.8  
**IMPLEMENTATION MATRIX - FAIRFIELD**

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Install storm water pump stations and upgrading storm systems to keep up with rising sea levels, especially in the area bounded by Old Post Road, Fairfield Beach Road, Reef Road and South Benson Road.	C	N	E/DPW/WPCA	DPW/Engineering and Consultant to develop preliminary plans for new dike locations, raising elevations of existing dikes and other flood protection and relief measures. Budgetary and Public concerns are key stumbling blocks. Town would hold public meetings.	2014-2019	H	CI*	B	12	-3	9
Increase the height of the dike along Pine Creek by 2' to 3' to provide additional protection for several hundred homes, the sanitary sewer pump station, the municipal athletic complex, and Town roads. This project will also reduce potential flooding from a FEMA-defined 1% storm.	I	N	E/DPW/WPCA	Town and Consultant have developed preliminary plans for raising dike elevations along Pine Creek Avenue, Fairfield Beach Road and Old Dam Road. Plan allows for medium raising (2-3 ft) or for 1% storm protection (5-8 ft). Public already showing displeasure for higher protection. Town has met with residents and will hold public meetings.	2014-2019	H	CI*	B	12	-3	9
Consider increasing beach nourishment.	C	E	C/E	Action item plan- completed. Jennings and Penfield Beach have been replenished. Other Town beaches appear to have gained sand. This will be confirmed by Engineering Department in 2014.	2014-2019	H	CI*	B	10	-3	7
Improve and elevate tide gates and dikes to keep up with rising sea level.	C	E	E	Currently Conservation's self regulating tidegates have capability to adjust for large storms and raising sea levels. DPW has repaired 1 culverts and 3 tide gate flaps in 2013 along Fairfield Beach Road. DPW/Conservation and Engineering to continue monitoring condition of tidegates and dikes with semi annual inspections.	2013-2019	H	CI*	B	10	-3	7
Address the continued periodic tidal flooding of streets and properties in the coastal flood plain by making concerted efforts to design, construct, and maintain flood relief and drainage structures (e.g., dikes, tidegates, detention and natural marsh basins, stormsewers and natural channels) to ensure the discharge of flood waters during the receding tidal cycles immediately following the flood event.	C	N	DPW/CI	Engineering, DPW and Conservation to continue study of coastal neighborhoods and existing structural operations. Town to utilize Work order program for public and Town complaints and troubleshooting.	2014-2019	H	CI*	B	10	-3	7
Continue to maintain flood gates on the McLevy property.	I	N	E	DPW to make part of the maintenance and inspection "Header" List prior to large storm events. Consult with Engineering for repairs, if necessary.	2013-2019	MO	OB	A	8	-2	6

Table 5.8  
IMPLEMENTATION MATRIX - FAIRFIELD

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Continue to keep debris clear of drainage systems; plan for improvement/ implementing routine management.	C/I	N	DPW	DPW to make part of the maintenance and inspection "Header" List prior to large storm events. Consult with Engineering for design improvements and repairs.	2013-2019	MO	OB	A	8	-2	6
Waterproof manhole covers.	C/I	N	E/DPW/WPCA	WPCF's I and I study to determine worst areas. Obtain funding thru budget process.	2014-2019	L	CI*	B	6	-1	5
Continue to perform culvert maintenance and debris removal in the the Rooster River, Ash Creek/Royal Avenue and Camden Street areas.	I	E	DPW/WPCA	Stantec performed on site River Inspection and DPW removed major obstacles. DPW to perform inspections and rely on Work Order program from Town and Public input.	2013-2019	MO	OB	A	7	-2	5
Relocate the sanitary sewer transmission truck line from the flood prone Rooster River and Ash Creek corridor.	I	N	E/WPCA	Long term design improvement by DPW/Engineering or Consultant. Budgetary concerns.	2014-2019	H	CI*	B	8	-3	5
Encourage green development and rehabilitation of existing impervious structures to reduce runoff generated in urbanized areas.	C/I	N	C/P&Z	Implementation through administrative permit review by Zoning, Conservation and Engineering. Recent project examples: Valley Road Bridge, Metro Center, Black Rock Church.	2014-2019	H	CI*	B	7	-3	4
Explore building modifications, use of pervious road materials and green infrastructure designs to improve on-site storm water retention and reduce storm water inflows into Fairfield's wastewater treatment system.	C	N	E/WPCA	Implementation through administrative permit review by Zoning, Conservation and Engineering. Recent project examples: Fairfield University, Black Rock Church, Penfield and Jennings Beach parking lots..	2014-2019	H	CI*	B	7	-3	4
Prior to a storm, lower the volume of water in the wastewater treatment plant to increase capacity.	C	N	WPCA	WPCF includes this in their emergency preparedness plan.	2014-2019	MO	OB	A	6	-2	4
Design culverts for a 50-year or 100-year storm in the Rooster River, Ash Creek/ Royal Avenue and Camden Street areas.	I	E	E	Consider during storm system replacement projects. Pipe size doubled for Commerce Drive project.	2014-2019	H	CI*	B	7	-3	4
Consider improving the culvert at Merwins Lane.	I	E	E	Watershed study performed. Current downstream Neighbor opposition.	2014-2019	MO	CI*	B	6	-2	4



Table 5.8  
IMPLEMENTATION MATRIX - FAIRFIELD

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Evaluate methods to increase storage or improve drainage to alleviate flooding downstream of the Fairchild Wheeler golf course.	I	E	E/DPW	Engineering continues to address through design or review of plans to include green infrastructure and detention where possible. Developments are required to provide no net increase and often seek decrease in flood prone areas. Consultant provided preliminary design for larger capacity storm system on Bennett and Bond Streets. Cost /Benefit, grant funding and public hearings will be required for the next step.	2014-2019	MO	CI*	B	6	-2	4
Install on site detention, relay new storm lines, incorporate bioswales and/or rain gardens in developed areas to help reduce or redirect runoff that contributes to flooding. For example, in the Fairfield Center and Railroad parking lot.	I	N	E/DPW	Engineering continues to address through design or review of plans to include green infrastructure and detention where possible. Developments are required to provide no net increase and often seek decrease in flood prone areas.	2014-2019	MO	CI*	B	6	-2	4
Continue to maintain/improve critical culverts and associated outlets/swales to remove debris, especially in advance of storms.	I	N	E/DPW	DPW has already made part of the maintenance and inspection "Header" List prior to large storm events. Consult with Engineering for repairs, if necessary.	2013-2019	MO	OB/CI*	A/B	6	-2	4
Elevate Fairfield Beach Road as needed to keep up with rising sea level.	C	E	E/DPW	Engineering has developed plans for an additional road elevated section. Currently it does not receive public support. Continue to study situation and demographics.	2014-2019	H	CI*	B	6	-3	3
Extend the dike system along the shoreline from the Riverside Drive and Post Road area to Sasco Hill. Obtain easements to extend and complete the system in areas where it does not presently exist.	C	E	E	Conceptual Design layout has been completed. Preliminary plans, Public hearings, grant opportunities and conceptual permits would be the next phase.	2014-2019	H	CI*	B	6	-3	3
Extend the dike in Southport along Harbor Road in the AE flood zone.	C	N	E	Engineering to Design conceptual layout and determine if easements are necessary.	2014-2019	H	CI*	B	6	-3	3
Improve the drainage system in the Downtown area, along Sanford and Reef Roads	I	E	E/DPW	Engineering continues to address through design or review of plans to include green infrastructure and detention where possible. Developments are required to provide no net increase and often seek decrease in flood prone areas. Current bypass completed. Seeking grant opportunities for Sherman Green detention and RR station parking detention or storm system diversion/bypass.	2014-2019	H	CI*	B	6	-3	3

Table 5.8  
IMPLEMENTATION MATRIX - FAIRFIELD

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Incorporate drainage improvements and best management practices to Grasmere Brook watershed to reduce flooding.	I	N	E/DPW	Town/Consultant has developed plans for increasing Holland Hill Culvert capacity. For development or redevelopment projects, Engineering, Conservation and Zoning will encourage BMP practices or green infrastructure and require no net increase in runoff. DEEP Phase 2 requirements enforced.	2014-2019	MO	CI*	B	6	-3	3
Consider acquisition of properties where it is prudent and feasible to extend and construct the dike system.	I	N	E	Conceptual layout designed. During Preliminary plan process, determine if easements or takings are required. Will seek grant opportunities if available.	2014-2019	MO	CI*	B	5	-2	3
Install pump stations to address flooding in the underpasses of New Haven rail line bridges.	I	N	E/DPW	Engineering to Develop conceptual plans in effort to obtain easements, permits and grant opportunities.	2014-2019	H	CI*	B	6	-3	3
Expand and repair flood gates along the Mill River.	I	N	E	Exide reconstructing tide flood gates at harbor road bridge and dam. DPW to determine if additional gates are required for other flood prone areas.	2014-2019	H	CI*	B	6	-3	3
Consider increasing the approved bulkhead elevation along Pine Creek to account for sea level rise.	C	E	E	In 2010 Flood and erosion Board established bulkhead elevations to coincide with sea level.	2014-2019	H	CI*	B	5	-3	2
Consider elevating all roads within the AE and VE flood zones, including Fairfield Beach Road and surrounding neighborhoods.	C/I	N	E/CT DOT	In 2013, Engineering expanded current plan to include Fairfield Beach Road and other streets in AE and VE zones. Third section for FBR designed but not constructed yet due to adjoining properties opposition.	2014-2019	H	CI*	B	5	-3	2
Implement a dike system in the the Rooster River, Holland Street, Ash Creek/ Royal Avenue and Camden Street areas.	I	E	E	Current Neighborhood interest in project is low. Cost Benefit ratios are also low. Deferred.	2014-2019	H	CI*	B	5	-3	2
Consider elevating Merwins Lane. This would require the abutting property owner's permission and permits.	I	E	E	Deferred, due to budget restraints and current adjacent property owner heavy opposition.	2014-2019	H	CI*	B	5	-3	2
Reconstruct New Haven rail line bridges over town streets to prevent flooding, including at North Pine Creek Road, Mill Plain Road, and Round Hill Road.	I	N	E/MTA	Deleted. CONN DOT determined that their bridge overrides conveyance to reduce flooding.	2014-2019	H	CI*	B	5	-3	2

Table 5.8  
**IMPLEMENTATION MATRIX - FAIRFIELD**

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Reconstruct and expand the culvert conveying Ash Creek and Rooster River under I-95 to reduce flooding in the Camden Street and Royal Avenue neighborhoods and to meet a 1% storm event. Include other local bridges on Rooster River in this project, so as to increase hydraulic capacity and reduce flooding.	I	N	E/CT DOT	Consultant performed Rooster River hydraulic study in 2003. Some minor updates were included but funding deferred from CT DEEP so updated study is on hold. Goal would be to provide additional culvert under I-95 and to make sure development in B'port does not affect overflow bypass that circumvents culverts.	2014-2019	H	CI*	B	5	-3	2
Improve and install flood control outlet pipes and tide gates along Pine Creek and Ash Creek to increase the removal of flood waters.	I	N	E	Currently seeking grant opportunities. Preliminary design performed by Consultant for Pine Creek in 2013 and for Ash Creek/Rooster river in 2003.	2014-2019	H	CI*	B	5	-3	2
Incorporate improvements listed in Rooster River Watershed based Plan.	C/I	N	C/E	Engineering, Conservation and TPZ shall incorporate improvements via developmental reviews and grant opportunities. Valley road bridge design incorporated some of the report elements in 2014.	2014-2019	L	CI*	B	11	-1	10
Implement a comprehensive tree health, maintenance, and removal plan to reduce the number of downed trees and limbs during a storm event.	W	N	DPW	Town has drafted Forest Vision Plan, tree inventory and is working on DPW and UI maintenance plans.	2014-2019	MO	OB	A	12	-2	10
Update the Town's Plan of Conservation and Development to include riparian corridor restoration as well as acquisitions of open space and marsh advancement zones for storm surge defense and floodwater storage.	C/I	N	P&Z	The process to update the POCD will include a review of potential properties for acquisition for open space	2014-2019	L	CI*	R	10	-1	9
Protect and restore natural systems (salt marshes, beaches, dunes, floodplains/riparian areas, forested lands) on both watershed and full coastline scales, as well as diked and isolated wetlands to better withstand and absorb storm surges and flooding.	C/I	N	C	Conservation will seek grant opportunities. Can include elements in their open space management plan. Director has collected shoreline and wetland data for over 40 years to develop restoration plan.	2014-2019	H	CI*	B	9	-3	6
Renourish engineered beaches, Town and private beaches after storm events, including Fairfield Beach, Jennings Beach, Sasco Hill Beach and Southport Beach.	C	N	C/E	Jennings and Penfield Beaches received sand replenishment from approved dredged sand spoils and imported sand. Other beaches appear to have received additional sand from SS Sandy. This will be confirmed by Survey Crew in 2014.	2014-2019	H	CI*	B	9	-3	6

Table 5.8  
IMPLEMENTATION MATRIX - FAIRFIELD

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Restore upland stormwater discharges in Pine Creek to their historical locations around the marsh and thereby utilize the large acre-foot-volume of storage capacity of the diked marshes with tidegates closed during storms to detain floodwaters during a high tide and heavy rain.	I	N	C/E	This has been an on going process for storm preparation for the past few decades. This process will continue, as DPW and Conservation have the ability to adjust or close SRT and other tidegates prior to a storm.	2014-2019	H	CI*	B	8	-3	5
Train and equip neighborhood storm response teams (i.e., CERT), especially in neighborhoods that have in the past been cut off from emergency services by floodwaters or downed trees, as well as to assist lower-income populations.	AH	N	OEM/CERT	Town has a plan in place with approval of OEM to provide trained Medical Response Corps and Southport Volunteer Fire Dept. to assist in various services under supervision of OEM.	2014-2019	L	OB	A	12	-1	11
Ensure that residents are aware of the location and operations of emergency shelters, warming/cooling centers, and charging stations and establish procedures for their use via routine notifications	AH	N	OEM	Prior to significant events, the Town and/or OEM select locations and are announced via different media- website, radio, TV and Code Red.	2014-2019	L	OB	A	12	-1	11
Communicate with residents about the importance of removing debris in marshes after storms.	C/I	N	DPW	After significant events, the DPW can announce via different media-website, radio, TV debris pick ups and importance of debris removal.	2014-2019	L	OB	A	11	-1	10
Develop tree planting guidelines.	W	N	DPW/C	Tree permits are required for tree planting within right of way.	2014-2019	L	OB	A	10	-1	9
Improve warning of residents that may become isolated by downed trees during an extreme weather event.	AH	N	OEM	Code red and town website for pre storm information will be utilized. Contacting neighborhood associations via email or phone is another option if enough time is granted.	2014-2019	L	OB	A	9	-1	8
Utilize GIS to inform responders and residents during a severe weather event, or in the event of an evacuation.	AH	N	OEM	During Sandy and Irene, Engineering provided hourly updates on road closures, downed trees and wires and roads closed using GIS system. Future goal is to provide more real time info.	2014-2019	L	OB	A	8	-1	7
Erect signs and install barricades on Merwins Lane to encourage residents to take alternate routes during flooding events.	C/I	E	OEM/DPW	This is just one of a dozen or so streets that DPW must post periodically. Underpasses and bridges susceptible to scour or flooding are also included on DPW list-prior to, during or after storm events.	2014-2019	L	OB/CI	A	7	-1	6

Table 5.8  
**IMPLEMENTATION MATRIX - FAIRFIELD**

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Address road access by prioritizing snow clearing during storms, providing water pump-outs during flooding and identifying alternate routes to closed-off areas.	AH	N	DPW/ OEM	Town has developed snow plow routes and first streets plowed based on priorities- schools, traffic volumes, choke pts etc.	2014- 2019	L	OB	A	12	-1	11
Reassess needs and capacity for shelters, warming/cooling centers, and charging stations.	AH	N	OEM	OEM has mobilization plan to provide and distribute water, food, ice etc.. Shelters to provide showers.	2014- 2019	L	OB	A	12	-1	11
Continue use of pre-disaster communications (code red), social media and EOC communications.	AH	N	OEM	Town uses code red system. Town website and other media (radio, tv, social media etc..) also available for pre, during and post storm updates.	2014-2019	L	OB	A	12	-1	11
Use vehicles (school buses, etc.) to transport vulnerable, senior and disabled populations to shelters.	AH	N	OEM	Town has a contract with private bus company to assist in emergency transports during emergency events. Have alternate plan if emergency takes place unexpectedly during school hours.	2014-2019	L	OB	A	12	-1	11
Protect/ flood-proof town services and data. Develop a plan for stockpiling food, water and gas in case of emergencies.	AH	N	OEM/IE	FWMS, FW Library and Dwight School are some of the back up locations in the Town's EOP. Gasoline supplies are topped off prior to storm at Town's request with supplier.	2014-2019	L	CI	A	12	-1	11
Identify demographics so as to plan to prevent shut-ins during emergency events.	AH	N	OEM	Housing and Development data and US Census Block map and Town GIS system identify various demographics for emergency preparedness and operations.	2014-2019	L	OB	A	12	-1	11
Clarify relationship with UI for downed power lines.	W	N	DPW	UI/ SCG gives Town pre, during and after storm updates via email. Hopefully better coordination now... for tree removal, power disconnect and access to downed wires, poles with UI providing a representative at the EOC.	2014-2019	L	OB	A	11	-1	10
Identify vulnerable neighborhood egress chokepoints and identify alternate access routes to neighborhoods and facilities when those chokepoints are not passable; harden and flood proof these chokepoints as necessary to ensure they remain open.	AH	N	OEM/DPW/IE/ CERT	Town has identified several roads that typically pose problems during coastal storms, large rainfall events or wind storms. Aquarion and UI have cleared most roadside trees along Black Rock Turnpike. Town has raised 2 sections of Fairfield Beach Road.	2014-2019	L	OB	A	11	-1	10
Reinstitute the Fairfield University and Sacred Heart University MOU with EOC.	AH	N	OEM	Town has plan to utilize Fairfield Univ as back up EOC.	2014- 2019	L	OB	A	11	-1	10

Table 5.8  
IMPLEMENTATION MATRIX - FAIRFIELD

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Build redundancies into EOC/EEC emergency communications systems and networks to ensure continuity of communications between town emergency services and residents. Utilize existing community networks (churches, etc.) as supplements to "technological" methods of communication.	AH	N	OEM/CERT	Town and public can utilize battery operated portable radios, Code Red announcements for operating phones, email and public can utilize a special Town info hot line on land line or cell phones for high tide warnings, emergency preparation announcements and updates. EOC has back up generators and Town can utilize old EOC center as an auxillary EOC at Fire Station # 2.	2014-2019	L	OB	A	10	-1	9
Provide and install generators to senior housing complexes and other complexes that serve vulnerable populations to allow them to shelter in place.	AH	N	OEM/DPW	Town senior centers have back up generator and/or transfer switches to allow for potential portable generator hook ups. Other major private complexes ( Carolton, Jewish Home etc.) have back up generators or transfer switches as well.	2014-2019	H	CI	B	12	-3	9
Provide adequate generators to evacuation facilities (Ludlowe High Schoole, Warde High School and Ludlowe Middle School).	AH	N	OEM/DPW	RLHS has back up generators, Warde HS has most of its school covered and RLMS has some areas covered for back up generators.	2014-2019	H	CI	B	12	-3	9
Ensure Emergency Operation Plans of private dam facilities are adequate, including Aquarion Water Company facilities at Aspetuck Reservoir and Hemlock Reservoir.	AH	N	E/Aquarion	Confirm with Aquarion and/or CT DEEP on EOPs. Confirmation pending May 1, 2014.	2014-2019	L	OB	A	10	-1	9
Enter into a mutual aid agreement with long term care facilities to share generators during an evacuation.	AH	N	OEM	Town has long term mutual aid plan (LTC map)in place for Fairfield Facilities for evacuations.	2014-2019	L	OB	A	9	-1	8
Provide water/ ice/ showers for owners of private systems without power.	AH	N	OEM	OEM has mobilization plan to provide and distribute water, food, ice etc. Shelters to provide showers. For past few storms without power, OEM provided charger locations at library and other Town Facilities ex. Fire Station 1, and distributed emergency items at Mobile trailer and Command Center along Black Rock Turnpike near Shop Rite Center.	2014-2019	L	OB	A	9	-1	8
Ensure the ability of cell phone towers to generate power; talk to cell companies about generation/ disaster recovery plans.	AH	N	OEM	Cell companies have battery back up power and if needed generators can be connected to provide more long term service.	2014-2019	MO	OB	A	10	-2	8

Table 5.8  
**IMPLEMENTATION MATRIX - FAIRFIELD**

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Consider alternate locations for ECC and EOC during weather events	AH	N	OEM	Past practices from Irene and Sandy have given the Town real life opportunities to identify this measure. Town has alternate locations listed in their EOP. Example: Town of Easton and Fairfield University with phones, internet , generators etc..	2014-2019	MO	CI	A	9	-2	7
Expand the energy reliability of critical Town facilities, including the use of distributed generation and micro-grids. Relocate IT equipment out of municipal building basements in low lying areas.	AH	N	OEM/DPW/E	IT and OEM has plan for alternate locations (ex. Dwight School, Fairfield University, FW Library) in case of evacuations. Will need grant assistance for permanent solutions.	2014-2019	MO	CI	B	8	-2	6
Enhance flood protection at the DPW (immediate and surrounding areas) garage or consider feasibility of moving garage to an alternate location Study/ explore how to evacuate water and relocate equipment prior to a threatening event.	C	N	E/DPW	DPW will implement this measure through design capital projects and/or provide alternate location. This was performed during SS Sandy, as DPW garage equipment and manpower was relocated to Fairfield Rec Center on Mill Plain Road.	2014-2019	MO	CI*	B	7	-2	5
Conduct a study to identify the highest risk locations for prioritized mitigation and emergency response efforts before, during and/or after an extreme event during a variety of hazard scenarios.	AH	N	OEM	The highest risk areas have been defined by those areas affected by Hurricane Irene and SS Sandy. For inland storm events the rooster river neighborhoods have been identified. Data was compiled in Hazard and Community Resilience Workshop summary of findings report.	2014-2019	MO	OB	A	6	-2	4

## Town of Monroe

### LEGEND - STRATEGIC ACTIONS - MONROE

#### Hazard Type

C = Coastal Flooding    I = Inland Flooding    W = Wind, Snow & Ice    A = All Hazards

Table 5.9  
**STRATEGIC ACTIONS - MONROE**  
*from the 2006 Regional Natural Hazard Mitigation Plan*

Hazard Type	Description	2006 Status	2014 Status	Results
I	Enforce rigorous storm water controls as the corporate park is developed.	2007-2020	In Progress: changed since 2006. Controls on storm water quality/quantity and rate of flow continue to be required and are now discussed by the Inland Wetlands Commission and the Planning & Zoning Commission as specific elements of their hearings.	
<b>West Branch of Pequonnock, Main Street (Route 25) from Brook Street to Judd Road</b>				
I	Continue diversion of water to adjacent watershed and Aquarion reservoir during high flow events.	2007-2020	Deferred: time constraints. This action is still relevant so include in the 2014 plan.	
I	Consider elevating Main Street.	2007-2012	Deferred: This is a roadway that is owned and maintained by the State. A long term goal of the Town would be to get this section of Main Street elevated above the flood plain and/or get the bridges (culverts) under the roadway to be upgraded so that they will pass the 100 year storm without flooding. these culvert (bridge) projects have been scheduled for design by the State, but have not progressed to the point where there are plans available for review and comment.	
I	Improve the culvert under Newtown Road.	2007-2012	Deleted: Through further discussions with the Public Works Department, this item has been eliminated	
I	Keep debris out of the river and culvert.	2006	Completed: this is an annual need.	Met Targeted Result: This section of the river is evaluated on an annual basis (or just prior to major predicted storms) by the public works department (vicinity of Old Newtown Road) relative to the collection of debris in and around the culvert under the road. if needed, debris is removed and said culvert is cleaned to the extent that the capacity is maintained.
I	Consider elevating Newtown Road.	2007-2020	Deferred: This work involves the replacement of the culvert under the road, and reconstruction of the roadway profile to essentially elevate the roadway to provide for improved sight line and stopping distance in addition to providing additional freeboard at the culvert. The work is long range planning with a medium to low priority, and will be considered at some point in the future when funds are potentially available.	



Section 5: Implementation:

Table 5.9  
**STRATEGIC ACTIONS - MONROE**  
*from the 2006 Regional Natural Hazard Mitigation Plan*

Hazard Type	Description	2006 Status	2014 Status	Results
I	Consider elevating structure at Chuck's Corner	2007-2020	Deleted: Through further discussions with the Public Works Department, this item has been eliminated	
I	Encourage residents to use alternate routes during flood events	2007-2020	Completed: as needed.	Met Targeted Result: This hazard is minimized on an "as-needed" basis during storm events through the local "code red" alert notification system, public announcements, and temporary signage placed and managed by the Public Works Department.
	West Branch of Pequonnock, culvert under Pepper Street along Brook Street			
I	Improve the culvert under Pepper Street.	2007-2020	Deferred: anticipated for 2015. The project was delayed due to needed permitting.	
I	Keep debris out of the river and culvert.	2006	Completed: as needed.	Met Targeted Result: This section of the river is evaluated on an annual basis (or just prior to major predicted storms) by the public works department relative to the collection of debris in and around the culvert under the road. if needed, debris is removed and said culvert is cleaned to the extent that the capacity is maintained.
I	Consider elevating Pepper Street.	2007-2020	Deferred: included in long range version of improvements as detailed under "Improve the culvert under Pepper Street".	
	Boys Halfway River, culvert under Cottage Street near Brookside Trail			
I	Keep debris out of the stream and culvert.	2006	Completed: as needed.	Met Targeted Result: This section of the river is evaluated on an annual basis (or just prior to major predicted storms) by the public works department relative to the collection of debris in and around the culvert under the road. if needed, debris is removed and said culvert is cleaned to the extent that the capacity is maintained.
I	Construct a proper channel for the swale in the backyards	2007-2012	Deferred: This work is labeled as a flood control project as requested by some of the area residents. It is long term, and most likely will not move forward without additional input and collaborative actions by the area residents	
I	Improve the culverts under Moose Hill Road	2007-2020	Deferred: not budgeted.	
I	Keep debris out of the river and culverts	2006	Completed: as needed.	Met Targeted Result: This section of the river is evaluated on an annual basis (or just prior to major predicted storms) by the public works department relative to the collection of debris in and around the culvert under the road. if needed, debris is removed and said culvert is cleaned to the extent that the capacity is maintained.

Table 5.9  
**STRATEGIC ACTIONS - MONROE**  
*from the 2006 Regional Natural Hazard Mitigation Plan*

Hazard Type	Description	2006 Status	2014 Status	Results
I	Consider elevating Moose Hill Road	2007-2020	Deferred: not budgeted.	
	Low-gradient stream under Bart Road and along Verna Road			
I	Improve the culverts under Bart Road	2007-2020	Deferred: not budgeted.	
I	Keep debris out of the culverts	2006	Completed: as needed.	Met Targeted Result: This section of the river is evaluated on an annual basis (or just prior to major predicted storms) by the public works department relative to the collection of debris in and around the culvert under the road. If needed, debris is removed and said culvert is cleaned to the extent that the capacity is maintained.
I	Consider elevating Bart Road	2007-2020	Deferred: not budgeted.	
I	Keep structural blockages out of the channel to allow for free flow	2006	Completed: as needed.	Met Targeted Result: This work is accomplished as needed (usually as per drainage complaint) through notification to the individual property owners to remove fallen trees and other natural debris or yard waste materials that are blocking the flow within the waterway
I	Remove the beaver dam or replace the beaver dam with a constructed dam with water level controls	2007-2012	Deferred: not budgeted.	
I	Consider elevating Garder Road	2007-2020	Deferred: not budgeted.	

Section 5: Implementation

The Town of Monroe continues proactive maintenance of culverts and keeping debris out of streams. In addition, the Town continues to encourage residents to use alternate routes in areas prone to flooding during flood events via public service announcements, notices, and postings on the Town web site. Elevating Moose Hill Road and improving the culverts underneath it were not implemented due to budget constraints, and improvements to Pepper Street and the culvert under Pepper Street were delayed due to permitting but are anticipated for 2015.

The Town of Monroe continues to improve coordination between the Department of Public Works and local "Make Safe" utility crews before, during and after a high wind or storm event. This coordination ensures that resources are allocated to priority locations, downed trees and limbs are cleared from roads and the ultimate restoration of power to homes and businesses. Communication with residents who may become isolated because of downed tree limbs is another ongoing activity in the Town.

The table below lists and prioritizes actions that can be implemented throughout the region.

**LEGEND - IMPLEMENTATION MATRIX - MONROE**

Hazard Type			
C = Coastal flooding	C/I = Coastal and Inland Flooding	W = Wind	SR = Sea Level Rise
I = Inland Flooding		A = All Hazards	
Existing/New			
E = Existing	N = New		
Responsible Department			
EMD = Emergency Management Department		PW = Public Works	
ENG = Engineering		PV = Private	
BI = Building & Inspection			
Cost			
MI = Minimum: staff time or volunteer time	L = Low: less than \$10,000	MO = Moderate: between \$10,000 and \$100,000	H = High: \$100,000
Funding Source			
OB = Operating Budget	CI = Capital Improvement Plan	PV = Private	* = Grants
Planning Mechanism			
A = Administrative	B = Budgetary	R = Regulatory	

Table 5.10  
**IMPLEMENTATION MATRIX - MONROE**

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Explore building modifications, use of pervious road materials, and green infrastructure design to improve on-site storm water retention and reduce storm water runoff	I	N	BI	Amendments to the zoning regulations are currently under consideration, along with a full re-write of the subdivision regulations. In addition, the new Plan of Conservation and Development includes recommendations for consideration of these elements in future applications for development through the Planning and Zoning Commission, and the Inland Wetlands and Watercourses Commission processes.	2015-2020	H	OB	A	15	-3	12
Establish a pre-storm drawdown process of Stepney Dam to increase storage capacity and prevent down stream flooding	I	N	ENG	This is a new concept that has not been implemented yet. Since the Dam is owned and maintained by the Aquarion Water Company, the Town will request an evaluation of conditions and consideration for developemnt of an Operations and Maintenance Plan that would include a requirement for draw-down under certain circumstances.	2013-2015	MI	OB	A	10	-1	9
Hold discussions with the Aquarion Water Company about the possibility of increasing the diversion of the Pequonnock River to the Easton Lake Reservoir in advance of a storm	I	N	ENG	This process can be initiated through correspondence from the First Selectman	2013-2014	MI	CI	B	8	0	8
Enforce rigorous storm water controls and encourage the installation of green infrastructure to reduce runoff generated at industrial and corporate parks, Strategies include on-site detention, bioswales and rain gardens	a	N	BI	This is anticipated to be implemented through the updated Planninga and Zoning Regulations, and the Subdivision Regulations through the application process for future development	2015-2020	H	OB	R	7	-3	4
Assess the impacts and location of septic systems impacted by flooding	I	N	ENG	For new development or changes to existing septic systems, this can be accomplished through collaboration with the Health District to include verification (disclosure) of flood plains as part of their application process. As far as existing systems, an evaluation of conditions relative to flooding can only be acheived through the processing of septic repairs or replacements.	2015-2020	H	OB	A	10	-2	8

Section 5: Implementation

Table 5.10  
IMPLEMENTATION MATRIX - MONROE

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Conduct a town-wide hydrologic analysis of flooding/stormwater impacts and water conveyance needs to minimize risk to people and infrastructure	I	N	ENG	This has been implemented through recommendations now included in the Town's Plan of Conservation and Development. However, actual implementation is pending, contingent on long range planning and funding opportunities for same.	2015-2021	H	CI*	B	13	-2	11
Improve coordination between the Monroe Department of Public Works crews and local utility crews to make-safe areas with downed trees and allocate resources to priority locations.	W	E	PW	This process will be implemented through written and verbal contact with applicable utility companies by the Public Works Department in an attempt to establish appropriate work staging areas that are not within flood areas.	2013-2015	L	OB	A	11	0	11
Encourage residents to take alternate routes during flooding events on Pepper Street	I	N	EMD	This hazard is minimized on an "as-needed" basis during storm events through the local "code red" alert notification system, public announcements, and temporary signage placed and managed by the Public Works	2013-2015	MI	OB	A	8	-1	7
Improve warning of residents that may become isolated by downed trees during an extreme weather event	W	E	EMD	This hazard is minimized on an "as-needed" basis during storm events through the local "code red" alert notification system, public announcements, and temporary signage placed and managed by the Public Works	2013-2015	L	OB	A	14	-1	13
Implement various strategies included in the Pequonnock River Initiative Watershed Management Plan, including increasing buffers, installing green infrastructure (rain gardens, bio-swales, storm water planters), and repairing stream channels.	I	E	PW	This process is being implemented through the current considerations of amendments to the Planning and Zoning Regulations, and the re-write of the Subdivision Regulations	2015-2020	H	CI*	B	15	-1	14
Continue and expand the proactive tree maintenance program by removing dead/diseased trees and branches and coordinate with the local utilities tree trimming program	W	E	PW	The Public Works Department will implement this through the establishment and implementation of a "Policy" for a Tree Maintenance Program. Trimming for utilities is a separate issue handled directly by the respective utility companies.	2013-2015	MO	OB	A	13	-3	10

Table 5.10  
IMPLEMENTATION MATRIX - MONROE

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Upgrade the power supply at critical facilities with new generators, include the Town Garage, High School, Jockey Hollow and Chalk Hill School, all Town Shelters, the Emergency Operations Center, the Senior Center and senior housing facilities	A	N	PW	This is being implemented through the Capital Improvement budget process and is contingent on future planning and funding opportunities. The Public Works Department is continuing the planning process to include plans, specifications, reports, and recommendations for actions.	2013-2017	MO	CI*	B	12	-1	11
Upgrade windows at the Emergency Operations Center, High School, and Shelters	W	N	PW	This is a long range project and is contingent on funding	2015-2020	MO	CI*	B	12	-1	11
Incorporate additional power generation into the new Marian Heights facility under construction	W	N	PV	This is a long range project and is contingent on funding. The Town may also be in a position to provide engineering or construction related services once a funding source is procured	2015-2020	MO	PV*	B	10	-1	9
Upgrade the surge protection on the Town's computer server	A	N	ENG	This is needed improvements that have been budgeted but not yet implemented	2013-2015	L	CI*	B	12	-1	11
Replace and increase the size of culverts at key locations on Route 25 and Route 111, including in vicinity of Chuck's Corner and Bart's Shopping Center	I	N	ENG/CT DOT	Design work for the upgrading of key culverts within Main Street (Route 25) and Monroe Turpike (Route 111) has already been started by the State DOT.	2018-2020	H	CI*	B	12	-1	11
Reconstruct and elevate a section of Route 25 in vicinity of the West Pequonnock Reservoir	I	N	ENG/CT DOT	Design work for the upgrading of key culverts within Main Street (Route 25) and Monroe Turpike (Route 111) has already been started by the State DOT.	2015-2020	H	CI*	B	11	-3	8
Replace or retrofit undersized culverts	I	N	ENG	This will be implemented on an "as-needed" basis, and also as a result of a future master drainage study as recommended in the Town Plan of Conservation and Development. Said Master Plan is contingent on future potential for funding.	2015-2020	H	CI*	B	12	-1	11

Table 5.10  
IMPLEMENTATION MATRIX - MONROE

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Install new culverts to address flooding on Main Street	I	N	ENG/CT DOT	This will be implemented on an "as-needed" basis, and also as a result of a future master drainage study as recommended in the Town Plan of Conservation and Development. Said Master Plan is contingent on future potential for funding.	2013-2015	H	CI*	B	13	-1	12
Remove the Beaver Dam on Sammis Brook and replace with a constructed dam that has water level controls	I	N	ENG	The source of this recommendation, the recommended work, and location is unknown	2015-2025	H	CI*	B	6	-3	3
Replace and expand the culvert conveying the West Branch of the Pequonnock River under Pepper Street along Brook Street	I	N	ENG	Although temporary repairs to the culverts are currently under consideration, replacement of the culverts is contingent on future planning and potential for funding	2015-2020	H	CI*	B	12	-1	11
Consider elevating Pepper Street	I	N	ENG/CT DOT	See above	2015-2025	H	CI*	B	11	-3	8
Improve the culverts conveying a low-gradient stream under Bart Road and along Verna Road under Bart Road and remove debris and blockages of the channel to maintain free flow	I	N	ENG	This will be implemented contingent on future planning and funding opportunities	2015-2020	H	CI*/OB	B/A	13	-1	12
Construct a proper channel for the swale of the tributary of the West Branch Pequonnock River in the backyards of residences along Pastor's Walk and Wiltan Drive	I	N	ENG	This work is labeled as a flood control project as requested by some of the area residents. It is long term, and most likely will not move forward without additional input and collaborative actions by the area residents	2015-2020	H	CI*	B	8	-1	7
Upgrade power lines and poles in the vicinity of Barn Hill and Webb Mountain	W	N	Utility	This item is the responsibility of the respective utilities.	2013-2015	MO	PV*	B	14	-1	13
Remove debris and clear blockages of culverts at key river crossings throughout the Town, including the West Branch of the Pequonnock River at Route 25, Purdy Hill Road and Pepper Street, the Boys Halfway River at Cottage Street and the Far Mill River at Moose Hill Road	W	E	ENG	Culverts are evaluated on an annual basis (or just prior to major predicted storms) by the public works department relative to the collection of debris in and around each structure. If needed, debris is removed and said culverts are cleaned to the extent that the capacity is maintained.	2013-2015	L	OB	A	15	0	15

## Town of Stratford

### LEGEND - STRATEGIC ACTIONS - STRATFORD

#### Hazard Type

C = Coastal Flooding    I = Inland Flooding    W = Wind, Snow & Ice    A = All Hazards

Table 5.11  
**STRATEGIC ACTIONS - STRATFORD**  
*from the 2008 Stratford Annex of the Regional Natural Hazard Mitigation Plan*

Hazard Type	Description	2008 Status	2014 Status	Result
I	Adopt stream dumping regulations.	2009-2012	Completed: Inland Wetlands Regulations cover stream dumping regulations.	met targeted results - The Stratford Inland Wetland Regulations prohibit stream dumping under Section 6.2 and 6.3
I	Adopt ordinances that call for reduction in storm water runoff in new developments.	2008-2012	Completed: additional Planning and Zoning Regulations have been added to development regulations to mitigate increases in runoff.	met targeted result- new regulations are enforced on new subdivision applications to mitigate runoff impacts.
I	Flood audits on Massarik Avenue & Benton Street.	2008 plan did not specify a year	Deferred: budgets & time constraints have delayed addressing these locations.	
C	Consider adopting standards to require two or more feet of freeboard when developing or redeveloping structures in tidally influenced floodplains.	2008 plan did not specify a year	Completed: a one foot freeboard standard was implemented by ordinance. However, this recommendation has not been codified into the current year with the new Flood Insurance Study having increased the flood elevations along the coast by 2-3 feet.	met targeted result- up until revision to higher base flood elevations in July 2013.
I	Continue to clean catch basins on a regular basis.	2008 plan did not specify a year	Completed: this is scheduled maintenance. The Town of Stratford continues to regularly clean catch basins.	met targeted result- in areas cleaned- Approximately 1,000 are cleaned per year, cleaning catchbasin sumps and pipes mitigated instances of flooding in those areas. Continued annual cleaning anticipated in each future year.
I	Continue to clean streets prior to forecasted storms to keep storm grates clear and accommodate higher flows.	2008 plan did not specify a year	Completed: the Town of Stratford continues to regularly clean streets prior to storms.	met targeted result- precleaning catchbasin tops in known areas of flooding in advance of storm events has mitigated instances of flooding in those areas.
I	Continue aggressive street sweeping program.	2008 plan did not specify a year	Completed: this is scheduled maintenance. The Town of Stratford continues to aggressively sweep streets.	met targeted result- Approximately 2,500 tons per year of catchbasin waste is removed for proper disposal per year.
	Lordship Coastal Properties			
C	Elevation of structures to meet or exceed FEMA requirements for Base Flood Elevation	2008 plan did not specify a year	In progress: private substantial improvements continue to progress.	Did not meet targeted result - This is an ongoing process for homeowners. The Town has issued numerous building permits to raise existing structures to the new FEMA elevations as a result of Hurricane Sandy.
C	Flood proofing where appropriate	2008 plan did not specify a year	Deferred: an appropriate location has not been identified.	



Table 5.11  
**STRATEGIC ACTIONS - STRATFORD**  
*from the 2008 Stratford Annex of the Regional Natural Hazard Mitigation Plan*

Hazard Type	Description	2008 Status	2014 Status	Result
C	Additional alternatives that were not recommended but included in the plan were sea wall repair, flood walls and property acquisition.	2008 plan did not specify a year	Completed: Seawall repairs at Beach Drive were made in 2013.	not enough time to determine result- No large coastal storms have hit the wall since repairs were completed.
C	Roadway reconstruction	2008 plan did not specify a year	In progress: the Connecticut Department of Transportation has initiated a project to elevate Route 113 in the vicinity of Sikorsky Airport, which will provide flood relief from a 3-5 year coastal storm. Completion is anticipated for 2016.	
C	Drainage improvements  South End Neighborhood	2008 plan did not specify a year	In progress: the Lordship/State Route 113 project will include updated drainage structures. This includes a tidegate on the drainage piping while still allowing for tidal wetland flushing. Completion is anticipated for 2016.	
C	Consider installing twin 6' X 8' box culvert with regulating tide gate to allow tidal flushing while preventing tidal flooding up to elevation 9' on Lordship Boulevard.  Bruce Brook, including West Avenue & Barnum Avenue	2008 plan did not specify a year	Deferred: budgets & time constraints have delayed addressing this location.	
I	Consider replacement of the weir at Wooster Pond to increase flood storage at Wooster Park south of Quail St.	2008 plan did not specify a year	Deleted: a subsequent study indicated that additional flood storage during peak storms would not be gained as the area is already a natural storage area, given the size of the existing culvert at Nichols Ave which acts as a throttle during large storm events.	
I	Consider replacement of multiple culverts and channels at Barnum Ave. between Sage Ave. and Bowe Ave. to alleviate flooding of Barnum Ave and West Ave.	2008 plan did not specify a year	In progress: Phase I of this project at Bowe Ave. and Barnum Ave. is under design by the Town. Budget issues need to be addressed for proceeding with additional phases. Completion is anticipated for 2017.	
I	Consider replacing the storm water culverts under Quail St. and Old Spring Rd. with new 4' X 20' box culverts.	2008 plan did not specify a year	In progress: a project to replace storm water culverts under Old Spring Road is under design. Due to the status of an adjacent Superfund site, the Town has been unable to proceed with a similar project under Quail St. Completion is anticipated for 2016.	
I	Flood-proof structures, especially in Stratford Center.	2008 plan did not specify a year	Deferred: this recommendation has not been pursued as it was deemed not practical.	

Table 5.11  
**STRATEGIC ACTIONS - STRATFORD**  
*from the 2008 Stratford Annex of the Regional Natural Hazard Mitigation Plan*

Hazard Type	Description	2008 Status	2014 Status	Result
I	Storm Drainage Improvements.	2008 plan did not specify a year	Complete: see Tanners Brook project status. Additional drainage structures were placed at RR underpass as part of King St culvert project and completed in 2013.	not enough time to determine result- No significant storms have hit this area since additional catchbasins were installed. Storms that have occurred have not resulted in flooding indicating the drainage is working as intended to date.
I	Consider elevating Main Street near airport.  Massarik Avenue/Benton Street	2008 plan did not specify a year	In progress: see Lordship/State Route 113 project status. Completion is anticipated for 2015-2016.	
I	Drainage improvements.	2008 plan did not specify a year	Deferred: budgets & time constraints have delayed addressing these locations. The project may commence in 2017.	
I	Structural flood proofing.  Tanners Brook	2008 plan did not specify a year	Deferred: budgets & time constraints have delayed addressing these locations. The project may commence in 2017.	
I	Consider replacing the culvert at King St. to Main St. to alleviate flooding at King St and Main St RR underpass.	2008 plan did not specify a year	Completed: a new 12 X 5 box culvert from King St. to Main St was installed in 2010. Sediment was removed from the existing box culvert downstream to Ferry Creek in 2012.	not enough time to determine result- No significant storms have hit this area since culvert was replaced. Storms that have occurred have not resulted in flooding indicating the culvert is working as intended to date.
I	Consider increasing the size of drainage up to 7' X 4' box culvert to alleviate flooding at the West Broad St RR underpass.	2008 plan did not specify a year	In progress: this project is under design. Completion is anticipated for 2016.	
I	Consider flood control structure at Stratford High School ball field on King St. to create 2.5 MG of flood storage for the 100-year storm.	2008 plan did not specify a year	Deferred: budgets & time constraints have delayed progress. The recommendation will be reconsidered as the school property redesign is further refined in the future (2018).	
I	Consider increasing the width of channelized stream downstream of Broadbridge Ave. to reduce flooding at condominium parking lot.	2008 plan did not specify a year	In progress: the replacement and enlargement of structured channel and stream improvements that convey Tanners Brook from Broadbridge Avenue south to King Street has been designed and is in the permitting phase. Funds have been allocated for construction and completion is anticipated for 2015.	
I	Consider installing a 48" relief pipe on Terrill Rd.	2008 plan did not specify a year	In progress: this project is in the design phase. Completion is anticipated for 2015.	
I	Consider raising West Broad St. over Ferry Creek to elevation 14.2.	2008 plan did not specify a year	In progress: the project to replace the bridge & elevate Broad Street over Ferry Creek is in the design phase and completion is anticipated for 2019. Raising the road to the 2013 Flood elevation is not practical.	

Table 5.11  
**STRATEGIC ACTIONS - STRATFORD**  
*from the 2008 Stratford Annex of the Regional Natural Hazard Mitigation Plan*

Hazard Type	Description	2008 Status	2014 Status	Result
I	Consider increasing the size of the culvert at Reed St. to 500' of 12' X 4' box culvert.	2008 plan did not specify a year	Deferred: budgets & property constraints have delayed addressing this location. Property acquisition was considered at this location, but did not come to fruition. Completion is anticipated for 2017.	
I	Consider bank erosion protection east of Diane Terrace.	2008 plan did not specify a year	Deferred: time and permitting constraints have delayed addressing this location. Completion is anticipated for 2017.	
I	Monitor improvements to drainage system completed by Association in 2004.	2008 plan did not specify a year	In progress: a project to mitigate building flooding adjacent to Freeman Brook in Oronoque Village is in the design phase. Completion is anticipated for 2017.	
I	Respond to future needs as appropriate.	2008 plan did not specify a year	Deferred: there has been no appropriate location identified.	
A	Implement outreach programs to educate citizens regarding Ordinances, Insurance, and other flood relevant issues.	2008 plan did not specify a year	Completed: the Town of Stratford continues to provide outreach programs about flooding to citizens. This is a regular activity.	Not enough time to determine result - This is an ongoing program to educate residents. The Town intends to continue to engage the public and educate them about issues relevant to flooding and have proper ordinances developed and implemented.
A	Continue use of QAlert (online) system for complaint tracking to maintain a database of calls received by the Town.	2008 plan did not specify a year	Completed: the Town of Stratford continues to utilize QAlert. This is a regular activity.	Met targeted result - The Town uses the Q-Alert System on a daily basis to manage citizen complaints and address hazardous issues as they develop
A	Seek to develop a new reverse 911 system to alert residents and businesses in the case of impending floods. The Town used to use the Citywatch system, but it is no longer operating. Emergency response personnel from all public safety divisions support this initiative.	2010-2012	Completed: the Town has implemented and continues to operate the Stratford Electronic Notification System to alert residents and businesses in the case of impending storms and floods. This activity occurs as needed. Use of the system began in 2009.	Met targeted result - The Town has successfully been using the Everbridge Reverse 911 system to alert residents during emergency storm events with great success. There has been positive feedback from residents regarding the use of the system during Hurricane Sandy and Winter Storm Nemo.

Table 5.12

**STRATEGIC ACTIONS - STRATFORD**

*not included in the 2008 Stratford Annex of the 2006 Regional Natural Hazard Mitigation Plan, that have been implemented*

Hazard Type	Description	2008 Status	2014 Status	Result
A	Develop evacuation plans and identify and mark key alternate routes.	2008 plan did not specify a year	In Progress: Utilizing funds provided by the State of CT, evacuation route signs were installed at key areas in coastal areas and will be completed in 2016. These signs provide an elevation gauge and arrows indicating the appropriate direction in which to evacuate.	
C	Development within flood hazard zones should conform with FEMA building height and hardening requirements.	2008 plan did not specify a year	Completed: The Building Department ensures that development within flood hazard zones comply with FEMA building height and hardening requirements.	met targeted result
I	Conduct a study on the potential impacts of a breaching of the Beaver Dam Lake dam and identify mitigation actions to reduce loss.	2008 plan did not specify a year	Completed: A study has been conducted on the potential impacts of a breaching of Beaver Dam Lake (by the State of Connecticut) and Brewster dam (by the Town of Stratford). The mitigation actions to reduce loss have been identified.	Met targeted results - There are no additional actions required by the Town of Stratford in order to address this matter regarding Brewster Pond Dam. Beaver Dam Lake is a private entity and is under the jurisdiction of the Connecticut DEEP.
W	Require compliance with the amended Connecticut Building Code for wind speeds.	2008 plan did not specify a year	Completed: The Building Department ensures that development is compliant with these requirements.	met targeted result- all new construction is compliant with the current code for wind load.
W	Funding is in the process of being secured for an urban forest canopy study.	2008 plan did not specify a year	Deferred: The study is anticipated to begin in the spring of 2014. Funding was secured through an America the Beautiful grant.	
	Structural & Infrastructure			
I	Some manhole covers have been waterproofed to prevent inundation of flood waters into the sanitary sewer system.	2008 plan did not specify a year	Deferred: A quantitative study would determine which additional manhole covers to waterproof, but funding must be secured. Commencement of the project is anticipated for 2015.	
A	Provide adequate back-up power to Bunnell High School, Flood Middle School, Stratford Housing Authority units and the Baldwin Senior Center.	2008 plan did not specify a year	In Progress: Back-up generation equipment has been secured and installed at the Stratford Housing Authority offices and community center. Commencement of the project is anticipated for 2015.	

Since the 2008 Annex to the NHMP was adopted, the Town of Stratford has implemented a number of recommendations. Improvements to the storm drainage system were made in the Main Street/Stratford Center viaduct and Massarik Avenue/Benton Street locations. The King Street culvert (to Main Street) has been upgraded to increase hydraulic capacity. The State of Connecticut's Department of Transportation has begun a project to elevate Route 113 in the Sikorsky airport vicinity. The Everbridge electronic notification system was implemented to replace the Citywatch Reverse 911 system. In addition to the recommendations from the 2008 Annex, some manhole covers have been waterproofed and a backup generator has been secured for the Stratford Housing Authority offices and community center.

The table below lists and prioritizes actions that can be implemented throughout the region.

**LEGEND - IMPLEMENTATION MATRIX - STRATFORD**

Hazard Type			
C = Coastal flooding	C/I = Coastal and Inland Flooding	W = Wind	SR = Sea Level Rise
I = Inland Flooding		A = All Hazards	
Existing/New			
E = Existing	N = New		
Responsible Department			
EMD = Emergency Management Department		PW = Public Works	
ENG = Engineering		PV = Private	
BI = Building & Inspection			
Cost			
MI = Minimum: staff time or volunteer time	L = Low: less than \$10,000	MO = Moderate: between \$10,000 and \$100,000	H = High: \$100,000
Funding Source			
OB = Operating Budget	CI = Capital Improvement Plan	PV = Private	* = Grants
Planning Mechanism			
A = Administrative	B = Budgetary	R = Regulatory	

Table 5.13  
IMPLEMENTATION MATRIX - STRATFORD

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Integrate Low Impact Development techniques in the land use process, as well as in the new zoning regulations for the Transit Centered Development District in the vicinity of the Town Center.	A	N	ENG/PW/CON	Revise the Zoning Regulations to require all development with stormwater management plans to include Low Impact Development strategies	2014-2019	MO	CI	R	12	-5	7
Flood audits on Masarik Avenue & Benton Street: after the permitting process has been completed, begin cleaning a downstream channel from Benton Street to Hathaway Drive.	C	E	ENG/CON	The Town has applied for permits from CT DEEP to clean the channel. After permitting is complete, the Town will work with private property owners to a.) determine the cost that will be borne by private owner vs public agency, b.) determine the source of private / public funding, c.) obtain easements or agreements to conduct the work on private property. Following successful resolution of these items, the Town will bid the project and oversee construction to implement the project.	2014-2019	H	CI	B	9	-4	5
Adopt ordinances that call for reductions in stormwater runoff in new developments	C/I	E	ENG/CON	The Town is in the process of developing an ordinance that deals specifically with the reduction of stormwater runoff from new developments. Currently, the Planning and Zoning Agency and Inland Wetland Agency address the issue of stormwater runoff associated with new development through the existing land use regulations.	2014-2019	MO	CI	R	8	-6	2
Evaluate ways to use the Stratford High School ball fields to increase protection of the Downtown.	I	N	ENG/CON	The Town is currently working on completing the Tanners Brook improvements downstream of this project. Once completed, the Town will evaluate the costs and impacts of this potential project. If approved and funded, the Town will apply for permits necessary to implement the project. After permitting is complete the Town will bid the project and oversee construction to implement the project.	2014-2019	HI	CI	B	4	-3	1
Develop a contingency plan and notification process to ensure buses are relocated prior to flooding events.	A	N	FD/PW	The Town will directly engage the Board of Education and their contractor Durham Buses to work out an agreement regarding the evacuation of the school buses from the flood zone prior to severe storm events. This can be accomplished through a Memorandum of Understanding between the Town of Stratford, BOE, and Durham Buses.	2014-2019	MI	OP	A	11	0	11
Elevate structures in the Lordship area to meet or exceed FEMA requirements for Base Flood Elevation	C	E	PZ/BD	This process has already been established in the existing Building Code and Land Use Regulations. Residents are required to meet/exceed the FEMA requirements when they are issued new building permits for new construction.	2014-2019	MI	Federal	B	11	0	11

Table 5.13  
IMPLEMENTATION MATRIX - STRATFORD

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Reassess existing and future risks to the South End and employment growth area identified in Stratford Plan of Conservation and Development. The Plan should consider all costs of redeveloping land in vulnerable areas and consider less vulnerable areas; evaluate existing buildings and ensure new buildings are higher than up elevated existing one; identify building codes that would reduce flood risk in at-risk locations.	A	N	PZ	The Town is currently applying from a CDBG-DR grant to do a planning study on Town infrastructure development and Coastal Resiliency. The plan will outline recommended enhancements including this Mitigation Measure.	2014-2019	MO	CI	R	15	-6	9
Flood proof structures in the Lordship area where appropriate.	C	E	BD/ENG	The Town is currently applying from a CDBG-DR grant to do a planning study on Town infrastructure development and Coastal Resiliency. The plan will outline recommended enhancements including this Mitigation Measure.	2014-2019	MO	CI	B	9	0	9
Flood proof structures and construct drainage improvements in the Town Center, as well as encourage Low Impact Development techniques to mitigate flooding in this area.	C/I	E	ENG/PZ	The Town is currently applying for a CDBG-DR grant to do a planning study on Town infrastructure development. The plan will outline recommended enhancements including flood proofing recommendations. Also the town plans to revise the Zoning Regulations to require all development with stormwater management plans to include Low Impact Development strategies	2014-2019	H	CI	B	16	-7	9
Relocate private contractor's equipment in flood zones to secure flood proofed location prior to events; Surf Avenue, Barnum Avenue, Bowe Avenue, Greenfield Avenue, Albright Avenue.	C	N	ED/BD	Establish inland area suitable to relocate equipment. Use GIS to locat an area outside flood zones	2014-2019	MI	OB	A	8	0	8
Consider acquiring properties that have experienced repetitive loss from storms and flooding and maintain a list of properties with owner interest for future acquisition, and as NRCS funding becomes available.	C/I	N	PZ/ENG/CON	The Town is currently applying from a CDBG-DR grant to do a planning study on Town infrastructure development and Coastal Resiliency. The plan will outline recommended enhancements including this Mitigation Measure.	2014-2019	H	Federal	B	6	-6	0

Table 5.13  
IMPLEMENTATION MATRIX - STRATFORD

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Proceed with roadway reconstruction on the Lordship Boulevard/ State Route 113. The Connecticut Department of Transportation has initiated a project to elevate Route 113 in the vicinity of Sikorsky Airport.	C	E	All Departments	This project has been bid and will begin construction in the summer of 2014 and will be completed by the end of 2015.	2014-2019	MI	Federal	B	21	0	21
Continue to clean catch basins on a regular basis.	I	E	PW	The Town has a routine catch basin maintenance program that operates on a daily basis. The Town annually cleans and maintains approximately 1,000-catch basins. Work orders are entered into the system document the maintenance program.	2014-2019	MO	OB	A	19	0	19
Address recurring flooding on Surf Avenue at the I-95 overpass.	C	N	ENG/PW	The Town is reviewing a proposal to begin the study phase of the culvert replacement project, which will include an evaluation of alternatives of mitigating tidal flooding at this location. Once an acceptable alternative is found, and funding is approved, the town will proceed to a design and permitting phase.	2014-2019	H	CI	B	18	-1	17
Complete the design phase and initiate construction to replace multiple culverts and channels at Barnum Avenue between Sage Avenue and Bowe Avenue to alleviate flooding of Barnum Avenue and West Avenue.	I	E	ENG	This project will be completed in phases. Phase 1A and 1B are under preliminary design. Some Right of Way has been obtained with additional ROW in the works. Permitting will be the next step in this design. Phase 2 is proceeding with further study.	2014-2019	H	CI	B	18	-1	17
Maintain the project to replace and enlarge the structured channel conveying Tanners Brook from Broadbridge Avenue and along the New Haven rail line to King St.	I	N	ENG/CON	This project is in the permitting phase. CT DEEP permits and a FEMA CLOMR application have been applied for. When approved, the Town will proceed with the balance of funding requests and to bid the project. Following bid and fully funding the project, a contract will be awarded and the Town will oversee construction to fully implement the project.	2014-2019	H	CI	B	17	-1	16
Develop a maintenance protocol with the US EPA to address flood mitigation strategies at the Raymark (Superfund) site. Work with the Raymark waste site at Ferry Creek and Lockwood Avenue to ensure planting and stabilization of land to prevent mobilization during events.	A	N	ENG/CON	The Town is currently in discussion with the EPA to address the issue regarding the issues of Raymark waste at the Ferry Creek and Lockwood Avenue Site. The Town is not able to take any action on this item without EPA. The EPA is currently working to properly cap and close the property at Lockwood Avenue which should prevent future erosion.	2014-2019	L	OB	A	18	-2	16
Assess feasibility of elevating Main Street - from 5 1/2' to 7'.	C	N	ENG	This project has been bid and will begin construction in the summer of 2014 and will be completed by the end of 2015.	2014-2019	H	CI	B	16	-1	15



Table 5.13  
IMPLEMENTATION MATRIX - STRATFORD

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Coordinate a full scale survey of Short Beach with the Army Corp of Engineers so that it may meet FEMA's definition of an engineered beach.	C	N	ENG/CON	This project has been awarded to a consultant is underway. The project should be completed by the end of 2014.	2014-2019	MO	CI	B	14	0	14
Increase protection around the wastewater treatment plant by raising the existing flood control berm.	C	N	ENG/PW	The Town is currently applying from a CDBG-DR grant to do a planning study on Town infrastructure development and Coastal Resiliency. The plan will outline recommended enhancements including this Mitigation Measure.	2014-2019	H	CI	B	15	-1	14
In the South End neighborhood, evaluate installing twin 6' X 8' box culvert with regulating tide gate to allow tidal flushing while preventing tidal flooding up to elevation 9' on Lordship Boulevard.	C/I	N	ENG	The Town is currently applying from a CDBG-DR grant to do a planning study on Town infrastructure development and Coastal Resiliency. The plan will outline recommended enhancements including this Mitigation Measure.	2014-2019	H	CI	B	13	0	13
Work with the local utility to harden utilities (bury lines); maintain contractor on call list; tree trimming and maintenance efforts; secure funding for tree removal.	W	N	ENG/PW	The Town is in discussions with the local electrical distribution company (UI) regarding the Enhance Tree Trimming (ETT) program that has been approved by the State of Connecticut and PURA. Future line maintenance clearing projects will be coordinated with the Town and local utility. The Town has also been funding the ongoing removal of trees through the Town operating budget and capital maintenance plan.	2014-2019	H	CI	A	16	-3	13
Continue with the project to increase the width of the channelized stream downstream of Broadbridge Ave. to reduce flooding at a condominium parking lot. The replacement and enlargement of the structured channel and natural channel that conveys Tanners Brook from Broadbridge Avenue South to King Street has been designed and is in the permitting phase. Funds have been allocated for construction.	I	E	ENG/CON	This project is in the permitting phase. CT DEEP permits and a FEMA CLOMR application have been applied for. When approved, the Town will proceed with the balance of funding requests and to bid the project. Following bid and fully funding the project, a contract will be awarded and the Town will oversee construction to fully implement the project.	2014-2019	H	CI	B	15	-3	12
Complete the bridge project to elevate Broad Street over Ferry Creek.	C	N	ENG	This project is under preliminary design. The Town is currently proceeding with further study based on FEMA revisions to the Base Flood Elevation. Permitting and funding will be the next step in this design. Once completed, the town will bid and oversee construction to fully implement the project.	2014-2019	H	CI	B	15	-3	12

Table 5.13  
IMPLEMENTATION MATRIX - STRATFORD

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Increase the capacity of the wastewater treatment system by reducing inflows, such as with flood proof manhole covers.	C/I	N	ENG/PW	The Town is currently assessing its operations. Upon completion of the assessment, the Town would conduct a study to determine the areas where I/I can be reduced. In addition, the Town is currently applying from a CDBG-DR grant to do a planning study on Town infrastructure and Coastal Resiliency, which will evaluate manholes and other infrastructure that needs to be protected during coastal flooding.	2014-2019	H	CI	B	11	0	11
Complete the design phase for a 36" relief pipe to Long Brook and proceed to construction.	I	E	ENG	This project is currently being designed and will proceed to local permitting in the near future. The project should be implemented and constructed in less than two years.	2014-2019	H	CI	B	12	-1	11
Complete the bridge project to elevate Broad Street over Ferry Creek.	C	E	ENG/CON	This project is currently being concept and design phase. EPA and CTDEEP are being consulted regarding the impact to Raymark waste based on future construction. The project is moving forward with the likely completion within the next 5 years.	2014-2019	H	CI	B	14	-3	11
Complete the West Broad railroad viaduct road and drainage improvements project. Assess the feasibility of other locations in need (Bruce Avenue, King Street, East Main). Utilize green infrastructure to reduce drainage "upstream" from viaducts (catchment basins, swales, stormwater gardens, etc...).	I	N	ENG	The Town is currently in the process of engaging an engineer to design the West Broad St project. Following design and ROW phases, the project will be bid and constructed. In addition, the town is in the process of soliciting a proposal to study the Bruce Ave RR viaduct flooding and making recommendations. Once completed, the Town would seek funding for the improvements. King St RR viaduct culvert has previously been completed.	2014-2019	H	CI	B	12	-1	11
Consider a quantitative study to determine which manhole covers within the existing or new flood zones to waterproof to prevent inundation of flood waters into the sanitary sewer system, and secure funding for this project.	C/I	N	PW/ENG	The Town is currently applying from a CDBG-DR grant to do a planning study on Town infrastructure development and Coastal Resiliency. The plan will outline recommended enhancements including this Mitigation Measure.	2014-2019	H	CI	B	10	0	10
Respond to future needs as appropriate at Oronoque Village.	A	E	All Departments	The Health Department has reached out to Oronoque residents providing them with emergency preparedness information. In addition, staff have provided on-site instructions on how to enroll in the Stratford Electronic Notification System so they can be sure to receive timely emergency notifications.	2014-2019	MI	CI/OB	A	10	0	10
Flood proof critical buildings south of Stratford Avenue: raise equipment and generators, install projectile proof windows (municipal buildings, private residents, community buildings).	C	N	PW	The Town is currently applying from a CDBG-DR grant to do a planning study on Town infrastructure development and Coastal Resiliency. The plan will outline recommended enhancements including this Mitigation Measure.	2014-2019	H	CI	B	10	-1	9

Table 5.13  
IMPLEMENTATION MATRIX - STRATFORD

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Complete the replacement of storm water culverts under Old Spring Road with new box culverts.	I	E	ENG/CON	This project is under preliminary design. Permitting and funding will be the next step in this design. Once completed, the town will bid and oversee construction to fully implement the project.	2014-2019	H	CI	B	10	-1	9
The Town has selected a consultant to design a 7X3 culvert as part of West Broad St roadway improvements. This will alleviate flooding at the West Broad St RR underpass at Tanner's Brook.	I	E	ENG	Design of this project will begin the summer of 2014. During the design phase ROW issues will be identified and resolved. Once completed, the Town will bid the project and oversee the construction fully implement the project.	2014-2019	H	CI	B	10	-1	9
Proceed with increasing the size of the culvert at Reed St. to 500' of 12' X 4' box culvert.	I	E	ENG/CON	The town had started property acquisition procedures, but was unsuccessful. This project is currently on hold.	2014-2019	H	CI	B	10	-1	9
An assessment of drainage system components through specific areas of Oronoque Village is underway. Continue to monitor improvements to drainage system completed by Association in 2004.	I	E	ENG	This project is under preliminary design. ROW issues are currently being resolved and then a geotechnical evaluation will be undertaken. Once completed, the town will bid and oversee construction to fully implement the project.	2014-2019	H	CI	B	10	-1	9
Consider replacing the storm water culverts under Quail Street with new box culverts. Due to the status of an adjacent Superfund site, the Town has been unable to proceed with this project.	I	E	ENG/CON	The Town is currently working with the EPA regarding the replacement of this culvert pipe. The project will be permitted on the local level and EPA is working on verifying the exact location of the waste so that there is no disturbance and any risk to the public is eliminated.	2014-2019	H	CI	B	15	-7	8
Conduct an investigation to examine the implications of various flooding scenarios on the wastewater treatment plant and identify appropriate and feasible responses, such as raising the berm.	C	N	ENG/PW	The Town is currently applying from a CDBG-DR grant to do a planning study on Town infrastructure development and Coastal Resiliency. The plan will outline recommended enhancements including this Mitigation Measure.	2014-2019	H	CI	B	11	-4	7
Assess approaches to maintain the functionality of the Birdseye boat docks and ramp under flooded conditions to ensure continued use during disasters.	C	N	PW/PD	Hire consultant to do assesment and propose ideas to maintain functionality during events	2014-2019	MI	OB	A	7	0	7
Structural flood proofing on Massarik Avenue/Benton Street.	C	E	ENG/PW	The Town is currently applying from a CDBG-DR grant to do a planning study on Town infrastructure development and Coastal Resiliency. The plan will outline recommended enhancements including this Mitigation Measure.	2014-2019	H	CI	B	8	-1	7

Table 5.13  
IMPLEMENTATION MATRIX - STRATFORD

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Evaluate a flood control structure at Stratford High School ball field on King St. to create 2.5 MG of flood storage for 1% storm event	I	E	ENG	The Town is currently working on completing the Tanners Brook improvements downstream of this project. Once completed, the Town will evaluate the costs and impacts of this potential project. If approved and funded, the Town will apply for permits necessary to implement the project. After permitting is complete the Town will bid the project and oversee construction to implement the project.	2014-2019	H	CI	B	10	-3	7
Consider bank erosion protection east of Diane Terrace.	C	E	ENG/CON	The Town will prioritize this project and schedule the design, permitting and construction in the order of prioritized capital improvements	2014-2019	H	CI	B	7	0	7
Maintain the Beaver and Brewster dam studies (inspection reports conducted by the State of Connecticut) and continue to identify mitigation actions to reduce loss. Assess current condition and impacts of catastrophic failure for all dams. Access previous inundation contingency plans for the Beaver Dam, Brewster Pond Dam, Pecks Mill Pond Dam, Cooks Pond Dam.	I	N	ENG/CON	The Town has recently updated its emergency operations plan for Brewster Pond. The Town will request the DEEP to ensure that the Beaver Dam plan is maintained by the Owners Association. The Town is in the process of reviewing the status of the Cooks Pond Dam. Following review appropriate recommendations will be made.	2014-2019	MO	CI	B	9	-3	6
Consider integrating the animal shelter into improvements at the wastewater treatment plant, such as by extending the protective berm around the shelter.	C	N	ENG/PW	The Town is currently applying from a CDBG-DR grant to do a planning study on Town infrastructure development and Coastal Resiliency. The plan will outline recommended enhancements including this Mitigation Measure.	2014-2019	MO	CI	B	6	0	6
Strengthen and extend the Lordship Beach seawall.	C	N	ENG/PW	The Town is currently applying from a CDBG-DR grant to do a planning study on Town infrastructure development and Coastal Resiliency. The plan will outline recommended enhancements including this Mitigation Measure.	2014-2019	H	CI	B	9	-4	5
Assess and scope the feasibility of hardening facilities associated with 2 pump stations; assess impact of temporary loss of multiple pump stations; consider alternative sites for relocation of vulnerable stations longer term	C	N	ENG/PW	The Town is currently applying from a CDBG-DR grant to do a planning study on Town infrastructure development and Coastal Resiliency. The plan will outline recommended enhancements including this Mitigation Measure.	2014-2019	MO	CI	B	10	-7	3

Table 5.13  
IMPLEMENTATION MATRIX - STRATFORD

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Protect and maintain Long Beach as an effective barrier beach.	A	N	CON	The Town has taken several steps to improve the resiliency of Long Beach West including the removal invasive vegetation and the planting of new beach grass. The property is currently under a Conservation Restriction so that no future building can occur on the beach. The Town will continue to maintain Long Beach West as a natural and effective barrier beach.	2014-2019	MI	CI	B	18	0	18
Implement a routine tree maintenance and inspection program and remove hazardous trees and branches.	W	N	PW	The Town operates a daily tree maintenance and trimming program that is operated through the Department Public Works under the supervision of the Tree Warden. This program is funded through the annual operating budget. This is an on-going problem. Work is documented through a work order system.	2014-2019	H	CI/OB	A	20	-4	16
Protect and maintain Short Beach, including replenishing the beach (engineered beach) after a major event. Coordinate with federal agencies to conduct a cost/benefit analysis for Short Beach replenishment over time.	C	N	ENG/CON	The Town is currently having a study conducted in order to operate and maintain the beach as a "engineered beach" in relation to FEMA DAP 9580.8. The Town has annual documented maintenance plan for the beach.	2014-2019	L	CI	B	15	0	15
Assess the impacts on Long Beach/Pleasure Beach and adjoining National Wildlife refuge and built structures (roads, commercial/industrial, residential, airport) from breach of barrier island during future extreme weather events; cost/benefit analysis of beach restoration/replenishment over time.	A	N	ENG/CON	The Town is in the process of securing funding to conduct a Coastal Resiliency Study for all flood prone areas in the Town. The Town intends to address this issue during the future study.	2014-2019	MO	CI	B	14	-1	13
Renourish and replenish beaches and regenerate dunes after major events.	C	N	ENG/PW/CON	The Town annually provides beach nourishment of Short Beach above the high tide line.	2014-2019	H	CI/OB	B	14	-2	12
Secure funding for and initiate the urban forest canopy study (an application for funding through an America the Beautiful grant was submitted in November 2013)	W	N	CON	The Town secured the appropriate funding to complete this project in January 2014. This project is currently in the implementation stage and should be finished by October 2014.	2014-2019	L	CI	A	13	-2	11
Assess the impacts of hazards on natural areas: Roosevelt Forest, Booth Memorial Park, Far Mill River, Wooster Park; identify ways to enhance defensive/protective features for additional flood protection longer-term.	A	N	ENG/PW/CON	The Town is in the process of securing funding to conduct a Coastal Resiliency Study for all flood prone areas in the Town. The Town intends to address this issue during the future study.	2014-2019	MO	CI	B	13	-2	11

Table 5.13  
IMPLEMENTATION MATRIX - STRATFORD

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Work with private land owners to understand the importance and benefits of maintaining and leaving vegetation in place to stabilize riverbanks	A	N	ENG/PW/CON	The Town is in the process of developing an educational program that teaches residents and businesses about the importance of maintaining an adequate vegetative buffer to maintain stream channels and prevent erosion based on flooding. The program aims to educate the public through flyers and discussions at public events.	2014-2019	MO	CI	B	12	-1	11
Consider a "Living Shoreline Plan" for the Stratford coastline.	C	N	ENG/CON/PZ/PW	The Town is in the process of securing funding to conduct a Coastal Resiliency Study for all flood prone areas in the Town. The Town intends to address this issue during the future study.	2014-2019	MO	CI	B	14	-4	10
At Russian Beach, assess the ongoing and longer-term impacts from hazards towards developing a sustainable course of action.	C	N	ENG/CON	The Town is in the process of securing funding to conduct a Coastal Resiliency Study for all flood prone areas in the Town. The Town intends to address this issue during the future study.	2014-2019	H	CI	B	14	-4	10
Work with local utilities to develop a replanting plan and maintenance plan for trees consistent with recommended arboriculture practices and that is supportive of the "right tree, right place" policy	W	N	PW	The Town is currently in discussions with the local utility regarding the Enhance Tree Trimming (ETT) program that was approved by the State of Connecticut and PURA. Any line clearance work completed in Town will also require that the utility provide a planting program to replace tree that are removed. The Town is currently in the process of implementing a tree ordinance that will require the "Right Tree, Right Place" arboriculture practices.	2014-2019	L	OB	A	13	-4	9
Highlight the Living Shoreline project on Stratford Point.	C	N	CON	The Town of Stratford Conservation Commission has been updated on the "Living Shoreline Project" and will educate the public with assistant from the Connecticut Audubon as needed.	2014-2019	MI	OB	A	14	-1	13
Utilize GIS for the purposes of notification, evacuation and awareness of the location of floodplains and mitigation projects.	A	N	ENG/H/PW	The Engineering and Public Works Departments will utilize GIS to assist Health and other departments of areas that are at greatest risk. This information will be used in targeting areas for pre-event messaging, emergency preparation planning, ..	2014-2019	MI	OB	A	12	-1	11
Focus public education on safety tips and reminders to individuals about how to prepare for cold weather, heat waves and severe weather events.	A	N	FD/PI/H	The Health Department and Public Safety Agencies will supply information on their websites to inform and educate the public about preparation for severe weather. Many of these programs have already been developed.	2014-2019	MI	OB	A	8	-1	7
Businesses in the Main Enterprise and Lordship Boulevard areas need to find solutions to minimize impact to facilities and improve business continuity after major events; additional generators needed.	A	N	ED/H	As members of the Local Emergency Planning Committee, individuals need to prioritize business communication and discuss possible grants for generators	2014-2019	MI	OB	A	10	-3	7

Table 5.13  
**IMPLEMENTATION MATRIX - STRATFORD**

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Implement outreach programs to educate citizens regarding Ordinances, Insurance, and other flood relevant issues.	A	E	PZ/ENG/ PW/H	The Town will develop an outreach program with educational materials to inform the public about issues relating to storms and flooding. The public will be informed at local community events including Stratford Day and the Farmers Market	2014-2019	L	OB	A	7	-1	6
Encourage restaurants throughout town to acquire and install backup generators to increase food preparation and ice availability.	A	N	FD/PPD/H	Educational information will be provided on the Town website detailing the programs available to help residents install backup generators.	2014-2019	MI	OB	A	8	-2	6
Use signage and public information to make the public aware of evacuation routes and available shelters, especially those individuals living within hurricane storm surge evacuation zones.	C	N	PD/PW/H	All evacuation routes in the flood prone areas are currently marked and in some cases are being upgraded. The Town will continue to upgrade signage in accordance with the evacuation plans.	2014-2019	MO	CI	B	8	-3	5
Continue use of QAlert (online) system for complaint tracking to maintain a database of calls received by the Town.	A	E	PW	The Town continues to maintain and utilize the Qalert to process and prioritize work orders that are entered by the general public.	2014-2019	MI	OB	A	5	-4	1
Continue to implement and operate the Stratford Electronic Notification System to alert residents and businesses in the case of impending storms and floods.	A	E	H	The Stratford Health, Fire, Police, and Public Works Departments continue to use the Everbridge Reverse 911 system during specific emergency events. This will continue in the future and will be based on the different types of emergencies.	2014-2019	MI	OB	A	15	0	15
Use of GIS to document evacuation plans.	A	N	FD/PPD	The Stratford Fire Department, Police Department, and Emergency Management Director will work with directly with the GBRC to update the evacuation plans for the Town of Stratford and will make the update evacuation routes available on the new Regional GIS system. The evacuation routes will be made available to the public on the Town's website.	2014-2019	MI	OB	A	15	-2	13
Improve coordination with utilities in response to disasters and increase "make safe" crews.	A	N	PW/IFD	The Town is currently working with the utility to improve communications during storm events. UI has a set policy for administrating the use of "Make Safe" Crews. The Town is currently working with UI to streamline and improve this process.	2014-2019	MI	OB	A	13	0	13
Provide adequate back-up power to Bunnell High School, Birdseye Municipal Complex, Flood Middle School, Stratford Housing Authority units and the Baldwin Senior Center.	A	N	PW	The Town is currently working on securing the proper funding to install an emergency generator at Bunnell High School. Stratford Housing Authority recently had a generator installed. Generators will be installed at other sites as additional funding is available.	2014-2019	H	CI	B	15	-3	12

Table 5.13  
IMPLEMENTATION MATRIX - STRATFORD

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Update evacuation plans to factor lack of access to transportation routes during peak events (CAT-3). Integrate into notification of voluntary and mandatory evacuation orders.	A	N	FD/PD/H/PW	Fire, Police and Health will coordinate to utilize the Stratford Electronic Notification System in a planned series of pre-event notifications warning people about the dangers of waiting too long to evacuate. For those not heeding voluntary or mandatory, the local National Guard unit may be called in to evacuate in the areas of highest risk.	2014-2019	L	OB	A	14	-3	11
Prioritize use of evacuation sites/warming centers for storm events.	A	N	FD/PD/H/PW	The Stratford Fire Department, Police Department, and Emergency Management Director will update the 2010 Emergency Operation Plan in order to prioritize the list of the Shelters in Town based on need and disaster type event.	2014-2019	L	OB	A	14	-3	11
Keep access to Birdseye Municipal Complex open as it is a critical sheltering facility, and	A	N	ENG/PW	DPW to prioritize access to the complex during response and recovery efforts.	2014-2019	MO	CI	B	11	0	11
Make Police Station more resilient during events	A	N	PD/PW	Relocate technical equipment to upper floors; raise parking area; reevaluate communication tower (s) design to withstand high winds.	2014-2019	H	CI	B	8	0	8
Clearly define roles of the Community Emergency Response Teams (CERT) to minimize response functions of emergency services.	A	N	FD/PD/H	The CERT team has been trained to provide support in sheltering and mass care activities. The Emergency Operation Plan has been updated to delineate their function.	2014-2019	MI	OB	A	9	-2	7
Address gas stations without generators by securing support and funding to provide generators to enable gas pumping.	A		H/ED	The Stratford Health Department and Emergency Management Director will conduct a survey of existin gas stations to see current capacity for generators. If interest is high and collaboration secured, the assistance of the grant writer will be enlisted to see if there are grants for such activity.	2014-2019	MI	OB	A	7	0	7
Work with the Stratford Housing Authority to develop evacuation plans.	A	N	PD/H	The Stratford Fire Department, Police Department, and Emergency Management Director will work with the Stratford Housing Authority to directly develop and implement detailed evacuation plans that will become part of the Town's Emergency Operation Plan. The plan was last updated in 2010.	2014-2019	MI	OB	A	8	-2	6
Improve warning of residents that may be isolated by downed trees during an extreme weather event.	A	N	PW/H	The Town is currently working on implementing the Everbridge system to notify residents regarding power outages related to downed and isolated trees. Enhancements to the system allow geographically targetted messaging.	2014-2019	L	CI	A	7	-3	4



### Town of Trumbull

Table 5.14  
**STRATEGIC ACTIONS - TRUMBULL**  
*from the 2006 Regional Natural Hazard Mitigation Plan*

Hazard Type	Description	2006 Status	2014 Status	Result
I	Continue catch basin maintenance.	2006	Completed: the Town purchased a new VAC-HAL truck to clean catch basins and pipe runs, currently purchasing GIS application to monitor CB & Pipe cleaning and replacement activities.	Met targeted result: GIS application was purchased and we are tracking the locations of catch basin and pipe cleanings.
I	Complete storm sewer projects in the drainage basin.  Manor Drive / Pequonnock River	2007-2012	Completed: approx. 200 catch basins and approx. 5000 lineal feet of pipe were replaced between 2010-2013.	Met targeted result: Storm water is flowing at a better flow rate in those areas.
I	Consider elevating homes.  Pequonnock River at Route 127	2007-2012	Deferred: time constraints have not allowed Town to have an update for this item.	
I	Regrade the floodplain at the bend in the river to improve conveyance.	2007-2020	Deferred: the Town budgeted funds to prepare preliminary plans to repair Brock Street bridge and stream slopes in the area.	
<b>Manor Drive / Pequonnock River</b>				
I	Increase warning / notification of residents when flood events are expected.	2007-2012	Completed: the Town purchased a reverse 911 system; The Town also placed Flood plain area on GIS Website for residents to observe; First Selectman signed letter of intent to join the Community Rating System.	Not enough time to determine result: Is difficult to determine if we met the targeted goal. Not enough storms to determine if reverse 911 calls are effective. And, FEMA is currently reviewing our CRS program application.

The Town of Trumbull implemented many of the 2006 NHMP recommendations into Town Policy. Various recommendations relating to private development were implemented through Planning and Zoning Regulations, Plan of Conservation and Development, and revisions to the Stormwater Management Policy. We are also utilizing the latest FEMA FIRM maps. Various recommendations relating to Town Projects would be implemented as part of the Town Wide Capital Plan Budget Process. Various recommendations relating to Resident notifications were implemented with our online GIS web site system.

The table below lists and prioritizes actions that can be implemented throughout the region.

**LEGEND - IMPLEMENTATION MATRIX - TRUMBULL**

Hazard Type			
C = Coastal flooding	C/I = Coastal and Inland Flooding	W = Wind	SR = Sea Level Rise
I = Inland Flooding		A = All Hazards	
Existing/New			
E = Existing	N = New		
Responsible Department			
P&Z = Planning and Zoning Department		OEM = Office of Emergency Management	
PW = Public Works Department. The Engineering Dept is a division of the Public Works Department.		WPCA = Water Pollution Control Authority	
Cost			
MI = Minimum: staff time or volunteer time	L = Low: less than \$10,000	MO = Moderate: between \$10,000 and \$100,000	H = High: \$100,000
Funding Source			
OB = Operating Budget	CI = Capital Improvement Plan	PV = Private	* = Grants
Planning Mechanism			
A = Administrative	B = Budgetary	R = Regulatory	

Table 5.15  
**IMPLEMENTATION MATRIX - TRUMBULL**

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Participate in FEMA's Community Rating System (CRS) program.	AH	N	PW	Submit letter of interest to join CSR program. Meet with FEMA. Track items to obtain the necessary credits.	2014-2019	MO	OB	A	14	-4	10
Improve the tree management plan.	W	N	PW	Coordinate with Tree Warden and Utility Companies to establish a better line of communications during storm events. And evaluate existing trees along major electric transmission lines.	2014-2019	L	OB	A	14	-4	10
Conduct a comprehensive assessment and study of all drainage easements in the Town to assess condition, map locations, prioritize and develop action plans for maintaining and upgrading as needed.	I	N	WPCA/PW	Hire consultant to evaluate existing swales	2014-2019	H	CI	B	12	-3	9
Modify regulations to provide incentives and/or credits for installation of green infrastructure for the on-site retention and control of storm water runoff.	I	N	P&Z/PW	Modify existing storm water management plan for proposed development plans.	2014-2019	L	OB	R	10	-1	9

Table 5.15  
IMPLEMENTATION MATRIX - TRUMBULL

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Conduct a tree inventory and canopy assessment in Trumbull and identify locations for planting of trees. An application for an America the Beautiful grant to fund an urban tree canopy for the Greater Bridgeport Region has been submitted.	W	N	PW	Coordinate with Tree Warden and Conservation Commission	2013-2019	L	OB*	A	11	-2	9
Conduct a drainage study at critical locations known to flood, including White Plains Road and Route 127 at the Town Center.	I	N	PW	Hire consultant to conduct drainage studies.	2014-2019	H	CI*	B	10	-3	7
Conduct hydrologic studies of water conveyance and obstacles for water courses throughout the Town, including Horse Tavern Brook, Island Brook and Booth Hill Brook, as well as in floodplains and at culverts and crossings.	I	N	PW	Hire consultant to conduct drainage studies.	2014-2019	H	CI*	B	10	-3	7
Utilize GIS to assess and identify the locations and extent of exposure from flooding for all structures within the SFHA.	I	N	PW	Coordinate with available lists to evaluate repetitive loss properties.	2014-2019	L	OB	A	7	-1	6
Review the Town's storm water management policy for green infrastructure projects.	I	N	PW	Evaluate and revise drainage regulations	2014-2019	MI	OB	A	6	0	6
Assess the flood storage capacity of existing open space as part of an upcoming inventory.	I	N	PW	Hire consultant to conduct drainage studies.	2014-2019	L	CI	B	7	-1	6
Conduct a flood drainage study across the Long Hill drainage corridor.	I	N	PW	Hire consultant to conduct drainage studies.	2014-2019	H	CI	B	8	-3	5
Review flood risks in areas north and west of the Route 25 and Route 111 intersection	I	N	PW	Hire consultant to conduct drainage studies.	2014-2019	MO	CI	B	5		5
Update Town drainage regulations for new development and redevelopment projects.	I	N	PW	Evaluate and revise drainage regulations	2014-2019	MO	CI	R	8	-4	4
Improve drainage maintenance of vegetated swales	I	N	PW	Evaluate existing swales, prioritize maintenance requirements	2014-2019	MO	OB	A	6	-2	4
Property Protection				Hire consultant to conduct drainage studies. Evaluate potential open space land.							
Consider elevating repetitive loss structures, structures in the floodplain, homes along the Pequonnock River and homes on Manor Drive and Larkspur Lane.	I	E	Citizen	Hire consultant to conduct drainage studies. Evaluate potential open space land and/or land purchase.	2013-2019	MO	PV*	B	10	-2	8
Determine base flood elevations for homes located in high flood hazard areas, including along Manor Drive and the Twin Brooks Park neighborhoods (Larkspur/Seneca).	I	N	PW	Provide 100 year flood plain locations on our GIS Website for residents	2014-2019	L	CI	B	7	-1	6
Evaluate potential locations in the Island Brook Park/Island Brook area and Melrose (south of Island Brook) for detention and pursue property acquisition as needed.	I	E	PW	Hire consultant to conduct drainage studies. Evaluate potential open space land.	2013-2019	MO	CI*	B	7	-5	2

Table 5.15  
IMPLEMENTATION MATRIX - TRUMBULL

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Acquire repetitive loss properties.	I	N	PW	Evaluate available lists to determine existing repetitive loss properties	2014-2019	MO	CI*	B	6	-6	0
Upgrade snow removal and response equipment where needed.	W	N	PW	Continues evaluation of vehicle inventory and replace as part of Budgetary process	2014-2019	MO	CI*	B	11	-2	9
Implement the proposed floodplain management plan at Horse Tavern Brook, including the proposed detention ponds and basins.	I	E	PW	Hire consultant to conduct drainage studies.	2013-2019	H	CI*	B	10	-3	7
Continue catch basin maintenance in the Pequonnock River watershed, along Pequonnock River tributaries and Pinewood Lake.	I	E	PW	As part of purchase of VAC truck and GIS application, continually clean and maintain structures.	2013-2019	L	OB	A	8	-1	7
Continue to maintain critical culverts and remove debris, especially in advance of storms.	I	N	PW	As part of purchase of VAC truck and GIS application, continually clean and maintain structures.	2013-2019	L	OB	A	8	-1	7
Flood-proof exposed pump stations in low-lying, floodprone areas	I	N	WPCA	Issue an RFP to evaluate all pump stations to provide a master plan for improvements	2014-2019	H	CI*	B	10	-3	7
Continue to inspect and maintain existing dams in the Horse Tavern Brook area.	I	E	PW	Communicate to Property owners to continually inspect their dams.	2013-2019	L	OB	A	7	-1	6
Coordinate with the State to improve flood water conveyance at the culvert on Route 15.	I	N	PW/ CT DOT	Coordinate with State DOT to evaluate existing culvert crossing.	2014-2019	H	CI*	B	9	-3	6
Continue to inspect and maintain existing dams and reexamine the safety and condition of Class A and B dams, including Canoe Brook Lake.	I	N	PW/ private	Communicate to Property owners to continually inspect their dams.	2013-2019	MO	CI/ PV	B	8	-2	6
Install back-up generation at sewage pump stations through the Town.	A	N	WPCA	Implement the purchase of portable back-up generator through Capital Budget plan	2014-2019	H	CI*	B	8	-3	5
Improve management of and conduct controlled drainage of Pinewood Lake prior to storm events to maximize retention capacity.	I	E	PW/ Private	Evaluate report to determine feasibility of lowering water level of the lake.	2013-2019	H	CI/ PV	B	8	-3	5
Complete storm sewer projects in the Pequonnock River and Pinewood Lake drainage basin.	I	E	PW/ WPCA	Evaluate existing infrastructure and prioritize repairs	2013-2019	H	CI*	B	8	-3	5
Replace existing culverts conveying the Pequonnock River at Daniels Farm Road, in the Twin Brooks area and at the Merritt Parkway with higher capacity structures.	I	N	PW	Coordinate with State DOT to evaluate existing culvert crossing.	2014-2019	H	CI*	B	8	-3	5
Install green infrastructure, including bioswales, rain gardens, vegetative roofs and use of permeable pavement, to retain storm water runoff and promote infiltration.	I	N	PW	Implement green infrastructure in parks and modify drainage regulations for development improvements.	2014-2019	MO	CI*	B	7	-2	5

Section 5: Implementation

Table 5.15  
IMPLEMENTATION MATRIX - TRUMBULL

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Continue to ensure the culvert maintenance plan is updated and implemented, particularly in advance of a major rain event and specifically in the Twin Brooks area.	I	N	PW	As part of purchase of VAC truck and GIS application, continually clean and maintain structures.	2014-2019	MO	OB	A	6	-2	4
Regrade the floodplain at the bend in the Pequonnock River at Route 127 to improve conveyance.	I	E	PW	Impement this task as part of the repair for Bridge at Brock Street.	2013-2019	MO	CI*	B	6	-2	4
Assess the condition of existing dams in Town, including at Canoe Brook Lake and Pinewood Lake, and install new drainage valves and other control devices necessary to draw down water levels in advance of approaching storms and limit the potential hazards to downstream properties.	I	N	PW/private	Communicate to Property owners to continually inspect their dams.	2014-2019	H	CI/ PV	B	6	-3	3
Address road flooding by replacing high capacity flood control/conveyance structures at Twin Brooks and Trumbull Center.	I	N	PW	As part of continous infrastructure anaylisis, rate and prioritize drainage improvements.	2014-2019	H	CI*	B	6	-3	3
Implement various strategies included in the Pequonnock River Initiative Watershed Management Plan, including increasing buffers, installing green infrastructure (rain gardens, bio-swales, storm water planters), and repairing stream channels.	I	N	PW	Evaluate and revise drainage regulations	2014-2019	MO	CI*	B	11	-2	9
Implement a tree trimming and maintenance program, coordinated with utility company, to remove diseased and hazardous trees and branches; and increase homeowner awareness and public outreach regarding the need to properly maintain trees.	W	N	PW/Utility	Coordinate with Tree Warden and Utility Companies to establish a better line of communications during storm events. And evaluate existing trees along major electric transmission lines.	2014-2019	MO	OB	A	12	-5	7
Acquire land in flood prone and hazard areas for open space.	I	N	PW	Evaluate available lists to determine repetitive loss properties to potentially convert to open space.	2014-2019	MO	CI*	B	9	-4	5
Expand awareness of the benefits and opportunities of green infrastructure and pervious pavement.	I	N	P&Z/ PW	Provide information on our GIS web-page.	2014-2019	MI	OB	A	13	0	13
Improve tree management through outreach and public education.	W	N	P&Z/ PW	Provide information on our GIS web-page.	2014-2019	MI	OB	A	15	-2	13
Expand outreach to residents on the importance of wetlands and drainage swales for risk reduction from flooding. Look to increase the protection of additional floodplains.	I	N	P&Z/PW	Provide information on our GIS web-page.	2014-2019	MI	OB	A	12	0	12

Table 5.15  
IMPLEMENTATION MATRIX - TRUMBULL

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Expand outreach efforts regarding how to prepare for extreme weather and what to do in the event of a natural disaster, including enhancing the Town's website, preparing pamphlets to be available at Town Hall and the Trumbull Library and enhancing hazard-related mapping.	A	N	OEM	Working with DEHMS to get information which gets notified through Team Trumbull system, which then gets added to website. Public information officer (PIO) goes to radio station and newspaper to spread awareness through mass media. Also trying to work with local radio stations such as the one in Monroe to use as emergency broadcast system	2014-2019	MI	OB	A	10	0	10
Improve access to information on services for at-risk populations during disasters.	A	N	OEM	Done via website and PIO system. Made suggestion to combine special needs homes to double up on staff prior to emergencies.	2014-2019	MI	OB	A	10	0	10
Continue to update websites with information and maps to aid in preparedness and mitigation	A	N	OEM	Work through PIO with mass media notification	2014-2019	L	OB	A	8	-1	7
Increase warning and notification of anticipated flood events to residents, especially those who live along the Pequonock River and in the Manor Drive area.	I	E	OEM	Work with engineers to understand when flooding is likely to occur and use CT Alert system to warn residents	2013-2019	MI	OB	A	7	0	7
Improve the Town's make safe plan for downed power lines and power outages. Improve communication and cooperation with local utilities.	A	N	OEM/PW	Road clearing most important 10' by 16' tall. UI with people in field to open roadways. Now beginning to use VIOCHI to monitor road clearing and share with UI war room	2014-2019	MI	OB	A	15	0	15
Continue to revisit top 10 list of first power restoration sites and periodically critical locations in the Town Center for immediate power restoration.	A	N	OEM/PW	Done on an annual basis with Department heads and UI. Generators are acquired when money available for these locations as well. (Stern Village for example). These areas get priority for UI restoration.	2013-2019	MI	OB	A	14	0	14
Wire the Trumbull Library to serve as a recharging location for personal electronic devices.	A	N	PW/ Library	Implement the installation of a transfer switch to attach a generator for the community room.	2014-2019	L	CI*	B	12	-1	11
Improve access to and availability of information on services during an emergency.	A	N	OEM	Get notification from DEHMI to Team Trumbull, which then gets added to website. Public information officer goes to radio station and newspaper.	2014-2019	MI	OB	A	10	0	10
Continue to operate CT ALERT system	A	N	OEM	Keep using CT Alert	2013-2019	L	OB	A	10	-1	9

Table 5.15  
**IMPLEMENTATION MATRIX - TRUMBULL**

Description	Hazard Type	Existing/New	Responsible Department	Process for Implementation	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefit Subtotal	Cost Subtotal	Total Score
Improve coordination and communications during an extreme weather event.	A	N	OEM/ PW	Implement Viochi, Team Trumbull system and use of PIO	2014- 2019	L	OB	A	10	-1	9
Continue to examine longer-term needs for power continuity and generator placement	A	N	OEM/PW	Public works has plan which prioritises areas where generators are need when available funding becomes available.	2013-2019	MI	CI*	B	9	0	9
Review workforce availability and increase disaster training as needed to ensure adequate and trained workforce for facilities during emergencies.	A	N	OEM/PW	In the process of bringing on shelter to house workers and family. Continual disaster training for "Make Safe" operations. Other evergency scenario trainings also take place	2013-2019	MI	OB	A	10	-1	9
Secure and install back-up generation equipment at critical and priority facilities, especially for adequate back-up power at Trumbull High School.	A	N	OEM/ PW	Working with Public Works list to aquire generators. High school is now in progress of adding them.	2014- 2019	H	CI*	B	11	-2	9
Secure support and funding to provide generators at gas stations to enable gas pumping.	A	N	"OEM/PW/ private"	Economic devlopment from state of CT has recommended generators for two large capacity gas stations per municipality . Gas stations 24 hours	2014-2019	MO	CI*	B	11	-2	9
Annual review of Region 1 Memorandum of Understanding and work to improve communications with the SHMO.	A	N	OEM/PW	Have them in place to share people and equipment when needed. Title 28 activation (state of emergency by state of CT which shifts ability to share resources between Regions)	2013-2019	MI	OB	A	8	0	8
Continue to explore opportunities to improve communications and coordination with the EMS Department.	A	N	OEM	Work about to commence on special renovation with intent for central communicationf for all emergency services.	2013- 2019	L	OB	A	8	-1	7
Evaluate the need for emergency access into and from the Trumbull Corporate Park and the Westfield/Trumbull Shopping Mall and construct access roads as deemed necessary.	A	N	"OEM/ PW/ private"	Coordinate with property owners and State	2014- 2019	MO	CI*	B	8	-2	6

## 5.6 Technical & Financial Resources

This section is comprised of a list of resources that may potentially provide technical and financial assistance for completion of the actions as described in the NHMP. This list is not inclusive of all resources and should be updated periodically.

### Federal Resources

Federal Emergency Management Agency (Region I)  
99 High Street, 6th floor, Boston, MA 02110  
(617) 956-7506 <http://www.fema.gov/>

FEMA provides funding for mitigation activities through several programs. Each Greater Bridgeport Region municipality is eligible to apply for funding through the State of Connecticut as a subgrantee. The State of Connecticut (as well as online resources) can provide application development and project eligibility assistance.

Federal Insurance and Mitigation Administration (FIMA): FIMA is comprised of three divisions that administer FEMA's hazard mitigation programs. The Risk Analysis Division applies engineering and planning practices in conjunction with advanced technology tools to identify hazards, assess vulnerabilities, and develop strategies to manage the risks associated with natural hazards. The Risk Reduction Division works to reduce risk to life and property through the use of land use controls, building practices, and other tools. These activities address risk in both the existing built environment and in future development, and they occur in both pre- and post-disaster environments. The Risk Insurance Division helps reduce flood losses by providing affordable flood insurance for property owners and by encouraging communities to adopt and enforce floodplain management regulations that mitigate the effects of flooding on new and improved structures.

FEMA programs administered by the **Risk Analysis Division** include:

**Flood Map Modernization:** maintains and updates NFIP maps.

**National Dam Safety Program:** provides state assistance funds, research, and training in dam safety procedures.

**National Hurricane Program:** conducts and supports projects and activities that help protect communities from hurricane hazards.

**Multi-Hazard Mitigation Planning (HMGP):** a process for states and communities to identify policies, activities, and tools that can reduce or eliminate long-term risk to life and property from a hazard event.

FEMA programs administered by the **Risk Reduction Division** include:

**Hazard Mitigation Grant Program (HMGP):** provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration.

**Flood Mitigation Assistance Program (FMA):** provides funds to assist states and communities to implement measures that reduce or eliminate the long-term risk of flood damage to structures insurable under the National Flood Insurance Program (NFIP).

**Pre-Disaster Mitigation Grant Program (PDM):** provides program funds for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event.

**Community Rating System (CRS):** a voluntary incentive program under the NFIP that recognizes and encourages community floodplain management activities.

**National Earthquake Hazards Reduction Program (NEHRP):** in conjunction with state and regional organizations supports state and local programs designed to protect citizens from earthquake hazards.

The **Risk Insurance Division** oversees the National Flood Insurance Program (NFIP), which enables property owners in participating communities to purchase flood insurance. The NFIP assists communities in complying with the requirements of the program and publishes flood hazard maps and flood insurance studies to determine areas of risk.

**The Office of Response & Recovery:** As part of the National Disaster Recovery Framework, the Office of Response & Recovery provides information on dollar amounts of past disaster assistance including Public Assistance, Individual Assistance, and Temporary Housing. Information on retrofitting and



acquisition/relocation initiatives is maintained by the division. The Office also provides mobile emergency response support to disaster areas, supports the National Disaster Medical System, and provides urban search and rescue teams for disaster victims in confined spaces.

Federal disaster assistance programs are coordinated by this Office.

This includes the **Public Assistance Grant Program (PA)**, which provides 75% grants for mitigation projects to protect eligible damaged public and private nonprofit facilities from future damage. "Minimization" grants at 100% are available through the **Individuals and Family Grant Program**. The **Hazard Mitigation Grant Program** and the **Fire Management Assistance Grant Program** are also administered by this division.

**FY 2013 Emergency Management Performance Grants (EMPG) Program:** As appropriated by the Department of Homeland Security Appropriations Act, 2013 (Public Law 113-6); the Fiscal Year (FY) 2013 Emergency Management Performance Grants (EMPG) Program provides resources to assist state, local, tribal, and territorial governments in preparing for all hazards, as authorized by the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5121 et seq.). The FY 2013 EMPG Program plays an important role in the implementation of the National Preparedness System (NPS) by supporting the building, sustainment, and delivery of core capabilities essential to achieving the National Preparedness Goal (NPG) of a secure and resilient Nation. Delivering core capabilities requires the combined effort of the whole community, rather than the exclusive effort of any single organization or level of government. The FY 2013 EMPG's allowable costs support efforts to build and sustain core capabilities across the prevention, protection, mitigation, response, and recovery mission areas.

Title VI of the Stafford Act authorizes FEMA to make grants for the purpose of providing a system of emergency preparedness for the protection of life and property in the United States from hazards, and to vest responsibility for emergency preparedness jointly in the Federal government and the states and their political subdivisions. The Federal government, through the EMPG Program, provides necessary direction, coordination, guidance, and necessary

assistance, as authorized in this title so that a comprehensive emergency preparedness system exists for all hazards.

Small Business Administration (Region I)  
10 Causeway Street, Suite 812  
Boston, MA 02222-1093  
(617) 565-8416 <http://www.sba.gov/>

The Small Business Administration has the authority to "declare" disaster areas following disasters that affect a significant number of homes and businesses but that would not need additional assistance through FEMA (SBA assistance is triggered by a FEMA declaration, however.) SBA can provide additional low-interest funds (up to 20% above what an eligible applicant would "normally" qualify for) to install mitigation measures. They can also loan the cost of bringing a damaged property up to state or local code requirements. These loans can be used in combination with the new "mitigation insurance" under the NFIP or in lieu of that coverage.

Environmental Protection Agency - Region I  
1 Congress Street, Suite 1100  
Boston, MA 02114-2023  
(888) 372-7341

Grants for restoration and repair and educational activities, including:

**Capitalization Grants for State Revolving Funds:** Low interest loans to governments to repair, replace, or relocate wastewater treatment plants damaged in floods. The grants do not apply to drinking water or other utilities.

**Clean Water Act Section 319 Grants:** Cost-share grants to state agencies that can be used for funding watershed resource restoration activities, including wetlands and other aquatic habitat (riparian zones). Only those activities that control non-point pollution are eligible. Grants are administered through the CT DEEP, Bureau of Water Management, Planning and Standards Division.

U.S. Department of Housing and Urban Development  
20 Church Street, 19th Floor  
Hartford, CT 06103-3220  
(860) 240-4800  
<http://www.hud.gov/>

The U.S. Department of Housing and Urban Development offers Community Development

Block Grants (CDBG) to communities with populations greater than 50,000, who may contact HUD directly regarding CDBG. One program objective is to improve housing conditions for low and moderate income families. Projects can include acquiring flood prone homes or protecting them from flood damage. Funding is a 100% grant and can be used as a source of local matching funds for other funding programs such as FEMA's "404" Hazard Mitigation Grant Program. Funds can also be applied toward "blighted" conditions, which is often the post-flood condition. A separate set of funds exists for conditions that create an "imminent threat." The funds have been used in the past to replace (and redesign) bridges where flood damage eliminates police and fire access to the other side of the waterway. Funds are also available for smaller municipalities through the state-administered CDBG program participated in by the State of Connecticut.

U.S. Army Corps of Engineers  
**New England District**  
696 Virginia Road  
Concord, MA 01742-2751  
(978) 318-8520

The Corps provides 100% funding for floodplain management planning and technical assistance to states and local governments under several flood control acts and the Floodplain Management Services Program (FPMS).

U.S. Department of Commerce  
National Weather Service  
Northeast River Forecast Center  
445 Myles Standish Blvd.  
Taunton, MA 02780  
(508) 824-5116  
<http://www.nws.noaa.gov/>

The National Weather Service provides weather, water, and climate data, forecasts and warnings for the protection of life and property and the enhancement of the national economy.

U.S. Department of the Interior

**National Park Service**  
Steve Golden, Program Leader  
Rivers, Trails, & Conservation Assistance  
15 State Street  
Boston, MA 02109  
(617) 223-5123  
<http://www.nps.gov/rtca/>

The National Park Service provides communities with technical assistance to conserve rivers, preserve open space, and develop trails and greenways and assists with the identification of nonstructural options for floodplain development.

**U.S. Fish and Wildlife Service**  
New England Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301-5087  
(603) 223-2541  
<http://www.fws.gov/>

The U.S. Fish and Wildlife Service provides technical and financial assistance to restore wetlands and riparian habitats through the North American Wetland Conservation and Partners for Fish and Wildlife programs.

**U.S. Department of Agriculture**  
Natural Resources Conservation Service (formerly SCS)  
Connecticut State Office  
344 Merrow Road, Suite A  
Tolland, CT 06084-3917  
(860) 871-4011

The Natural Resources Conservation Service works cooperatively with landowners, conservation districts, federal, state, and local governments, and citizens from urban and rural communities to restore and enhance the landscape. NRCS soil conservationists, soil scientists, agronomists, ecologists, engineers, planners, and other specialists promote land stewardship by providing technical assistance through teams to address surface and groundwater quality; wetlands, riparian areas, and biodiversity; aquatic and terrestrial habitat; and impacts of land use changes.

## State Resources

Connecticut Department of Economic and Community Development (DEEP)  
505 Hudson Street  
Hartford, CT 06106-7106  
(860) 270-8000  
<http://www.ct.gov/ecd/>

The Connecticut Department of Economic and Community Development administers HUD's State CDBG Program, awards smaller communities and rural areas grants for use in revitalizing neighborhoods, expands affordable housing and economic opportunities and improves community facilities and services.

Connecticut Department of Energy & Environmental Protection  
79 Elm Street  
Hartford, CT 06106-5127  
(860) 424-3000  
<http://www.dep.state.ct.us/>

The Connecticut DEEP provides technical assistance to subapplicants for planning efforts and hazard mitigation assistance projects. The department includes several divisions with various functions related to hazard mitigation:

**Bureau of Water Protection and Land Reuse, Inland Water Resources Division:** This division is generally responsible for flood hazard mitigation in Connecticut, including administration of the National Flood Insurance Program.

**National Flood Insurance Program State Coordinator:** Provides flood insurance and floodplain management technical assistance, floodplain management ordinance review, substantial damage/improvement requirements, community assistance visit, and other general flood hazard mitigation planning including the delineation of floodways.

**State Hazard Mitigation Officer** (shared role with the Department of Emergency Services and Public Protection/Emergency Management and Homeland Security): The State Hazard Mitigation Officer (SHMO) is responsible for hazard mitigation planning and policy, oversight of administration of the Hazard Mitigation Grant Program, Flood Mitigation Assistance Program, and Pre-Disaster Mitigation Program. The Officer also has the responsibility of making certain that the State Natural Hazard Mitigation Plan is updated every three years.

**Flood & Erosion Control Board Program:** Provides assistance to municipalities with active Flood and Erosion Control Boards to solve flooding, beach erosion, and dam repair problems. The program has the power to construct and repair flood and erosion management systems. Certain nonstructural measures that mitigate flood damages are also eligible. Funding is provided to communities that apply for assistance through a Flood & Erosion Control Board on a noncompetitive basis.

**Inland Wetlands and Watercourses Management Program:** Provides training, technical, and planning assistance to local Inland Wetlands Commissions and reviews and approves municipal regula-

tions for localities. Also controls flood management and natural disaster mitigation.

**Dam Safety Program:** Charged with the responsibility for administration and enforcement of Connecticut's dam safety laws. The program regulates the operation and maintenance of dams in the state. Permits the construction, repair, or alteration of dams, dikes, or similar structures and maintains a registration database of all known dams statewide. This program also operates a statewide inspection program.

**Clean Water Fund:** Funding and grants under the Clean Water Act involving sewage treatment plant construction and upgrades, combined sewer overflow remediation, nutrient removal and non-point source pollution control projects that protect Long Island Sound, collection system improvements, water pollution control and river restoration.

**Bureau of Water Management Planning and Standards Division:** administers the Section 319 nonpoint source pollution reduction grants and municipal facilities program, which deals with mitigating pollution from wastewater treatment plants.

**Office of Long Island Sound Programs (OLISP):** Administers the Coastal Area Management (CAM) Act program and Long Island Sound License Plate Program.

Department of Emergency Services and Public Protection  
25 Sigourney Street, 6th Floor  
Hartford, CT 06106-5042  
(860) 256-0800  
<http://www.ct.gov/demhs/>

The Department of Emergency Services and Public Protection houses the Division of Emergency Management and Homeland Security (DEMHS). DEMHS includes emergency preparedness, response and recovery, mitigation and an extensive training program. DESPP/DEMHS is the state point of contact for most FEMA grant and assistance programs.

Connecticut Department of Administrative Services  
1111 Country Club Road  
Middletown, CT 06457  
(860) 685-8190  
<http://www.ct.gov/das/>

**Office of the State Building Inspector:** The Office of the State Building Inspector is housed under the Division of Construction Services. The Office is responsible for administering and enforcing the Connecticut State Building Code and is also responsible for the municipal Building Inspector Training Program.

Connecticut Department of Transportation  
2800 Berlin Turnpike  
Newington, CT 06131-7546  
(860) 594-2000  
<http://www.ct.gov/dot/>

The Department of Transportation (CT DOT) administers the federal surface transportation bill, Moving Ahead for Progress in the 21st Century Act (MAP 21). MAP-21 includes grants for projects that promote alternative or improved methods of transportation. Funding through grants can often be used for projects with mitigation benefits such as preservation of open space in the form of bicycling and walking trails. CT DOT is also involved in traffic improvements and bridge repairs that could be mitigation related.

### Private and Other Resources

Association of State Dam Safety Officials (ASDSO)  
450 Old Vine Street  
Lexington, KY 40507  
(859) 257-5140  
<http://www.damsafety.org>

ASDSO is a nonprofit organization of state and federal dam safety regulators, dam owners/operators, dam designers, manufacturers/suppliers, academia, contractors and others interested in dam safety. Their mission is to advance and improve the safety of dams by supporting the dam safety community and state dam safety programs, raising awareness, facilitating cooperation, providing a forum for the exchange of information, representing dam safety interests before governments, providing outreach programs, and creating a unified community of dam safety advocates.

The Association of State Floodplain Managers (ASFPM)  
2809 Fish Hatchery Road, Suite 204  
Madison, WI 53713  
(608) 274-0123  
<http://www.floods.org/>

ASFPM is a professional association of state employees with a membership of over 1,000 that assists communities with the NFIP. ASFPM has developed a series of technical and topical research papers and a series of proceedings from their annual conferences. Many “mitigation success stories” have been documented through these resources and provide a good starting point for planning.

Insurance Institute for Business & Home Safety (IBHS)  
4775 East Fowler Avenue  
Tampa, FL 33617  
(813) 286-3400  
<http://www.ibhs.org/>

IBHS conducts objective, scientific research to identify and promote effective actions that strengthen homes, businesses, and communities against natural disasters and other causes of loss. The institute advocates the development and implementation of building codes and standards nationwide and may be a good source of model code language.

**Multidisciplinary Center for Earthquake Engineering and Research (MCEER)**  
University at Buffalo  
State University of New York  
Red Jacket Quadrangle  
Buffalo, NY 14261  
(716) 645-3391  
<http://mceer.buffalo.edu/>

Originally a source for earthquake statistics, research, engineering and planning advice, MCEER’s mission has expanded from earthquake engineering to the technical and socio-economic impacts of a variety of hazards, both natural and man-made, on critical infrastructure, facilities, and society.

The National Association of Flood & Storm water Management Agencies (NAFSMA)  
1301 K Street, NW, Suite 800 East  
Washington, DC 20005  
(202) 218-4122  
<http://www.nafsma.org>

NAFSMA is an organization of public agencies whose function is the protection of lives, property and economic activity from the adverse impacts of storm and flood waters. The Association advocates public policy, encourages technologies and conducts education programs which facilitate and enhance the achievement of the public service function of its members.

National Emergency Management Association  
(NEMA)  
P.O. Box 11910  
Lexington, KY 40578  
(859)-244-8000  
<http://www.nemaweb.org/>

NEMA provides national leadership and expertise in comprehensive emergency management, serves as a vital emergency management information and assistance resource and advances continuous improvement in emergency management through strategic partnerships, innovative programs, and collaborative policy positions.

Natural Hazards Center  
University of Colorado at Boulder  
482 UCB  
Boulder, CO 80309-0482  
(303) 492-6818  
<http://www.colorado.edu/hazards/>

The Natural Hazards Center advances and communicates knowledge on hazards mitigation and disaster preparedness, response and recovery. Using an all-hazards and interdisciplinary framework, the Center fosters information sharing and integration of activities among researchers, practitioners, and policy makers from around the world, supports and conducts research and provides educational opportunities for the next generation of hazards scholars and professionals. The Floodplain Management Resource Center is a free library and referral service of the ASFPM for floodplain management publications.



**GBRC**

Greater Bridgeport Regional Council  
Bridgeport • Easton • Fairfield • Monroe • Stratford • Trumbull

**Natural Hazard Mitigation Plan (NHMP) Update:** The primary goal of the NHMP is to reduce the loss of life, personal injury and damage to property, infrastructure and natural, cultural and economic resources from a natural disaster. A .pdf of the NHMP can be accessed via <https://dl.dropboxusercontent.com/u/77305895/GBRC-NHMP-Update-6-9-14.pdf>

*NHMP adoption makes a community eligible for certain mitigation project grants administered and provided by FEMA, including the Superstorm Sandy Hazard Mitigation Grant Program (HMGP) and application to FEMA's Community Rating System.*

**Overview:** The primary natural hazards impacting the City of Bridgeport include coastal flooding from tropical storms and hurricanes and inland flooding from heavy rain events. Inland flooding is worsened by the past channeling and/or burying of water courses. Addressing the impacts of coastal and inland flooding continue to be priorities in the City of Bridgeport, as they were in the 2006 NHMP. Since 2006, NHMP recommendations have expanded to include a diverse and very comprehensive set of strategies to address the impacts caused by a variety of natural hazards.

The City of Bridgeport has placed a priority on proactively addressing rising sea levels and the impacts of climate change. While improvements to and expansion of infrastructure and structural solutions remained as priority actions, as in the 2006 NHMP, green infrastructure, low impact development and comprehensive, region-wide watershed management were also recommended as strategies to mitigate the impacts of natural hazards. A number of strategies to protect/nourish beaches, such as Seaside Park and shorelines neighborhoods were also recommended throughout the update process.

New priorities for infrastructure improvements were also identified as part of the update. While the 2006 NHMP identified specific sewer separation projects, new recommendations are most focused on finding opportunities for a coordinated approach to the overall sewer separation project by a number of city departments. This includes upgrading to a separated sanitary sewer system during road improvement projects. Continuing to secure funding for the various phases of ongoing projects and completing these projects remains a city priority. Integrating low impact development best management practices into these projects is emphasized throughout the update.

A greater emphasis on pre-disaster planning and effective public education is another change in priorities since 2006. Public education, outreach and early warning to residents is crucial to insuring a resilient community. These strategies will ensure that the public has the information to adequately prepare (and recover) in the event of a disaster. Assisting residents of high density public housing, vulnerable populations, the transit dependent and those with special needs before, during and after server weather events is another city priority. The City of Bridgeport will continue to provide universal shelters, which provide facilities for people with special needs and accept pets.

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Hazards caused by severe ice, wind, snow storms and heat have also received greater attention from the stakeholders in the City of Bridgeport. During periods of severe heat, insuring that vulnerable populations are aware of and have access to cooling centers is a crucial task. Developing a plan to address city operations protocols for varying levels of snowfall and securing additional equipment for snow removal are priorities to address events such as Winter Storm Nemo in 2013. Increasing the effectiveness of emergency communications-among city departments and to the public are priority strategies that can be utilized during a variety of natural hazard events.

**Outreach & Community Input:** Throughout the development of the NHMP, the GBRC worked closely with the City of Bridgeport's staff to identify actions and strategies that will reduce vulnerability to natural hazards. A significant number of these actions and strategies address coastal flooding.

The City of Bridgeport, The Nature Conservancy and the Greater Bridgeport Regional Council conducted two workshops on Hazard Mitigation and Resilience on November 16<sup>th</sup>, 2012 and December 6<sup>th</sup>, 2012. These workshops were a key element in the development of the NHMP. The public workshop held on Tuesday, September 23<sup>rd</sup>, 2013 provided additional guidance.

Prior to the workshops stakeholders in the City of Bridgeport were contacted to complete a survey, which served as a means to collect information on recent emergency events. Along with the workshops and surveys, the Conservation Technical Advisory Committee (CTAC), an advisory body to the GBRC made up of representatives from each Greater Bridgeport Region municipality, provided comments and guidance throughout the drafting stage of the plan.

Throughout the public engagement process, the focus of most stakeholders was a continued effort to expand pre-disaster planning, an increase in public education programs and infrastructure related flood control measures. The City of Bridgeport is highly susceptible to Coastal and Inland Flooding. However, extreme summer heat, winter storm travel hazards and power loss from downed trees and ice impact the City as well. Robust planning to assist the vulnerable populations of Bridgeport during a natural hazard event so as to insure their safety is an equally important consideration addressed throughout the plan.

Comment [pc1]: Dates need to be changed... Bridgeport dates are in section 2

Comment [pc2]: Should be modified a bit

**Recommendations from the Natural Hazard Mitigation Plan for the City of Bridgeport include<sup>1</sup>:**

**Prevention:**

- Identify and integrate building code, land use policies and zoning regulation modifications that minimize exposure of existing and future development and critical infrastructure and facilities.
- Consider tapping into new or alternate sources of funding for resilience/hazard mitigation projects.
- Encourage low impact development techniques and green infrastructure for new developments.
- Factor climate change impacts into all critical infrastructure improvement plans (i.e., bridges, bus route realignment, etc.).

<sup>1</sup> The complete list of recommendations, as well as the process of implementing these actions can be found in Table 5.4, pages 5.15 through 5-27 of the Natural Hazard Mitigation Plan.

- Conduct a study to assess and prioritize the highest risk locations across the City.

**Structural:**

- Expand the separation of sanitary and storm drainage sewers. Implement and install green infrastructure and building modifications to improve on-site storm water management, retention and infiltration.
- Continue to protect vital transportation infrastructure working with Greater Bridgeport Transit, local, state and federal agencies as well as providing safe and secure access to and from transit hubs as preparation for any future storm response and/or evacuation.
- Continue the aggressive street sweeping program and cleaning streets prior to forecasted storms to keep storm grates clear and accommodate higher flows.

**Natural Systems Protection:**

- Preserve open space and wetlands in high risk areas.
- Protect and restore natural buffers, natural systems on the watershed and full coastline scales, replant Remington Woods Riparian Zone, Pleasure Beach, inland wetlands, tidal wetlands (East End, Stratford Great Meadows, Harbor areas, Ash Creek).
- Implement the recommendations from the Pequannock River & Rooster River Watershed Plan to improve water quality and alleviate flooding.
- Plan for beach nourishment at Seaside Park.
- Implement Dune Restoration Projects.

**Education & Awareness:**

- Implement outreach programs to educate citizens regarding flood management ordinances, flood insurance programs, and other flood relevant issues, including creditable activities in the CRS program and GIS.
- Increase community awareness and preparedness through education and outreach via the religious community, public libraries and higher education and implement neighborhood specific emergency and communications plans.
- Finalize specific neighborhood plans for emergency management and communications and implement plan provisions. Each plan should be translated into the top five languages spoken in the City of Bridgeport.

**Emergency Services:**

- In high density and public housing developments, address evacuation routes, communication, transportation needs and the age of basement utilities.
- Additional snow removal equipment, such as back hoes and plows are needed for severe winter storms.

**Authority:** The Natural Hazard Mitigation Plan is authorized under the federal Disaster Mitigation Act of 2000 (DMA). Under DMA, communities are required to develop and submit a Natural Hazard Mitigation Plan as a condition of eligibility for certain funding opportunities offered by FEMA, including the Pre-Disaster Mitigation (PDM) Program and post-disaster Hazard Mitigation Grant Program (HMGP).



*EXHIBIT C*  
*110-13*

The City of Bridgeport has demonstrated a commitment to implementing 2006 NHMP recommendations regarding regulations, infrastructure and public education and awareness. A storm water management manual was updated in 2008 and the Public Facilities department has the authority to amend the City's storm water regulations. The State of Connecticut Department of Energy and Environmental Protection completed reconstruction of the Lake Forest dam in 2010. Over 200 seminars on flooding and public safety are provided to residents by the City of Bridgeport every year. A Reverse 911 system and the online BConnected Citizen Services Request system keeps residents informed and engaged.

The table below lists and prioritizes actions that can be implemented throughout the region.

**LEGEND - IMPLEMENTATION MATRIX - BRIDGEPORT**

Hazard Type			
C = Coastal flooding	C/I = Coastal and Inland Flooding	W = Wind	SR = Sea Level Rise
I = Inland Flooding		A = All Hazards	
Status			
IP = Current Action/In Progress	P = Pending		
Existing/New			
E = Existing	N = New		
Responsible Department			
OPED = Office of Planning and Economic Development. The Land Use Construction and Review, Zoning and Building departments fall under OPED. PF = Public Facilities. The Office of Sustainability, the Engineering Department and the Parks and Recreation Department fall under Public Facilities. OS = Office of Sustainability EMHS = Office of Emergency Management & Homeland Security GBT = Greater Bridgeport Transit WPCA = Water Pollution Control Authority HSS = Health & Social Services BHA = Bridgeport Housing Authority NRZ = Neighbornh			
Cost			
L = Low	MI = Minimum	MO = Moderate	H = High
Funding Source			
OB = Operating Budget	CI = Capital Improvement Plan	PV = Private	* = Grants
Planning Mechanism			
A = Administrative	B = Budgetary	R = Regulatory	

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Table 5.4  
IMPLEMENTATION MATRIX - BRIDGEPORT

Description	Hazard Type	Status	Existing/New	Responsible Department	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
<p><b>Prevention</b></p> <p>Consider enrolling and participating in FEMA's Community Rating System (CRS) program. Identify and integrate building codes, land use policies and zoning regulation modifications that minimize exposure of existing buildings, future development and critical infrastructure to natural hazards and extreme weather. The City of Bridgeport has a well developed public engagement program that educates residents about flooding and flood preparation. The Greater Bridgeport Regional Council is preparing a regional GIS, with information about flooding, which is another CRS activity.</p>	C/I	IP	N	PF/GBRC	2014-2019	MO	OB	A	15	-4	11
<p>Adopt stream dumping regulations. Property owners are responsible for clearing any obstructions in streams that run through their property. The City will clear obstructions on non-private property.</p>	C/I	P	E	PF/OPED	2014-2019	L	CI	R	10	-1	9
<p>Identify and integrate building code, land use policies and zoning regulation modification that minimize exposure of existing and future development and critical infrastructure and facilities.</p>	A	P	N	OPED	2014-2019	L	CI	R	9	-1	8
<p>Continue the policy of "Universal" shelters, "Universal" means specific needs and pets are allowed for.</p>	A	IP	N	EMHS	2013-2019	MI	OB	A	8	0	8
<p>Consider tapping into new or alternate sources of funding for resilience/ hazard mitigation projects.</p>	A	IP	N	City Wide	2013-2019	MI	OB	A	8	0	8
<p>Consider adopting standards to require two or more feet of freeboard when developing or redeveloping structures in tidally influenced floodplains. Initiate longer-term opportunity to adapt the City to flooding through new building siting to elevations well above FEMA's 100-year flood zones (i.e., 500-year standard).</p>	C	P	N	OPED	2014-2019	L	OB	R	9	-1	8
<p>Investigate opportunities for floodplain easements on properties. The City has applied for a Natural Resource Conservation Service Easement Grant for areas in Johnson's Creek.</p>	C/I	IP	N	OPED	2013-2019	MI	OB	R	8	-1	7
<p>Encourage low impact development techniques and green infrastructure for new developments.</p>	C/I	IP	N	PF/OPED	2013-2019	L	OB	A	8	-1	7
<p>Secure funding for and initiate an urban forest canopy study. A study was conducted in 2010 but needs to be updated.</p>	W	P	N	PF	2014-2019	L	OB	A	7	-1	6
<p>Factor climate change impacts into all critical infrastructure improvement plans (i.e., bridges, bus route realignment).</p>	SR	P	N	PF, GBT	2014-2019	MO	CI	B	8	-2	6
<p>Continue to implement the comprehensive urban forest management plan. Working directly with the local utility, the City has begun implementing a "right tree, right place" tree replanting strategy, due to the recent decline in large growth trees.</p>	W	IP	N	PF	2013-2019	L	OB	A	8	-2	6
<p>Continue to expand Energy Improvement Districts with policies and codes that promote efficiency and hardening of infrastructure.</p>	A	IP	N	PF	2013-2019	MO	OB	R	8	-2	6

Section 5: Implementation

Table 5.4  
IMPLEMENTATION MATRIX - BRIDGEPORT

Description	Hazard Type	Status	Existing/New	Responsible Department	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Continue to amend the storm water management manual as necessary.	C/I	IP	N	PF	2013-2019	MI	OB	R	6	0	6
Conduct a study to assess and prioritize the highest risk locations across the City.	AH	P	N	EMHS	2014-2019	L	CI	A	7	-1	6
Continue to enforce V-zone requirements in sections of coastal A zones located waterward of waterfront roadways. Applicable ordinances are amended as FIRM maps are revised.	C	IP	E	OPED	2013-2019	L	OB	R	6	-1	5
Pending funding, proceed with the Storm water Authority Feasibility Study. Consider incentives to reduce the amount of impervious surface in the City. Use GIS to assess impervious surface cover.	C/I	P	N	PF	2014-2019	MO	CI	A	6	-2	4
<b>Property Protection</b>											
Encourage property owners to elevate electrical and heating systems above the base flood elevation. Utilizing \$500,000 through a Robin Hood Foundation Grant utilities in Seaside Village are being raised and upgraded.	C/I	IP	N	Citizens	2013-2019	L	CI*, PV*	B	10	-1	9
Continue to flood-proof structures, especially in the Seaview Avenue/Lower East End neighborhoods. Ordinances regarding flood proofing are amended as FIRM maps are revised.	C/I	IP	E	Citizens/BHA	2013-2019	MO	CI*, PV*	B	10	-2	8
Elevate houses as they are renovated or constructed in the Black Rock Area.	C	P	E	Citizens	2013-2019	MO	PV*	B	10	-2	8
Encourage property owners to elevate structures above the base flood elevation.	C/I	IP	N	Citizens	2013-2019	MO	PV*	B	10	-2	8
<b>Structural</b>											
Consider moving sediment to preserve the hydrologic function of Ash Creek.	C/I	P	N	PF	2014-2019	MO	CI*	B	12	-2	10
Expand the separation of sanitary and storm drainage sewers. Implement and install green infrastructure and building modifications to improve on-site storm water management, retention and infiltration.	C/I	P	N	PF/WPCA	2014-2019	H	CI*	B	13	-3	10
During road construction, upgrade to a separated sewer system and improve the drainage and catch basin system.	C/I	P	N	PF/WPCA/CT DOT	2014-2019	H	CI*	B	13	-3	10
Improve ability of drinking water supply reservoirs to accommodate high intensity, short duration rain events.	I	P	N	Aquarion	2014-2019	MO	PV	A	12	-2	10
Continue to utilize low impact development techniques and green infrastructure for new developments and continue to work with the Office of Planning and Economic Development and the WPCA to coordinate development and sewer separation projects.	C/I	IP	N	PF	2013-2019	MO	CI*	B	11	-2	9

Table 5.4  
IMPLEMENTATION MATRIX - BRIDGEPORT

Description	Hazard Type	Status	Existing/New	Responsible Department	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Expand the separation of sewer and surface runoff across more of the City's water/sewer infrastructure (i.e., CSO separation). Continue to improve the communication of Long Term Control Plan (LTCP), CSO master planning document. Continue to map and strategically plan separation projects.	C/I	P	N	PF/ WPCA	2014- 2019	H	CI*	B	12	-3	9
Consider retreat from the Cedar Creek shoreline where vacant properties have little probability of expansive redevelopment. The City is currently considering a conservation easement for a site located at the NE terminus of Brewster Ave.	C	P	E	OPED	2014- 2019	MO	CI*	B	11	-2	9
Address the number of derelict structures in the City.	A	P	N	OPED	2014- 2019	MO	CI*	B	12	-3	9
Continue to protect vital transportation infrastructure working with GBT, local, state and federal Agencies as well as providing safe and secure access to and from transit hubs as preparation for any future storm response and/or evacuation.	A	IP	N	*EMHS/ GBT/ CT DOT	2013- 2019	MO	CI*	B	10	-2	8
Continue to implement the recommendations from the Pleasure Beach Master Plan. Phase I work is in construction. The City is seeking funding for Phase II and hopes to build in more resilience measure into plans.	C	IP	N	PF	2013- 2019	H	CI*	B	11	-3	8
Implement recommendations made by the Seaside Park flood control study.	C	P	N	PF	2014- 2019	H	CI*	B	11	-3	8
Initiate a waterfront recapture program and consider waterfront easements. Proceed with Knowlton Park Phase III.	C	P	N	PF	2014- 2019	H	CI*	B	11	-3	8
Integrate the Complete Streets Policy into the annual paving regiment, to improve drainage as part of road improvement projects.	C/I	P	N	PF/CT DOT	2014- 2019	MO	CI*	B	10	-2	8
Initiate strategically placed green infrastructure and roof leader and other building modification projects to improve on-site stormwater runoff retention and infiltration. Continue working to find physical locations for 'green solutions' called for in the WPCA Long Term Control Plan (LTCP).	C/I	P	N	PF	2014- 2019	H	CI*	B	10	-3	7
Continue using a mix of hard and soft beach protection measures at Seaside Park.	C	P	E	PF	2014- 2019	H	CI*	B	10	-3	7
Continue to clean catch basins annually. The WPCA and Public Facilities department have a yearly catch basin cleaning program.	C/I	P	E	PF/ WPCA	2013- 2019	MO	OB	A	9	-2	7
Continue the aggressive street sweeping program and cleaning streets prior to forecasted storms to keep storm grates clear and accommodate higher flows.	C/I	IP	E	PF/ WPCA	2013- 2019	MO	OB	A	9	-2	7
Continue to frequently clean the racks at Bowe Street.	I	IP	E	PF/ WPCA	2013- 2019	MO	OB	A	9	-2	7
Aggressively maintain culverts and remove debris from channels along Ash Creek/Rooster River.	C/I	P	E	PF	2014- 2019	MO	OB	A	9	-2	7

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Table 5.4  
IMPLEMENTATION MATRIX - BRIDGEPORT

Description	Hazard Type	Status	Existing/New	Responsible Department	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Use signage and large, visible staffs to indicate depths of water so that vehicles can avoid flooded viaducts when necessary.	A	P	E	EMHS	2014-2019	L	CI*	B	8	-1	7
Aggressively maintain culverts and remove debris from channels along Johnson Creek, Pequonnock River, and Yellow Mill.	C/I	P	N	PF	2014-2019	MO	OB	A	9	-2	7
Install an automated flood control gate system to measure flooding at viaducts. This system will insure timely police response to close the viaducts and prevent cars from getting stuck. The City has installed flood depth signage and posts to indicate the depth of water at critical locations to inform motorists to avoid flooded viaducts when necessary and has developed well-marked, color-coded evacuation routes for residents to follow.	C/I	P	N	PF/EMHS	2014-2019	H	CI*	B	9	-3	6
Improve beach protection in the Black Rock Area.	C	P	E	PF	2014-2019	H	CI*	B	9	-3	6
Proceed with creation of a stormwater detention area at the north end of Roger's Park. The design phase of the project has been bonded. The project's scope and fee negotiation for design is anticipated to be complete by the end of 2013.	I	IP	E	PF	2014-2019	H	CI*	B	9	-3	6
Improve drainage when completing roadway projects in the future to address flooded viaducts.	C/I	P	E	PF	2014-2019	MO	CI*	B	8	-2	6
Continue the drainage maintenance program for inspections of private drainage facilities to be maintained and cleaned.	C/I	IP	N	PF	2013-2019	MO	OB	A	9	-3	6
Systematically replace culverts and bridges and upgrade drainage systems.	C/I	P	N	PF/CT DOT	2014-2019	H	CI*	B	9	-3	6
Repair/replace the State Street Ext/Commerce Drive Bridge and upgrade the catch basins and drainage system.	I	P	N	PF	2014-2019	H	CI*	B	9	-3	6
Protect the Cedar Creek bank with bulkheads or other creative hard solutions. The City is currently considering construction of a hurricane barrier (similar to Stamford) to address surge-related flooding in Cedar Creek.	C	P	E	PF	2014-2019	H	CI*	B	8	-3	5
Raise the height of two harbor breakwaters to protect the inner harbor, St. Mary's at Ash Creek and the Fayerweather lighthouse breakwater from the reach of higher waves and to reduce damage from wave action. The City is actively seeking funding for breakwater improvements. Hope to tie into comprehensive resilience barrier: Pleasure Beach pier wave fence, seawall/jetty improvements, Seaside Park berm (see below), Cedar Creek hurricane barrier. This is a potential USACE project.	C	IP	E	PF	2014-2019	H	CI*	B	8	-3	5
Implement physical enhancements of beach protection infrastructure, including breakwaters, groins, and hardscape along Seaside Park, in the Black Rock neighborhood and in the lower East Side, as necessary and appropriate. This project is anticipated to be included in the project above.	C	IP	N	PF	2014-2019	H	CI*	B	8	-3	5
Acquire additional land as needed for the creation of a detention area. The City is in ongoing discussions with property owners regarding land acquisition.	I	IP	E	PF	2014-2019	MO	CI*	B	9	-4	5

Table 5.4  
IMPLEMENTATION MATRIX - BRIDGEPORT

Description	Hazard Type	Status	Existing/New	Responsible Department	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Implement Flood Control Project to divert 400 cfs from Island Brook at Old Town Road to Ox Brook at Roger's Park. This flow is to be diverted back to Island Brook at Fairview Avenue through a large detention basin at Shriver Park. The final phase of the Ox Brook project (above) will address this issue.	I	IP	E	PF	2014-2019	H	CI*	B	8	-3	5
In the Northeast section, continue with the Feasibility/Flood Control Study that takes the downstream constriction at the GE Property into consideration, and implement recommendations as appropriate. The environmental study and preliminary design for this project has been completed.	I	IP	E	PF	2014-2019	H	CI*	B	8	-3	5
Remove existing bridges at Feroletto Steel and Scofield Avenue and replace with new bridge that increases the base height of the structure and minimizes flood impacts.	I	P	E	PF	2014-2019	H	CI*	B	8	-3	5
Build in extra flood storage at Island Brook, Bruce Brook and Rooster River/ Ash Creek..	C/I	P	N	PF	2014-2019	H	CI*	B	8	-3	5
Replace or maintain the culverts along the Ox Brook to adequately handle the flow of water.	I	P	N	PF	2014-2019	H	CI*	B	8	-3	5
Increase, and in some cases introduce, bank protection along the Yellow Mill Channel.	C	P	E	PF	2014-2019	MO	CI*	B	6	-2	4
Consider elevating Waterview Avenue, especially in connection with redevelopment projects.	C	P	E	PF/OPED	2014-2019	H	CI*	B	7	-3	4
Allow Barnum Boulevard to be submerged during storm surge. The City conducted an initial conceptual design of a berm in Seaside Park. The City is currently looking for funding sources, as FEMA did not fund the berm during the 2012 round of grants.	C	IP	E	PF	2014-2019	H	CI*	B	7	-3	4
Consider elevating the road and parking lots in the Cedar Creek area, especially in connection with redevelopment projects.	C	P	E	PF/OPED	2014-2019	H	CI*	B	7	-3	4
Elevate low-lying roads, including the south end of Seaview Avenue, Waterview Avenue, Seabright Avenue and Gilman Street.	C	P	E	PF	2014-2019	H	CI*	B	7	-3	4
Raise the electrical boxes at Seaside Park in areas vulnerable to flooding. Some of this has occurred following Super Storm Sandy.	C	IP	N	PF	2013-2019	MO	CI*	B	6	-2	4
Protect the banks along Cedar Creek and upstream of Black Rock Harbor with construction of a hurricane barrier, bulkheads and other hardscape and elevated streets and parking lots in vicinity of or adjacent to Cedar Creek.	C	P	N	PF	2014-2019	H	CI*	B	7	-3	4
Upgrade the Bridgeport Harbor Seawall and continue the process of researching funding sources.	C	P	N	PF	2014-2019	H	CI*	B	7	-3	4
Upgrade improvements along Ash Creek/Rooster River from 50-year storm to 100-year storm.	C/I	P	E	PF	2014-2019	MO	CI*	B	6	-2	4

Section 5: Implementation

Table 5.4  
IMPLEMENTATION MATRIX - BRIDGEPORT

Description	Hazard Type	Status	Existing/New	Responsible Department	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Encourage the owner of the rail line to raise the grade of the railroad.	I	P	E	MTA/ Metro North RR	2014- 2019	H	CI*	B	7	-3	4
Replace the Charcoal Pond dam (private).	I	P	N	Citizens	2014- 2019	H	CI*	B	7	-3	4
Construct culvert improvements on Barnum Avenue to realign Bruce Brook and soften the bends from Sage Street to Bowe Street.	I	P	E	PF	2014- 2019	H	CI*	B	6	-3	3
Create dike and pumping system for low-lying areas along Ash Creek/ Rooster River.	C/I	P	E	PF	2014- 2019	H	CI*	B	6	-3	3
Continue to monitor the replaced dam at Lake Forest.	I	IP	N	PF/CT DEEP	2013- 2019	MO	CI*	B	5	-2	3
Install a hurricane barrier to connect Black Rock to Seaside Park to minimize storm surge and act as a flood control gate.	C/I	P	N	PF	2014- 2019	H	CI*	B	5	-3	2
Reconstruct New Haven rail line bridges over city streets to prevent flooding.	I	P	N	MTA/ Metro North RR	2014- 2019	H	CI*	B	5	-3	2
<b>Natural Systems Protection</b>									0	0	0
Preserve open space and wetlands in high risk areas.	C/I	IP	N	PF	2013- 2019	MO	CI*	B	11	-3	8
Utilize GIS to map open space, wetlands and ecologically valuable areas.	C/I	IP	N	PF/GBRC	2013- 2019	L	OB	A	7	-1	6
Protect and restore natural buffers, natural systems on the watershed and full coastline scales; replant Remington Woods Riparian Zone, Pleasure Beach, inland wetlands, tidal wetlands (East End, Stratford Great Meadows, Harbor areas, Ash Creek).	C/I	P	N	PF	2014- 2019	MO	CI*	B	14	-2	12
Acquire open space in high risk areas. Identify and seek further conservation through acquisition of marsh "Advancement Zones" and riparian corridor restoration projects throughout the City.	C/I	P	N	OPED	2014- 2019	MO	CI*	B	11	-3	8
Implement the recommendations from the Pequonnock River Watershed Plan to improve water quality and alleviate flooding.	C/I	IP	N	PF/OPED	2013- 2019	H	CI*	B	12	-3	9
Implement the recommendations from the Rooster River Watershed Plan to improve water quality and alleviate flooding.	C/I	P	N	PF/OPED	2014- 2019	H	CI*	B	12	-3	9

Table 5.4  
IMPLEMENTATION MATRIX - BRIDGEPORT

Description	Hazard Type	Status	Existing/New	Responsible Department	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Plan for beach nourishment at Seaside Park.	C	P	E	PF	2014-2019	H	CI*	B	9	-3	6
Implement dune restoration projects.	C	P	N	PF	2014-2019	H	CI*	B	11	-3	8
Promote conservation and management of open spaces and wetlands within sea level rise areas. Restore and protect natural systems in Bridgeport including replanting the Remington Woods riparian zone, Pleasure Beach, along Ash Creek.	C	P	N	PF	2014-2019	MO	CI*	B	12	-2	10
Identify parcels within the marsh advancement zone that could be acquired, including properties along Cedar Creek that have low potential for redevelopment.	C	P	N	PF/OPED	2014-2019	MO	CI*	B	11	-2	9
Introduce land forms to minimize vulnerability to storm surge in the South End community.	C	P	N	PF	2014-2019	H	CI*	B	10	-3	7
Mitigate erosion from flooding at Ash Creek.	C/I	P	N	PF	2014-2019	H	CI*	B	10	-3	7
<b>Education &amp; Awareness</b>									0	0	0
Implement outreach programs to educate citizens regarding flood management ordinances, flood insurance programs, and other flood relevant issues, including creditable activities in the CRS program and GIS.	C/I	IP	N	"EMHS/HSS"	2013-2019	MI	OP	A	12	0	12
Increase community awareness and preparedness through education and outreach via the religious community, public libraries and higher education and implement neighborhood specific emergency and communications plans.	A	IP	N	"EMHS/HSS"	2013-2019	MI	OP	A	11	0	11
Finalize specific neighborhood plans for emergency management and communications and implement plan provisions. Each plan should be translated into the top five languages spoken in the City of Bridgeport. The 2013 Clean Air Cool Planet fellow developed draft versions of Neighborhood Plans for the 3 coastal neighborhoods.	A	IP	N	"PF/EMHS/NRZs"	2013-2019	L	OP	A	11	-1	10
Increase education and communications on response procedures for residents of high density public housing areas, especially those located in the coastal area.	A	IP	N	EMHS/BHA	2013-2019	MI	OP	A	10	0	10
Assess/augment local areas of the public refuge system across the City and ensure residents are aware of uses and procedures during emergencies.	A	P	N	EMHS	2014-2019	L	CI*	B	10	-1	9
Encourage homeowners to purchase flood insurance.	C/I	IP	N	OPED	2013-2019	MI	OP	A	9	0	9
Expand opportunities to collect household hazardous materials to proactively reduce the dispersment of toxic substances from flooded homes and facilities.	C/I	P	N	PF	2014-2019	L	OP	A	10	-1	9
Strengthen existing communication systems with new technology to ensure widespread and rapid alert and continue implementing a Reverse 9-1-1 system to alert residents in the case of impending floods	A	P	N	EMHS	2014-2019	MO	CI*	B	10	-2	8



Section 5: Implementation

Table 5.4  
IMPLEMENTATION MATRIX - BRIDGEPORT

Description	Hazard Type	Status	Existing/New	Responsible Department	Schedule	Cost	Potential Funding Source	Planning Mechanism	Benefits Subtotal	Cost Subtotal	Total Score
Continue to follow the State Debris Management Plans and FEMA Regulations regarding coordinated post-disaster clean-up and contamination remediation efforts.	A	IP	N	EMHS/PF	2013-2019	MO	OP	A	13	-2	11
In high density and public housing developments, address evacuation routes, communication, transportation needs and the age of basement utilities.	A	P	N	EMHS/BHA	2014-2019	L	CI*	B	12	-1	11
Additional snow removal equipment, such as back hoes and plows is needed for severe winter storms, such as Nemo.	W	P	N	EMHS/PF	2014-2019	MO	C/I*	B	12	-2	10
Reassess current capacity and needs of sheltering, cooling and medical network across City as well as adjoining municipalities in the Greater Bridgeport Region. The City has pre-identified mass care shelters, cooling/warming centers, and are discussing a regional approach to mass care sheltering.	A	P	N	EMHS/adj. municipalities	2014-2019	L	CI*	B	10	-1	9
Install a warning siren system in areas vulnerable to inland and coastal flooding to alert residents to evacuate.	C/I	P	N	EMHS/PF	2014-2019	L	CI*	B	10	-1	9
Continue to increase the effectiveness of the current emergency communication system and infrastructure with residents (i.e., communication trees) and commuters. Reassess effectiveness and shortfalls of emergency systems and infrastructure after major events.	A	IP	N	EMHS	2013-2019	L	OP	A	10	-1	9
Implement a system for the GPS tracking of trucks used for snow removal and cleanup.	W	P	N	EMHS/PF	2014-2019	MO	CI*	B	11	-2	9
In coastal and low-lying areas, raise/repair bridges for evacuation routes, viaducts for pumping stations and back up generators.	C	P	N	PF	2014-2019	H	CI*	B	11	-3	8
Upgrade Emergency Operations Center equipment to include a complete camera board for Situational Awareness and display board for public facilities equipment tracking.	A	P	N	EMHS	2014-2019	H	CI*	B	10	-3	7
Update and integrate new technology across multiple platforms within the City, State and Federal storm response activities and provide additional training to staff.	A	P	N	EMHS	2014-2019	H	CI*	B	10	-3	7
Install a camera system to more thoroughly understand storm surge and to enhance evacuation.	C	P	N	EMHS	2014-2019	MO	CI*	B	9	-2	7
Develop an annex to the All Hazards Emergency Operations Plan to specify police, fire and public facilities protocols for varying levels of snowfall. The City conducted a study of management operations following the 2013 Nemo Snowstorm and is working to increase mapping and emergency response protocols.	W	P	N	EMHS	2014-2019	L	CI* & OP	B	8	-1	7

**\*113-13 Consent Calendar**

Grant Submission: United States Department of Justice FY 2014 Edward Byrne Memorial Justice Assistance Grant (JAG) Local Solicitation Program.

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**Report  
of  
Committee  
on**

**Public Safety and Transportation**

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**Submitted: July 7, 2014**

Adopted: \_\_\_\_\_

*Fleeta C Hudson*

Attest: \_\_\_\_\_

City Clerk

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Approved \_\_\_\_\_

\_\_\_\_\_  
Mayor

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# City of Bridgeport, Connecticut

*To the City Council of the City of Bridgeport.*

The Committee on **Public Safety and Transportation** begs leave to report; and recommends for adoption the following resolution:

## **\*113-13 Consent Calendar**

**WHEREAS**, the United States Department of Justice is authorized to extend financial assistance to municipalities in the form of grants; and

**WHEREAS**, this financial assistance has been made possible through the United States Department of Justice FY 2014 Edward Byrne Memorial Justice Assistance Grant (JAG) Local Solicitation Program; and

**WHEREAS**, the financial assistance under this grant will be used to purchase equipment for traffic calming, crime investigation and tactical support; and

**WHEREAS**, it is desirable and in the public interest that the City of Bridgeport, Connecticut, Central Grants Department, submit an application to the United States Department of Justice in an amount not to exceed \$201,830 for the purpose of providing the Police Department with the capabilities to control traffic flow, improve crime investigation and tactical activities; and

### **Now therefore, be it RESOLVED BY THE CITY COUNCIL:**

1. That it is cognizant of the City's grant application and contract to the United States Department of Justice FY 2014 Edward Byrne Memorial Justice Assistance Grant (JAG) Local Solicitation Program to assist the Bridgeport Police Department with the capabilities to control traffic flow, improve crime investigation and tactical activities; and
2. That it hereby authorizes, directs and empowers the mayor or his designee to execute and file such application with the United States Department of Justice FY 2014 Edward Byrne Memorial Justice Assistance Grant (JAG) Local Solicitation Program, and to provide such additional information and to execute such other contracts and documents as maybe necessary under this program.



Report of Committee on Public Safety and Transportation  
\*113-13 Consent Calendar

-2-

Respectfully submitted,  
**THE COMMITTEE ON PUBLIC SAFETY  
AND  
TRANSPORTATION**

\_\_\_\_\_  
Michelle A. Lyons, Co-Chair

\_\_\_\_\_  
Jack O. Banta

\_\_\_\_\_  
Alfredo Castillo

\_\_\_\_\_  
Milita I. Feliciano, Co-Chair

\_\_\_\_\_  
Richard D. Salter, Sr.

\_\_\_\_\_  
Eneida L. Martinez-Walker

\_\_\_\_\_  
Richard M. Paoletto, Jr.

City Council Date: July 7, 2014

**\*115-13 Consent Calendar**

Grant Submission: Agreement with the City of Norwalk  
for the Port Security Grant Program.

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**Report  
of  
Committee  
on  
Public Safety and Transportation**

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**Submitted: July 7, 2014**

Adopted: \_\_\_\_\_

*Fleeta S. Hudson*

Attest: \_\_\_\_\_

City Clerk

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Approved \_\_\_\_\_

Mayor

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# City of Bridgeport, Connecticut

*To the City Council of the City of Bridgeport:*

The Committee on **Public Safety and Transportation** begs leave to report; and recommends for adoption the following resolution:

## **\*115-13 Consent Calendar**

**WHEREAS**, the Federal Emergency Management Agency is authorized to extend financial assistance to municipalities in the form of grants; and

**WHEREAS**, this financial assistance has been made possible through a Port Security Grant by Federal Emergency Management Agency to the City of Norwalk; and

**WHEREAS**, the financial assistance under this grant will be used to cover the backfill payroll costs incurred while 4 marine fire fighters attended training in Norwalk; and

**WHEREAS**, it is desirable and in the public interest that the City of Bridgeport, Connecticut, Central Grants Department, submit an application to the City of Norwalk in an amount not to exceed \$10,393.00 for the purpose of covering the expenses incurred by the Fire Department; and

### **Now therefore, be it RESOLVED BY THE CITY COUNCIL:**

1. That it is cognizant of the City's grant application and sub grant agreement to the City of Norwalk for Port Security Grant Program to assist the Bridgeport Fire Department with the funds to cover backfill payroll expenses; and
2. That it hereby authorizes, directs and empowers the mayor or his designee to execute and file such application with the City of Norwalk for Port Security Grant Program, and to provide such additional information and to execute such other contracts and documents as maybe necessary under this program.




Report of Committee on Public Safety and Transportation  
\*115-13 Consent Calendar

-2-


Respectfully submitted,  
**THE COMMITTEE ON PUBLIC SAFETY  
AND  
TRANSPORTATION**

\_\_\_\_\_  
Michelle A. Lyons, Co-Chair

  
\_\_\_\_\_  
Milta I. Feliciano, Co-Chair

  
\_\_\_\_\_  
Jack O. Banta

  
\_\_\_\_\_  
Richard D. Salter, Sr.

  
\_\_\_\_\_  
Alfredo Castillo

  
\_\_\_\_\_  
Eneida L. Martinez-Walker

  
\_\_\_\_\_  
Richard M. Paoletto, Jr.

City Council Date: July 7, 2014

**\*59-13 (A) Consent Calendar**

Consolidated Plan 2013-2018 PY 40 Annual Action  
Plan: Community Development Block Grant  
Program (CDBG).

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**Report  
of  
Special Committee  
For  
CDBG Program**

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Submitted: July 7, 2014

Adopted: \_\_\_\_\_

*Fleeta C Hudson*

Attest: \_\_\_\_\_

City Clerk

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Approved \_\_\_\_\_

Mayor

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# City of Bridgeport, Connecticut

*To the City Council of the City of Bridgeport:*

The Committee on Special Committee on CDBG Program begs leave to report; and recommends for adoption the following resolution:

**\*59-13 (A) Consent Calendar**

## **PROGRAM YEAR 40 ANNUAL ACTION PLAN**

### **COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAM**

**WHEREAS**, the City of Bridgeport, Connecticut (the "City") is required to prepare and submit to the U.S. Department of Housing & Urban Development ("HUD") an *Annual Action Plan* which presents a vision statement of guidance, "to develop viable urban neighborhoods through the comprehensive funding of programs that have the largest benefit to the City, and aid in the provision of a suitable living environment and expanded economic opportunities principally for low- and moderate-income persons"; and

**WHEREAS**, the City of Bridgeport has developed a proposed *Program Year 40 ("PY40") Annual Action Plan* and anticipates the following allocations of federal funds from the U.S. Department of Housing & Urban Development for FY 2014-2015:

Community Development Block Grant ("CDBG") Program \$2,826,079

**WHEREAS**, six (6) Public Hearings were held, three (3) by the Citizen's Union on February 20, 26 and 27, 2014, and three (3) by the Economic and Community Development and Environment Committee of the City Council on April 2, 3 and 9, 2014, and a Draft Proposed Plan was developed and published for comment on March 17, 2014 and the thirty-day comment period ended on April 17, 2014 and comments were received from the Greater Bridgeport Area Continuum of Care on the Draft Proposed Plan; and

**WHEREAS**, the City Council of the City of Bridgeport accepts the CDBG portion of the *PY40 Annual Action Plan* (as attached) as part of the City's *Five-Year 2013-2018 Consolidated Housing and Community Development Plan* in order for the City to apply for, and receive, funds under the Community Development Block Grant Program; now, therefore be it



Report of Special Committee on CDBG Program  
\*59-13 (A) Consent Calendar

-2-

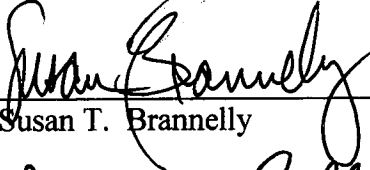
**RESOLVED**, that the Mayor of the City of Bridgeport, and/or the Chief Administrative Officer, and/or the Assistant Chief Administrative Officer, and/or the Acting Deputy Director of the Department of Housing and Community Development, is/are hereby authorized and empowered to sign the required certifications and any necessary documents and/or agreements required by the Secretary of the U.S. Department of Housing and Urban Development to accept and execute the Community Development Block Grant Program and to present same to HUD for approval.

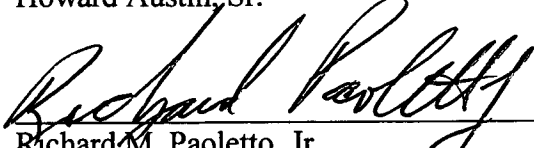
RESPECTFULLY SUBMITTED,  
SPECIAL COMMITTEE ON CDBG PROGRAM

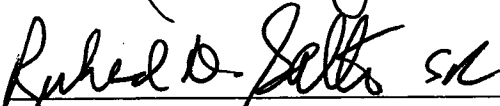
  
\_\_\_\_\_  
Jack O. Banta, Co-Chair

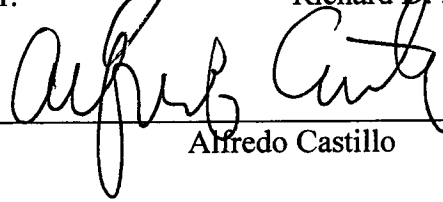
  
\_\_\_\_\_  
Richard DeJesus, Co-Chair

\_\_\_\_\_  
Howard Austin, Sr.

  
\_\_\_\_\_  
Susan T. Brannelly

  
\_\_\_\_\_  
Richard M. Paoletto, Jr.

  
\_\_\_\_\_  
Richard D. Salter, Sr.

  
\_\_\_\_\_  
Alfredo Castillo

PY 40 Funding Requests and Allocations  
CDBG

7/3/2014

Agency Name	PY 40 Request	PY 39 Allocation	Citizen Union Recommendation	Staff Recommendation	City Council Vote
Access Educational: BPT Access NSBE	\$ 10,000.00	\$ -	\$ 6,375.00	\$ 5,000.00	
Barrum Museum: Barrum Museum Education	\$ 83,167.00	\$ -	\$ 11,900.00	\$ 7,251.00	
Bridgeport Area Youth Ministry (BAVM): Youth Program	\$ 15,000.00	\$ 8,282.00	\$ 6,800.00	\$ 5,000.00	
Bridgeport Caribe Youth Leaders: Caribe Youth Leaders	\$ 45,000.00	\$ 21,282.00	\$ 17,000.00	\$ 10,000.00	
Bridgeport Housing Authority (BHA): Marina Village	\$ 20,000.00	\$ 6,282.00	\$ 5,950.00	\$ 5,000.00	
Bridgeport Neighborhood Trust (BNT): Resident Service Program	<del>\$ 20,000.00</del>	\$ -	\$ -	\$ -	
Bridgeport PAL: Youth Development	\$ 25,000.00	\$ 11,282.00	\$ 8,500.00	\$ 7,000.00	
Bridgeport YMCA- South End Community Center: Program	\$ 20,000.00	\$ 4,282.00	\$ 5,000.00	\$ 5,000.00	
Career Resource: Fathers For Life	\$ 15,000.00	\$ -	\$ 8,500.00	\$ -	
Child & Family Guidance: SHRY	\$ 40,000.00	\$ 6,282.00	\$ -	\$ 5,000.00	
Children In Placement: Court Appt Special Advocates	\$ 18,000.00	\$ 6,282.00	\$ 10,200.00	\$ 5,000.00	
CoB: Dept of Aging: Senior Citizen Program	\$ 44,000.00	\$ 30,782.00	\$ 37,400.00	\$ 37,820.00	
CoB: Light House After School Program: Mayor's Conservation Corp	\$ 97,668.00	\$ 106,289.00	\$ 62,050.00	\$ 90,000.00	
CoB: Light House After School Program: Youth Service Bureau (YSB)	\$ 79,090.00	\$ 36,282.00	\$ 39,048.00	\$ 43,500.00	
CoB: Social Services: Art-Blight Support	\$ 20,000.00	\$ -	\$ 17,000.00	\$ -	
CoB: Social Services: Child Care Program: Supplies	\$ 5,000.00	\$ -	\$ 5,000.00	\$ 5,000.00	
CoB: Social Services: East Side Senior Center: PROGRAM	\$ 10,000.00	\$ 5,782.00	\$ 8,500.00	\$ 7,000.00	
CoB: Social Services: East Side Senior Center: RENTAL	\$ 40,000.00	\$ 40,000.00	\$ 40,000.00	\$ 40,000.00	
CoB: Social Services: Furniture Assistance Program	<del>\$ 7,000.00</del>	\$ -	\$ -	\$ -	
CoB: Social Services: Utility Shut-Off Protection	\$ 10,000.00	\$ -	\$ 5,000.00	\$ 5,000.00	
Council of Churches: Computer for Education	\$ 10,000.00	\$ -	\$ -	\$ 5,000.00	
Downtown Cabaret: Cabaret Children's Company	\$ 26,100.00	\$ 6,282.00	\$ 5,950.00	\$ 5,000.00	
Family Services of Woodfield (FSW): Work Skills Training	\$ 15,000.00	\$ 6,282.00	\$ 6,375.00	\$ 15,000.00	
Greater Bridgeport Area Pregnancy Prevention (GBAPP): MI Casa/My Home	\$ 16,793.00	\$ 18,253.00	\$ 8,500.00	\$ 7,000.00	
Greater Bridgeport Community Enterprises: Green Business Hub	\$ 118,750.00	\$ 38,253.00	\$ -	\$ -	
Groundwork Bridgeport: Mayors Conservation Corp	\$ 64,000.00	\$ 106,289.00	\$ 28,900.00	\$ 30,000.00	
Hall Neighborhood House: Ella Jackson Senior Center	\$ 26,282.00	\$ 26,282.00	\$ 22,340.00	\$ 21,341.00	

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**PY 40 Funding Requests and Allocations**  
CDBG

7/3/2014

Agency Name	PY 40 Request	PY 39 Allocation	Citizen Union Recommendation	Staff Recommendation	City Council Vote
Helping Hands: Rental & Utility Assistance	\$ 20,000.00	\$ -	\$ -	\$ -	
Liberation: Drug Treatment Advocates	\$ 20,000.00	\$ -	\$ 5,000.00	\$ 5,000.00	
McGivney: Youth Program	\$ 15,000.00	\$ 6,282.00	\$ 5,100.00	\$ 5,000.00	
Mission of Peace: MOP Foreclosure Prevention	\$ 78,000.00	\$ 15,777.00	\$ 6,375.00	\$ -	
Neighborhood Studios: Conservatory Program	\$ 5,480.00	\$ -	\$ 5,000.00	\$ -	
Neighborhood Studios: Saturday Studios	\$ 7,530.00	\$ 6,282.00	\$ 5,000.00	\$ 5,000.00	
North End Community Council (NECC): NECC Youth & Senior	\$ 20,000.00	\$ -	\$ 17,000.00	\$ 8,000.00	
Raphola Taylor: Youth and Family Resources	\$ 79,000.00	\$ 11,282.00	\$ 8,500.00	\$ 7,000.00	
RYASAP: Block by Block	\$ 25,000.00	\$ -	\$ -	\$ -	
RYASAP: MVO	\$ 30,000.00	\$ 7,282.00	\$ 8,500.00	\$ 5,000.00	
Sickle Cell: Sickle Cell Outreach	\$ 5,000.00	\$ -	\$ 5,000.00	\$ 5,000.00	
Time for a Change: Time for a Change Induction Center	\$ 50,000.00	\$ -	\$ -	\$ -	
UCCONN Cooperative: UCCONN CES 4-H Garden Club	\$ 21,256.00	\$ -	\$ -	\$ -	
UCCONN Cooperative: UCCONN CES 4-H Garden (PF)	\$ 17,550.00	\$ -	\$ -	\$ 5,000.00	
UCCONN Cooperative: UCCONN CES 4-H (Curiale)	\$ 16,515.00	\$ -	\$ 5,100.00	\$ 5,000.00	
VIP: VIP College Prep	\$ 25,000.00	\$ 21,282.00	\$ 8,500.00	\$ 7,000.00	
Way Outreach Ministry: Kingdom Teens Afterschool	\$ 15,500.00	\$ -	\$ -	\$ -	
Young Life Inc: Young Life BPT	\$ 32,559.00	\$ -	\$ -	\$ -	
<b>Public Service Total Requests</b>	<b>\$ 1,384,240.00</b>	<b>\$ 1,272,496.00</b>	<b>\$ 445,363.00</b>	<b>\$ 422,912.00</b>	
<b>Total Public Service Funds Available for Allocation *Pps funds available are capped at 15% of total CDBG allocation</b>					
	\$ 423,911.00	\$ 445,363.00	\$ 445,363.00	\$ 422,912.00	
<b>Public Service</b>					
ABCD: The Mary & Eliza Freeman Center	\$ 124,447.00	\$ 31,147.00	\$ 30,000.00	\$ -	
Bethel Memorial: Bethel Square After School	\$ 20,000.00	\$ -	\$ -	\$ -	
Bethel Memorial: Roof/Windows	\$ 65,000.00	\$ -	\$ -	\$ -	
Bridgeport Area Youth Ministry (BAYM): Floor Upgrade	\$ 15,000.00	\$ -	\$ 15,000.00	\$ 15,000.00	
Bridgeport Downtown Special Services: Downtown Open Space	\$ 44,310.00	\$ -	\$ 22,000.00	\$ 22,000.00	
Bridgeport YMCA- South End Community Center: Window	\$ 26,500.00	\$ 5,200.00	\$ 26,500.00	\$ 26,500.00	

PY 40 Funding Requests and Allocations  
CDBG

7/3/2014

Agency Name	PY 40 Request	PY 39 Allocation	Citizen Union Recommendation	Staff Recommendation	City Council Vote
Carlota Shehan: Building Facilities Upgrade	\$ 62,150.00	\$ 33,253.00	\$ 17,000.00	\$ 17,000.00	
Center for Family Justice	\$ 22,000.00	\$ -	\$ 10,000.00	\$ 20,000.00	
Church of Blessed Sacrament: Kitchen Renovation	\$ 55,000.00	\$ -	\$ 20,000.00	\$ 18,000.00	
COB: Health Dept: Healthy Corner Store Facade	\$ 65,000.00	\$ -	\$ -	\$ -	
COB: Health Dept: Healthy Corner Store Facade	\$ 40,000.00	\$ -	\$ 40,000.00	\$ 40,000.00	
COB: ORED: Balmain Area Storefront	\$ 50,000.00	\$ 48,253.00	\$ 25,000.00	\$ 20,000.00	
COB: ORED: Downtown Storefront	\$ 25,000.00	\$ -	\$ 25,000.00	\$ 20,000.00	
COB: ORED-QNR: B Green Projects	\$ 25,000.00	\$ 21,253.00	\$ 18,000.00	\$ 15,000.00	
COB: ORED-QNR: East End-NRZ	\$ 50,000.00	\$ -	\$ 25,000.00	\$ 25,000.00	
COB: ORED-QNR: East Side-NRZ	\$ 50,000.00	\$ -	\$ 25,000.00	\$ 25,000.00	
COB: ORED-QNR: Hollow-NRZ	\$ 50,000.00	\$ -	\$ 25,000.00	\$ 25,000.00	
COB: ORED-QNR: Mill Hill-NRZ	\$ 50,000.00	\$ -	\$ 25,000.00	\$ 25,000.00	
COB: ORED-QNR: NRZ Community Workshop	\$ 15,000.00	\$ -	\$ -	\$ -	
COB: ORED-QNR: Reserve-NRZ	\$ 50,000.00	\$ -	\$ 25,000.00	\$ 25,000.00	
COB: ORED-QNR: South End-NRZ	\$ 50,000.00	\$ -	\$ 25,000.00	\$ 25,000.00	
COB: ORED-QNR: West Side-NRZ	\$ 50,000.00	\$ -	\$ 25,000.00	\$ 25,000.00	
COB: Parks and Recreation: Public Parks	\$ 260,000.00	\$ 244,075.00	\$ 133,282.75	\$ 130,000.00	
COB: Parks and Recreation: Tree Planting	\$ 125,000.00	\$ 77,753.00	\$ 60,000.00	\$ 122,826.00	
COB: Public Facilities: Downtown Urban Enhance	\$ 240,000.00	\$ -	\$ -	\$ -	
Family Services of Woodfield (FSW): Parking Lot Renovation	\$ 100,000.00	\$ 6,282.00	\$ -	\$ -	
Greater BPT Community Ent: Green Business	\$ 84,732.00	\$ 38,253.00	\$ 25,000.00	\$ 25,000.00	
Hall Neighborhood House: Childcare Center Gates	\$ 25,000.00	\$ -	\$ -	\$ -	
Hall Neighborhood House Security Doors	\$ 25,000.00	\$ 20,000.00	\$ 25,000.00	\$ 25,000.00	
McGivney: Facilities Upgrade	\$ 29,700.00	\$ 23,253.00	\$ 25,000.00	\$ 20,000.00	
Neighborhood Studios: Literacy and Multipurpose Room Imprv.	\$ 15,000.00	\$ -	\$ 7,500.00	\$ -	
Neighborhood Studios: Parking Lot & Fence Replace	\$ 25,000.00	\$ 25,753.00	\$ 20,000.00	\$ -	
Neighborhood Studios: Window Replacement	\$ 50,000.00	\$ -	\$ 40,000.00	\$ 45,000.00	
Raphola Taylor: Youth and Family Resources	\$ 59,470.00	\$ 11,282.00	\$ 30,000.00	\$ -	

**PY 40 Funding Requests and Allocations**  
**CDBG**

Agency Name	PY 40 Request	PY 39 Allocation	Citizen Union Recommendation	Staff Recommendation	City Council Vote
Rec. very Network of Programs: Electrical upgrade	\$ 19,763.00	\$ 14,000.00	\$ 14,000.00	\$ 14,000.00	
St. Mark's Daycare: Interior Renovation	\$ 53,000.00	\$ 11,000.00	\$ 25,000.00	\$ 35,000.00	
United Cerebral Palsy: Mantano/Skyward	\$ 73,500.00	\$ -	\$ -	\$ -	
Upper East Side Block Watch, Sidewalks and ADA Curb Cuts	\$ <del>200,000.00</del>	\$ -	\$ -	\$ -	
<b>Public Facilities Total Requests</b>	<b>\$ 2,389,572.00</b>	<b>\$ 2,491,612.00</b>			
<b>Public Facilities Funds Available for Allocation</b>	<b>TBD</b>	<b>\$ 600,193.00</b>	<b>\$ 828,282.75</b>	<b>\$ 805,326.00</b>	
<b>Summary</b>					
Alpha Community Services: Families in Transition	\$ 60,000.00	\$ -	\$ 30,000.00	\$ 34,000.00	
Baldwin Holding INC: Streetscape and Infrastructure	\$ 500,000.00	\$ -	\$ -	\$ -	
CDBG: Housing & Community Development: Bridgeport Lead Free Families	\$ 25,000.00	\$ 25,000.00	\$ 25,000.00	\$ 25,000.00	
CDBG: ORED/HCD Homeowner Rehab	\$ 258,253.00	\$ 258,253.00	\$ 100,000.00	\$ 100,000.00	
CDBG: ORED/HCD Housing Delivery/Costs	\$ 140,000.00	\$ 108,261.00	\$ 140,000.00	\$ 140,000.00	
Kennedy Center: Homes for Individual	\$ 34,900.00	\$ 31,253.00	\$ 25,000.00	\$ -	
Town House Commons: Condo Improvements	\$ 184,200.00	\$ -	\$ 63,000.00	\$ 63,000.00	
<b>Housing Total Requests</b>	<b>\$ 1,202,353.00</b>	<b>\$ 1,191,949.00</b>			
<b>Housing Funds Available for Allocation</b>	<b>TBD</b>	<b>\$ 489,273.00</b>	<b>\$ 383,000.00</b>	<b>\$ 362,000.00</b>	
<b>Economic Development</b>					
Community Capital: Small Business Loan Fund	\$ 150,000.00	\$ 158,253.00	\$ 50,000.00	\$ -	
<b>Economic Development Total Requests</b>	<b>\$ 150,000.00</b>	<b>\$ 158,253.00</b>			
<b>Economic Development Available for Allocation</b>	<b>TBD</b>	<b>\$ 158,253.00</b>	<b>\$ 50,000.00</b>	<b>\$ -</b>	
<b>Total Public Facilities/Housing/Econ. Development Requested</b>	<b>\$ 3,741,925.00</b>	<b>\$ 3,833,561.00</b>			
<b>Total Available Public Facilities/Housing/Econ. Dev. Available for Allocation</b>	<b>\$ 1,166,326.00</b>	<b>\$ 1,247,719.00</b>	<b>\$ 1,261,282.75</b>	<b>\$ 1,167,326.00</b>	
<b>Summary</b>					
CDBG ORED: Upper East Side	\$ 50,000.00	\$ -	\$ 50,000.00	\$ 25,000.00	
CDBG ORED/HCD: CDBG Administration	\$ 593,817.00	\$ 593,817.00	\$ 543,817.00	\$ 540,215.00	



**\*59-13 (B) Consent Calendar**

Consolidated Plan 2013-2018 PY 40 Annual Action:  
**Homeless Emergency Solutions Grant Program**  
**(HESG).**

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**Report  
of  
Committee  
on  
CCB & Environment**

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**Submitted: July 7, 2014**

Adopted: \_\_\_\_\_

*Fleeta C Hudson*

Attest: \_\_\_\_\_

City Clerk

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Approved \_\_\_\_\_

Mayor

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# City of Bridgeport, Connecticut

*To the City Council of the City of Bridgeport.*

The Committee on ECD and Environment begs leave to report; and recommends for adoption the following resolution:

## **\*59-13 (B) Consent Calendar**

### **PROGRAM YEAR 40 ANNUAL ACTION PLAN**

#### **HOMELESS EMERGENCY SOLUTIONS GRANT PROGRAM**

**WHEREAS**, the City of Bridgeport, Connecticut (the "City") is required to prepare and submit to the U.S. Department of Housing & Urban Development ("HUD") an *Annual Action Plan* which presents a vision statement of guidance, "to develop viable urban neighborhoods through the comprehensive funding of programs that have the largest benefit to the City, and aid in the provision of a suitable living environment and expanded economic opportunities principally for low- and moderate-income persons"; and

**WHEREAS**, the City of Bridgeport has developed a proposed *Program Year 40 ("PY40") Annual Action Plan* and anticipates the following allocations of federal funds from the U.S. Department of Housing & Urban Development for FY 2014-2015:

Homeless Emergency Solutions Grant ("ESG") Program    \$241,205

**WHEREAS**, six (6) Public Hearings were held, three (3) by the Citizen's Union on February 20, 26 and 27, 2014, and three (3) by the Economic and Community Development and Environment Committee of the City Council on April 2, 3 and 9, 2014, and a Draft Proposed Plan was developed and published for comment on March 17, 2014 and the thirty-day comment period ended on April 17, 2014 and comments were received from the Greater Bridgeport Area Continuum of Care on the Draft Proposed Plan; and

**WHEREAS**, the City Council of the City of Bridgeport accepts the ESG portion of the *PY40 Annual Action Plan* (as attached) as part of the City's *Five-Year 2013-2018 Consolidated Housing and Community Development Plan* in order for the City to apply for, and receive, funds under the Homeless Emergency Solutions Grant Program; Now, therefore be it



Report of Committee on ECD and Environment  
\*59-13 (B) Consent Calendar

-2-

**RESOLVED**, that the Mayor of the City of Bridgeport, and/or the Chief Administrative Officer, and/or the Assistant Chief Administrative Officer, and/or the Acting Deputy Director of the Department of Housing and Community Development, is/are hereby authorized and empowered to sign the required certifications and any necessary documents and/or agreements required by the Secretary of the U.S. Department of Housing and Urban Development to accept and execute the Homeless Emergency Solutions Grant and to present same to HUD for approval.

RESPECTFULLY SUBMITTED,  
THE COMMITTEE ON  
ECONOMIC AND COMMUNITY DEVELOPMENT & ENVIRONMENT

\_\_\_\_\_  
Lydia N. Martinez Co-Chair

\_\_\_\_\_  
Jack O. Banta Co-Chair

\_\_\_\_\_  
Mary A. McBride-Lee

\_\_\_\_\_  
Richard DeJesus

absent  
\_\_\_\_\_  
Michelle A. Lyons

\_\_\_\_\_  
Michael J. Marella

\_\_\_\_\_  
Abstained (mb)  
Eneida Martinez-Walker

PY 40 Funding Requests and Allocations  
HESG

7/3/2014

Agency Name	PY 40 Request	PY 39 Allocation	Citizen Union Recommendation	Staff Recommendation	City Council Vote
<b>Emergency Shelter (HESG)</b>					
<b>Street Outreach</b>					
ABCD: Food Pantry	\$ 10,000.00	\$ 3,898.00	\$	\$	
BPT Tabernacle: Street Outreach	\$ 25,400.00	\$ 7,750.00	\$ 7,375.50	\$ 15,000.00	
Gold Social Services: Veterans Food Pantry	\$ 10,000.00	\$ 7,750.00	\$	\$	
Frank Habansky: Black Rock Food Pantry	\$ 10,000.00	\$ 5,440.00	\$	\$	
Healing Tree: Kings Pantry	\$ 20,000.00	\$ 12,368.00	\$ 10,000.00	\$ 15,000.00	
Helping Hands: Street Outreach	\$ 20,000.00	\$	\$ 10,000.00	\$ 15,000.00	
Precious Promises: Breakfast Café	\$ 15,000.00	\$	\$ 10,000.00	\$ 10,000.00	
<b>Total Street Outreach Requests Received</b>	<b>\$ 130,400.00</b>		<b>\$ 37,375.50</b>	<b>\$ 55,000.00</b>	
<b>Emergency Shelter</b>					
Alpha Community Services: Families in Transition	\$ 50,000.00	\$ 19,298.00	\$ 31,000.00	\$ 46,557.00	
Time-for-a-Change: Time-for-a-Change	\$ 50,000.00	\$	\$	\$	
<b>Total Street Outreach Requests Received</b>	<b>\$ 100,000.00</b>		<b>\$ 31,000.00</b>	<b>\$ 46,557.00</b>	
<b>HMIS</b>					
CT Coalition: Homeless Mgmt Info Systems	\$ 30,194.00	\$ 11,548.00	\$ 10,000.00	\$ 10,000.00	
<b>Total HMIS Requests Received</b>			<b>\$ 10,000.00</b>	<b>\$ 10,000.00</b>	
<b>SO/ES/HMIS Available</b>	<b>\$ 111,557.00</b>			<b>\$ 111,557.00</b>	
<b>Homeless Prevention</b>					
CoR Social Services: Emergency Rental Assistance	\$ 35,000.00	\$ 16,448.00	\$ 20,000.00	\$ 20,000.00	
Center-for-Family Justice-Transition-Living	\$ 10,000.00	\$	\$	\$	
<b>Total Homeless Prevention Requests Received</b>	<b>\$ 45,000.00</b>		<b>\$ 20,000.00</b>	<b>\$ 20,000.00</b>	
<b>Rapid Rehousing</b>					
United Way of Coastal Fairfield County: Bridgeport Rapid Rehousing	\$ 54,000.00	\$	\$ 19,715.00	\$ 21,558.00	
ABCD: Emergency Energy Assistance	\$ 75,000.00	\$ 40,893.00	\$ 25,000.00	\$ 30,000.00	
ABCD: Emergency Rental Assistance	\$ 75,000.00	\$ 53,948.00	\$ 25,000.00	\$ 30,000.00	
St. Johns Family Ctr: Homeless Prevention	\$ 10,000.00	\$ 7,749.00	\$ 5,545.00	\$ 10,000.00	

RECEIVED  
 CITY CLERK'S OFFICE  
 2014 JUL - 3 P 2:23

**PY 40 Funding Requests and Allocations**  
HESG

7/3/2014

Agency Name	PY 40 Request	PY 39 Allocation	Citizen Union Recommendation	Staff Recommendation		City Council Vote
<b>Total Rapid Rehousing Requests Received</b>	\$ 214,000.00		\$ 75,260.00	\$ 91,558.00		
<b>HP/RR Available</b>	\$ 111,558.00			\$ 111,558.00		
HESG Admin	\$ 18,090.00	\$ 15,169.50	\$ 15,169.50	\$ 18,090.00		
<b>Total HESG Requests</b>	\$ 517,684.00	\$ 729,622.00	\$ 15,169.50			
<b>Total HESG Funding Available for Allocations</b>	\$ 241,205.00	\$ 202,260.00	\$ 52,400.00	\$ 241,205.00		

**\*59-13 (C) Consent Calendar**

Consolidated Plan 2013-2018 PY 40 Annual Action:  
**HOME Investment Partnership Program.**

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**Report  
of  
Committee  
on  
CEA & Environment**

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**Submitted: July 7, 2014**

Adopted: \_\_\_\_\_

Attest: \_\_\_\_\_

*Fleeta C Hudson*

City Clerk

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Approved \_\_\_\_\_

\_\_\_\_\_  
Mayor

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# City of Bridgeport, Connecticut

*To the City Council of the City of Bridgeport:*

The Committee on ECD and Environment begs leave to report; and recommends for adoption the following resolution:

## **\*59-13 (C) Consent Calendar**

### **PROGRAM YEAR 40 ANNUAL ACTION PLAN**

#### **HOME INVESTMENT PARTNERSHIP ("HOME") PROGRAM**

**WHEREAS**, the City of Bridgeport, Connecticut (the "City") is required to prepare and submit to the U.S. Department of Housing & Urban Development ("HUD") an *Annual Action Plan* which presents a vision statement of guidance, "to develop viable urban neighborhoods through the comprehensive funding of programs that have the largest benefit to the City, and aid in the provision of a suitable living environment and expanded economic opportunities principally for low- and moderate-income persons"; and

**WHEREAS**, the City of Bridgeport has developed a proposed *Program Year 40 ("PY40") Annual Action Plan* and anticipates the following allocations of federal funds from the U.S. Department of Housing & Urban Development for FY 2014-2015:

HOME Program \$881,452

**WHEREAS**, six (6) Public Hearings were held, three (3) by the Citizen's Union on February 20, 26 and 27, 2014, and three (3) by the Economic and Community Development and Environment Committee of the City Council on April 2, 3 and 9, 2014, and a Draft Proposed Plan was developed and published for comment on March 17, 2014 and the thirty-day comment period ended on April 17, 2014 and comments were received from the Greater Bridgeport Area Continuum of Care on the Draft Proposed Plan; and

**WHEREAS**, the City Council of the City of Bridgeport accepts the HOME portion of the *PY40 Annual Action Plan* (as attached) as part of the City's *Five-Year 2013-2018 Consolidated Housing and Community Development Plan* in order for the City to apply for, and receive, funds under the HOME Program; Now, therefore be it

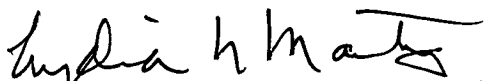


Report of Committee on ECD and Environment  
\*59-13 (C) Consent Calendar

-2-

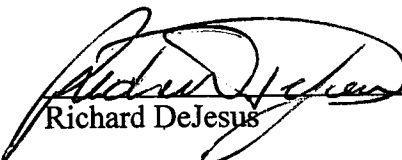
**RESOLVED**, that the Mayor of the City of Bridgeport, and/or the Chief Administrative Officer, and/or the Assistant Chief Administrative Officer, and/or the Acting Deputy Director of the Department of Housing and Community Development, is/are hereby authorized and empowered to sign the required certifications and any necessary documents and/or agreements required by the Secretary of the U.S. Department of Housing and Urban Development to accept and execute the HOME Program Grant and to present same to HUD for approval.


RESPECTFULLY SUBMITTED,  
THE COMMITTEE ON  
ECONOMIC AND COMMUNITY DEVELOPMENT & ENVIRONMENT

  
Lydia N. Martinez Co-Chair

  
Jack O. Banta Co-Chair

  
Mary A. McBride-Lee

  
Richard DeJesus

  
Michelle A. Lyons

  
Michael J. Marella

  
Eneida Martinez-Walker

PY 40 Funding Requests and Allocations  
HOME

7/3/2014

Agency Name	PY 40 Request	PY 39 Allocation	Citizen Union Recommendation	Staff Recommendation	City Council Vote
<b>HOME PROGRAM</b>					
HOME Administration (10% of allocation)	\$ 88,145.00	\$ 88,806.00	\$ 88,145.00	\$ 88,145.00	
Affordable Housing Development	\$ 793,307.00	\$ 799,254.00	\$ 793,307.00	\$ 793,307.00	
HOME Program	\$ 881,452.00	\$ 888,060.00	\$ 881,452.00	\$ 881,452.00	

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 ATTEST  
 CITY CLERK



Consolidated Plan 2013-2018 PY 40 Annual Action:

**Housing Opportunities for Persons with AIDS Program (HOPWA).**

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**Report  
of  
Committee  
on  
CEB & Environment**

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**Submitted: July 7, 2014**

Adopted: \_\_\_\_\_

Attest: \_\_\_\_\_

*Fleeta C Hudson*

City Clerk

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Approved \_\_\_\_\_

\_\_\_\_\_  
Mayor

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# City of Bridgeport, Connecticut

*To the City Council of the City of Bridgeport.*

The Committee on **ECD and Environment** begs leave to report;  
and recommends for adoption the following resolution:

**\*59-13 (D) Consent Calendar**

## **PROGRAM YEAR 40 ANNUAL ACTION PLAN**

### **HOUSING OPPORTUNITIES FOR PERSONS WITH AIDS ("HOPWA") PROGRAM**

**WHEREAS**, the City of Bridgeport, Connecticut (the "City") is required to prepare and submit to the U.S. Department of Housing & Urban Development ("HUD") an *Annual Action Plan* which presents a vision statement of guidance, "to develop viable urban neighborhoods through the comprehensive funding of programs that have the largest benefit to the City, and aid in the provision of a suitable living environment and expanded economic opportunities principally for low- and moderate-income persons"; and

**WHEREAS**, the City of Bridgeport has developed a proposed *Program Year 40 ("PY40") Annual Action Plan* and anticipates the following allocations of federal funds from the U.S. Department of Housing & Urban Development for FY 2014-2015:

HOPWA Program	\$803,106
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**WHEREAS**, six (6) Public Hearings were held, three (3) by the Citizen's Union on February 20, 26 and 27, 2014, and three (3) by the Economic and Community Development and Environment Committee of the City Council on April 2, 3 and 9, 2014, and a Draft Proposed Plan was developed and published for comment on March 17, 2014 and the thirty-day comment period ended on April 17, 2014 and comments were received from the Greater Bridgeport Area Continuum of Care on the Draft Proposed Plan; and

**WHEREAS**, the City Council of the City of Bridgeport accepts the HOPWA portion of the *PY40 Annual Action Plan* (as attached) as part of the City's *Five-Year 2013-2018 Consolidated Housing and Community Development Plan* in order for the City to apply for, and receive, funds under the Housing Opportunities for Persons with AIDS Grant Program; Now, therefore be it



Report of Committee on ECD and Environment  
\*59-13 (D) Consent Calendar

-2-

**RESOLVED**, that the Mayor of the City of Bridgeport, and/or the Chief Administrative Officer, and/or the Assistant Chief Administrative Officer, and/or the Acting Deputy Director of the Department of Housing and Community Development, is/are hereby authorized and empowered to sign the required certifications and any necessary documents and/or agreements required by the Secretary of the U.S. Department of Housing and Urban Development to accept and execute the Housing Opportunities for Persons with AIDS Grant and to present same to HUD for approval.

RESPECTFULLY SUBMITTED,  
THE COMMITTEE ON  
ECONOMIC AND COMMUNITY DEVELOPMENT & ENVIRONMENT

*Lydia N. Martinez* - *absent*  
Lydia N. Martinez Co-Chair

*Jack O. Banta*  
Jack O. Banta Co-Chair

*Mary A. McBride-Lee*  
Mary A. McBride-Lee

*Richard DeJesus* *ABSTAINED*  
Richard DeJesus

*absent*  
Michelle A. Lyons

*Michael J. Marella*  
Michael J. Marella

*ABSTAINED (EMW)*  
Eneida Martinez-Walker

PY 40 Funding Requests and Allocations  
HOPWA

7/3/2014

Agency Name	PY 40 Request	PY 39 Allocation	Citizen Union Recommendation	Staff Recommendation	City Council Vote
<b>Housing Opportunities for People with Disabilities (HOPWA)</b>					
AIDS Project Greater Danbury	\$ 141,361.00	\$ 71,070.00	\$ 70,915.00	\$ 73,000.00	
Catholic Charities - Rental Assistance	\$ 250,000.00	\$ 145,790.00	\$ 145,790.00	\$ 146,013.00	
Chemical Abuse Services Agency (CASA)	\$ 117,070.00	\$ 101,215.00	\$ 101,215.00	\$ 111,215.00	
Inspirica - Housing	\$ 196,860.00	\$ 148,075.00	\$ 148,075.00	\$ 150,000.00	
Mild-Fairfield AIDS Project, Inc.	\$ 152,928.00	\$ 122,785.00	\$ 122,785.00	\$ 130,785.00	
Recovery Network of Programs	\$ 100,000.00	\$ 93,710.00	\$ 93,710.00	\$ 95,000.00	
Refocus Outreach Ministry	\$ 90,385.00	\$ 70,460.00	\$ 70,460.00	\$ 73,000.00	
HOPWA Admin	\$ 24,093	\$ 23,287	\$ 23,287.00	\$ 24,093.00	
<b>Total HOPWA Requests</b>	<b>\$ 1,072,697.18</b>	<b>\$ 776,392.11</b>			
<b>Total HOPWA Funding Available for Allocations</b>	<b>\$ 803,106.00</b>	<b>\$ 776,237.00</b>	<b>\$ 776,237.00</b>	<b>\$ 803,106.00</b>	

ATTEST  
CITY CLERK  
RECEIVED  
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2014 JUL - 3 P 2:23

**\*69-13 Consent Calendar**

Disposition of City Owned Property located at 38  
Luther Street.

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**Report  
of  
Committee  
on  
ECB & Environment**

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**Submitted: July 7, 2014**

Adopted: \_\_\_\_\_

*Fleeta C Hudson*

Attest: \_\_\_\_\_

City Clerk

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Approved \_\_\_\_\_

Mayor

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# City of Bridgeport, Connecticut

*To the City Council of the City of Bridgeport.*

The Committee on ECD and Environment begs leave to report; and recommends for adoption the following resolution:

## **\*69-13 Consent Calendar**

### **A RESOLUTION BY THE BRIDGEPORT CITY COUNCIL REGARDING THE DISPOSITION AND REDEVELOPMENT OF 38 LUTHER STREET**

**WHEREAS**, Mr. Miguel Reyes (the "Developer") is the owner of a single-family home at 115 Luther Street, as well as the owner of a single-family home at the adjacent 117 Luther Street; and

**WHEREAS**, the City of Bridgeport (the "City") owns an undevelopable wetland property (50' x 100' in size) at 38 Luther Street (the "Property"), which is located across the street from the properties owned by the Developer; and

**WHEREAS**, Luther Street is one block long, consists entirely of single-family homes, and dead-ends at Elton Rogers Park, a City-owned wooded wetland; and

**WHEREAS**, the Developer is willing to purchase the Property from the City of Bridgeport for \$1,000.00 (One Thousand Dollars) and is further willing to remove all blight from the Property in order to landscape it and use it as a private garden; and

**WHEREAS**, the Property was appraised on February 22, 2014 at \$1,000.00 (One Thousand Dollars); and

**WHEREAS**, the current untended state of the Property offers no economic benefit to the City, and detracts from the attractiveness of the area; and

**WHEREAS**, the Developer's proposal to create a landscaped garden area is appropriate for this wetland lot, and is consistent with character of the neighborhood and will add to its beauty; and



Report of Committee on ECD and Environment  
**\*69-13 Consent Calendar**

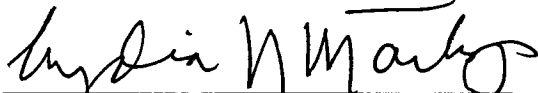
-2-

**WHEREAS**, the Developer will redevelop the Property at his own expense and seeks no warranties from the City regarding the environmental condition, physical condition or title of the Property; Now, therefore be it

**RESOLVED** that the disposition of the Property to the Developer for the appraised value price of \$1,000 (One Thousand Dollars) is hereby approved; and be it

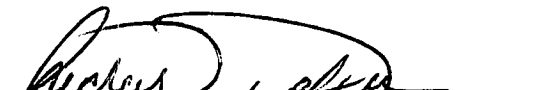
**FURTHER RESOLVED** that the Director of the City's Office of Planning and Economic Development is hereby authorized to do any and all things necessary to negotiate and execute with the Developer an agreement for the sale and redevelopment of the Property in a manner consistent with this resolution.

RESPECTFULLY SUBMITTED,  
THE COMMITTEE ON  
ECONOMIC AND COMMUNITY DEVELOPMENT & ENVIRONMENT

  
Lydia N. Martinez Co-Chair

  
Jack O. Banta Co-Chair


  
Mary A. McBride-Lee

  
Richard DeJesus

\_\_\_\_\_  
Michelle A. Lyons

  
Michael J. Marella

\_\_\_\_\_  
Eneida Martinez-Walker

  
Thomas C. McCarthy, President  
(Sat in to make Quorum)

Mr. Max Perez  
Office of Planning and Economic Development  
999 Broad Street – 2<sup>nd</sup> Floor  
Bridgeport, CT 06604

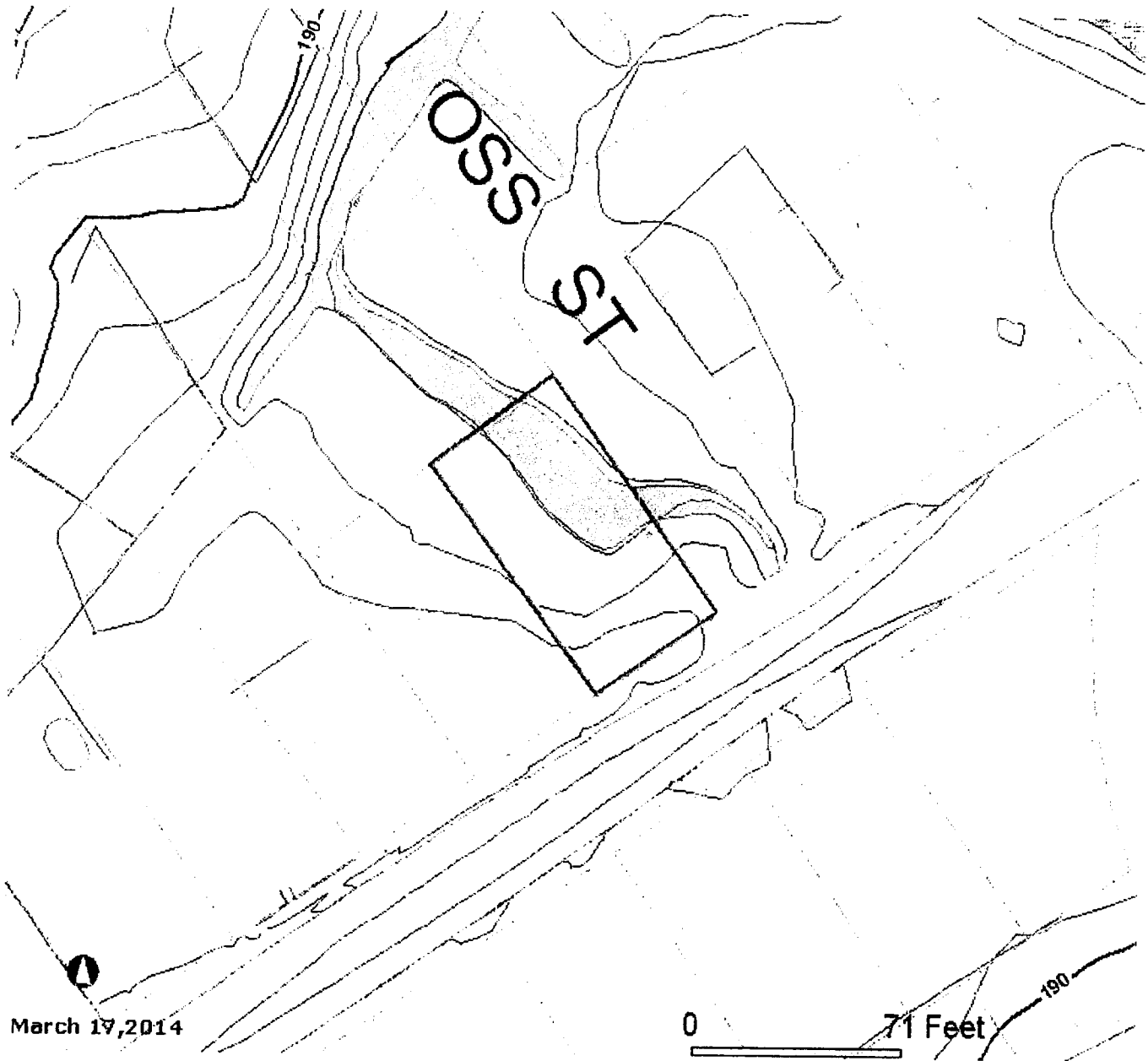
Dear Mr. Perez,

My name is Miguel Angel Reyes and I reside at 117 Luther Street, Bridgeport, CT 06606. I also own the property at 115 Luther Street located next door to me. I am writing this letter because I am very interested in purchasing the property located at 38 Luther Street, which is across the street from my two houses. This property, 38 Luther Street, is a piece of land that is completely abandoned. It has a lot of dried trees that are about to fall on the electrical lines and is very dangerous to our whole neighborhood. Also, the neighbors throw dried branches and other debris there like it is a garbage dump. That property is very dark at night, and is dangerous because it can be a hiding place for bad characters. In most recent times there have been robberies on our street, and even a car was stolen a few months ago. Of all of the neighbors I am the one who tries to keep the area clean by clearing the catch basin and removing the leaves on the edge of the property. The property needs serious maintenance and I am willing to do it. I have been working in construction for the last 15 years and I would like to clean the property up and make it presentable. I am willing to pay \$1,000.00 to purchase this property and vow to make myself responsible in keeping the area clean for our community. I know my neighbors will be very happy to see the area clean just as I maintain my two other properties. Please allow me to have the opportunity to do so.

Sincerely,

Miguel Reyes





March 17, 2014

0 71 Feet

**APPRAISAL OF  
THE PROPERTY LOCATED AT**

38 LUTHER STREET  
BRIDGEPORT, CT. 06606

**as of**

February 22, 2014

**for**

MR. MIGUEL REYES  
115 LUTHER STREET  
BRIDGEPORT, CT. 06606

**by**

ATLAS APPRAISAL GROUP  
P.O. BOX 832  
NORWALK, CT 06852

LAND APPRAISAL REPORT

REYES-PVT.  
File No. 2649

**IDENTIFICATION**

Owner CITY OF BRIDGEPORT Census Tract 727 Map Reference NECTA 71950  
 Property Address 38 LUTHER STREET  
 City BRIDGEPORT County FAIRFIELD State CT. Zip Code 06606  
 Legal Description VOL. 7544 PAGE 9--PER CITY RECORDS  
 Sale Price \$ MKT VALUE Date of Sale N/A Property Rights Appraised  Fee  Leasehold  De Minimis PUD  
 Actual Real Estate Taxes \$ N/A (yr.)  
 Client MR. MIGUEL REYES Address 115 LUTHER STREET, BRIDGEPORT, CT. 06606  
 Occupant VACANT LAND Appraiser GUY ROCCO Instructions to Appraiser MKT VALUE OF VACANT LAND  
 Intended User: CITY OF BRIDGEPORT Intended Use: MARKET VALUE ESTIMATE FOR VACANT LAND

**NEIGHBORHOOD**

Location  Urban  Suburban  Rural  
 Built Up  Over 75%  25% to 75%  Under 25%  
 Growth Rate  Fully Dev.  Rapid  Steady  Slow  
 Property Values  Increasing  Stable  Declining  
 Demand/Supply  Shortage  In Balance  Over Supply  
 Marketing Time  Under 3 Mos.  4-6 Mos.  Over 6 Mos.  
 Present Land Use 75 % 1 Family 15 % 2-4 Fam 1 % Apts. 2 % Condo 2 % Commercial  
 100.00 2 % Industrial 3 % Vacant %  
 Change in Present Land Use  Not Likely  Likely (\*)  Taking Place (\*)  
 (\*) From To  
 Predominant Occupancy  Owner  Tenant 5 % Vacant  
 Single Family Price Range \$ 85,000 to \$ 275,000 Predominant Value \$ 170,000  
 Single Family Age NEW yrs. to 150 yrs. Predominant Age 60 yrs.

Employment Stability	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Convenience to Employment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Convenience to Shopping	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Convenience to Schools	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adequacy of Public Transportation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recreational Facilities	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adequacy of Utilities	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Property Compatibility	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Protection from Detrimental Conditions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Police and Fire Protection	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
General Appearance of Properties	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appeal to Market	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments including those factors, favorable or unfavorable, affecting marketability (e.g. public parks, schools, noise) THE SUBJECT IS LOCATED ON A DEAD END STREET IN THE NORTH END OF BRIDGEPORT THE NEIGHBORHOOD IS COMPRISED OF PREDOMINATELY SINGLE FAMILY HOMES OF VARYING STYLES & AGES, GENERALLY MAINTAINED IN AVG. CONDITION. SUBJ. SITE IS W/IN REASONABLE DISTANCE OF 1-95, SCHOOLS, METRO NORTH R/R, SHOPPING, RECREATIONAL FACILITIES & EMPLOYMENT CTRS.

**SITE**

Dimensions SEE ATTACHED MAP = 11 ACRES Corner Lot   
 Zoning Classification RES. "RA" ZONE Present improvements  do  do not conform to zoning regulations  
 Highest and best use:  Present use  Other (specify)  
 Elec.  Public  Other (Describe)  
 Gas   
 Water   
 San. Sewer  Underground Elect. & Tel.   
 OFF SITE IMPROVEMENTS  
 Street Access:  Public  Private  
 Surface ASPHALT  
 Maintenance:  Public  Private  
 Storm Sewer  Curb/Gutter  
 Sidewalk  Street Lights  
 Topo GENTLY SLOPING  
 Size TYPICAL FOR THE AREA  
 Shape RECTANGULAR  
 View STREET & YDS  
 Drainage TYPICAL OF THE AREA  
 is the property located in a HUD Identified Special Flood Hazard Area?  No  Yes  
 Comments (favorable or unfavorable including any apparent adverse easements, encroachments or other adverse conditions) THE SUBJECT IS AN UNBUILDABLE LOT THAT IS LOCATED WITHIN AN "A" FLOOD ZONE PER ATTACHED MAP. IT HAS A SIGNIFICANT AMOUNT OF WETLANDS RUNNING THROUGH THE PROPERTY.

The undersigned has recited three recent sales of properties most similar and proximate to subject and has considered these in the market analysis. The description includes a dollar adjustment, reflecting market reaction to those items of significant variation between the subject and comparable properties. If a significant item in the comparable property is superior to, or than, the subject property, a plus (+) adjustment is made, thus increasing the indicated value of subject; if a significant item in the comparable is inferior to, or less favorable than, the subject property, a minus (-) adjustment is made, thus reducing the indicated value of subject.

For the Market Data Analysis  See grid below.  See narrative attachment.

ITEM	Subject Property	COMPARABLE NO. 1	COMPARABLE NO. 2	COMPARABLE NO. 3
Address	38 LUTHER STREET BRIDGEPORT, CT. 06606	425 PEQUONNOCK STREET BRIDGEPORT, CT.	50 RITA AVENUE BRIDGEPORT, CT.	42 RITA AVENUE BRIDGEPORT, CT.
Proximity to Subj.		2.81 miles S	1.36 miles E	1.37 miles E
Sales Price	\$ <u>MKT VALUE</u>	\$ <u>2,000</u>	\$ <u>5,000</u>	\$ <u>5,000</u>
Price	\$ <u>N/A</u>	\$ <u>33,333</u>	\$ <u>41,667</u>	\$ <u>41,667</u>
Date Source	<u>C. HALL/EXT.INSPECT</u>	<u>CITY HALL/MLS/CLOSED</u>	<u>CITY HALL/MLS/CLOSED</u>	<u>CITY HALL/MLS/CLOSED</u>
Date of Sale and Time Adjustment	DESCRIPTION <u>N/A</u>	DESCRIPTION <u>04/04/2012</u>	DESCRIPTION <u>06/12/2013</u>	DESCRIPTION <u>06/12/2013</u>
Location	<u>URBAN/AVG</u>	<u>URBAN/AVG</u>	<u>URBAN/AVG</u>	<u>URBAN/AVG</u>
Site/View	<u>AVG VIEWS</u>	<u>AVG VIEWS</u>	<u>AVG VIEWS</u>	<u>AVG VIEWS</u>
Site Area	<u>11 ACRES/WETLND</u>	<u>06 ACRES</u>	<u>12 AC/NO WETLND</u>	<u>12 AC/NO WETLND</u>
ZONING	<u>RES. ZONE</u>	<u>RES. ZONE</u>	<u>RES. ZONE</u>	<u>RES. ZONE</u>
FLOOD ZONE	<u>YES</u>	<u>NO</u>	<u>NO</u>	<u>NO</u>
BUILDABLE	<u>UNBUILDABLE</u>	<u>UNBUILDABLE</u>	<u>BUILDABLE</u>	<u>BUILDABLE</u>
Sales or Financing Concessions			<u>-2,000</u>	<u>-2,000</u>
Net Adj. (Total)		Plus <input checked="" type="checkbox"/> Minus \$ <u>-1,000</u>	Plus <input checked="" type="checkbox"/> Minus \$ <u>-4,000</u>	Plus <input checked="" type="checkbox"/> Minus \$ <u>-4,000</u>
Indicated Value of Subject		Gross <u>50.0%</u> Net <u>-50.0%</u> \$ <u>1,000</u>	Gross <u>80.0%</u> Net <u>-80.0%</u> \$ <u>1,000</u>	Gross <u>80.0%</u> Net <u>-80.0%</u> \$ <u>1,000</u>

Comments on Market Data: COMPS CHOSEN DEEMED BEST AVAILABLE. COMPS #2&3 WERE EACH ADJ. FOR THEIR BUILDABLE STATUS AND LACK OF WETLANDS. THE MID RANGE OF VALUE WAS CHOSEN AS THE FINAL ESTIMATE OF VALUE BASED ON THE CURRENT BRIDGEPORT MARKET.

Comments and Conditions of Appraisal: THIS APPRAISAL IS BEING DONE IN "AS IS" CONDITION.

Final Reconciliation: THE SALES ANALYSIS APPROACH WAS DEVELOPED AND GIVEN ENTIRE WEIGHT AS BEST REFLECTING THE DEFINITION OF MARKET VALUE.

I ESTIMATE THE MARKET VALUE, AS DEFINED, OF SUBJECT PROPERTY AS OF February 22, 2014 to be \$ 1,000  
 ATLAS APPRAISAL GROUP

IDENTIFICATION

NEIGHBORHOOD

SITE

MARKET DATA ANALYSIS

RECONCILIATION

This appraisal report is subject to the scope of work, intended use, intended user, definition of market value, statement of assumptions and limiting conditions, and certifications. The appraiser may expand the scope of work to include any additional research or analysis necessary based on the complexity of this appraisal assignment.

**SCOPE OF WORK:** The scope of work for this appraisal is defined by the complexity of this appraisal assignment and the reporting requirements of this appraisal report form, including the following definition of market value, statement of assumptions and limiting conditions, and certifications. The appraiser must, at a minimum: (1) perform a complete visual inspection of the subject property, (2) inspect the neighborhood, (3) inspect each of the comparable sales from at least the street, (4) research, verify, and analyze data from reliable public and/or private sources, and (5) report his or her analysis, opinions, and conclusions in this appraisal report.

**DEFINITION OF MARKET VALUE:** The most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller, each acting prudently, knowledgeably and assuming the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby: (1) buyer and seller are typically motivated; (2) both parties are well informed or well advised, and each acting in what he or she considers his or her own best interest; (3) a reasonable time is allowed for exposure in the open market; (4) payment is made in terms of cash in U. S. dollars or in terms of financial arrangements comparable thereto; and (5) the price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions\* granted by anyone associated with the sale.

\*Adjustments to the comparables must be made for special or creative financing or sales concessions. No adjustments are necessary for those costs which are normally paid by sellers as a result of tradition or law in a market area; these costs are readily identifiable since the seller pays these costs in virtually all sales transactions. Special or creative financing adjustments can be made to the comparable property by comparisons to financing terms offered by a third party institutional lender that is not already involved in the property or transaction. Any adjustment should not be calculated on a mechanical dollar for dollar cost of the financing or concession but the dollar amount of any adjustment should approximate the market's reaction to the financing or concessions based on the appraiser's judgment.

**STATEMENT OF ASSUMPTIONS AND LIMITING CONDITIONS:** The appraiser's certification in this report is subject to the following assumptions and limiting conditions:

1. The appraiser will not be responsible for matters of a legal nature that affect either the property being appraised or the title to it, except for information that he or she became aware of during the research involved in performing this appraisal. The appraiser assumes that the title is good and marketable and will not render any opinions about the title.
2. The appraiser has examined the available flood maps that are provided by the Federal Emergency Management Agency (or other data sources) and has noted in this appraisal report whether any portion of the subject site is located in an identified Special Flood Hazard Area. Because the appraiser is not a surveyor, he or she makes no guarantees, express or implied, regarding this determination.
3. The appraiser will not give testimony or appear in court because he or she made an appraisal of the property in question, unless specific arrangements to do so have been made beforehand, or as otherwise required by law.
4. The appraiser has noted in this appraisal report any adverse conditions (such as the presence of hazardous wastes, toxic substances, etc.) observed during the inspection of the subject property or that he or she became aware of during the research involved in performing this appraisal. Unless otherwise stated in this appraisal report, the appraiser has no knowledge of any hidden or unapparent deficiencies or adverse conditions of the property (such as, but not limited to, the presence of hazardous wastes, toxic substances, adverse environmental conditions, etc.) that would make the property less valuable, and has assumed that there are no such conditions and makes no guarantees or warranties, express or implied. The appraiser will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because the appraiser is not an expert in the field of environmental hazards, this appraisal report must not be considered as an environmental assessment of the property.

**APPRAISER'S CERTIFICATION:** The Appraiser certifies and agrees that:

1. I have, at a minimum, developed and reported this appraisal in accordance with the scope of work requirements stated in this appraisal report.
2. I performed a complete visual inspection of the subject property.
3. I performed this appraisal in accordance with the requirements of the Uniform Standards of Professional Appraisal Practice that were adopted and promulgated by the Appraisal Standards Board of The Appraisal Foundation and that were in place at the time this appraisal report was prepared.
4. I developed my opinion of the market value of the real property that is the subject of this report based on the sales comparison approach to value. I have adequate comparable market data to develop a reliable sales comparison approach for this appraisal assignment. I further certify that I considered the cost and income approaches to value but did not develop them, unless otherwise indicated in this report.
5. I researched, verified, analyzed, and reported on any current agreement for sale for the subject property, any offering for sale of the subject property in the twelve months prior to the effective date of this appraisal, and the prior sales of the subject property for a minimum of three years prior to the effective date of this appraisal, unless otherwise indicated in this report.
6. I researched, verified, analyzed, and reported on the prior sales of the comparable sales for a minimum of one year prior to the date of sale of the comparable sale, unless otherwise indicated in this report.
7. I selected and used comparable sales that are locationally, physically, and functionally the most similar to the subject property.
8. I have reported adjustments to the comparable sales that reflect the market's reaction to the differences between the subject property and the comparable sales.
9. I verified, from a disinterested source, all information in this report that was provided by parties who have a financial interest in the sale of the subject property.
10. I have knowledge and experience in appraising this type of property in this market area.
11. I am aware of, and have access to, the necessary and appropriate public and private data sources, such as multiple listing services, tax assessment records, public land records and other such data sources for the area in which the property is located.
12. I obtained the information, estimates, and opinions furnished by other parties and expressed in this appraisal report from reliable sources that I believe to be true and correct.
13. I have taken into consideration the factors that have an impact on value with respect to the subject neighborhood, subject property, and the proximity of the subject property to adverse influences in the development of my opinion of market value. I have noted in this appraisal report any adverse conditions (such as, the presence of hazardous wastes, toxic substances, adverse environmental conditions, etc.) observed during the inspection of the subject property or that I became aware of during the research involved in performing this appraisal. I have considered these adverse conditions in my analysis of the property value, and have reported on the effect of the conditions on the value and marketability of the subject property.
14. I have not knowingly withheld any significant information from this appraisal report and, to the best of my knowledge, all statements and information in this appraisal report are true and correct.
15. I stated in this appraisal report my own personal, unbiased, and professional analysis, opinions, and conclusions, which are subject only to the assumptions and limiting conditions in this appraisal report.
16. I have no present or prospective interest in the property that is the subject of this report, and I have no present or prospective personal interest or bias with respect to the participants in the transaction. I did not base, either partially or completely, my analysis and/or opinion of market value in this appraisal report on the race, color, religion, sex, age, marital status, handicap, familial status, or national origin of either the prospective owners or occupants of the subject property or of the present owners or occupants of the properties in the vicinity of the subject property or on any other basis prohibited by law.
17. My employment and/or compensation for performing this appraisal or any future or anticipated appraisals was not conditioned on any agreement or understanding, written or otherwise, that I would report (or present analysis supporting) a predetermined specific value, a predetermined minimum value, a range or direction in value, a value that favors the cause of any party, or the attainment of a specific result or occurrence of a specific subsequent event.
18. I personally prepared all conclusions and opinions about the real estate that were set forth in this appraisal report. If I relied on significant real property appraisal assistance from any individual or individuals in the performance of this appraisal or the preparation of this appraisal report, I have named such individual(s) and disclosed the specific tasks performed in this appraisal report. I certify that any individual so named is qualified to perform the tasks. I have not authorized anyone to make a change to any item in this appraisal report; therefore, any change made to this appraisal is unauthorized and I will take no responsibility for it.
19. I identified the client in this appraisal report who is the individual, organization, or agent for the organization that ordered and will receive this appraisal report.
20. I am aware that any disclosure or distribution of this appraisal report by me or the client may be subject to certain laws and regulations. Further, I am also subject to the provisions of the Uniform Standards of Professional Appraisal Practice that pertain to disclosure or distribution by me.
21. If this appraisal report was transmitted as an "electronic record" containing my "electronic signature," as those terms are defined in applicable federal and/or state laws (excluding audio and video recordings), or a facsimile transmission of this appraisal report containing a copy or representation of my signature, the appraisal report shall be as effective, enforceable and valid as if a paper version of this appraisal report were delivered containing my original hand written signature.

**SUPERVISORY APPRAISER'S CERTIFICATION:** The Supervisory Appraiser certifies and agrees that:

1. I directly supervised the appraiser for this appraisal assignment, have read the appraisal report, and agree with the appraiser's analysis, opinions, statements, conclusions, and the appraiser's certification.
2. I accept full responsibility for the contents of this appraisal report including, but not limited to, the appraiser's analysis, opinions, statements, conclusions, and the appraiser's certification.
3. The appraiser identified in this appraisal report is either a sub-contractor or an employee of the supervisory appraiser (or the appraisal firm), is qualified to perform this appraisal, and is acceptable to perform this appraisal under the applicable state law.
4. This appraisal report complies with the Uniform Standards of Professional Appraisal Practice that were adopted and promulgated by the Appraisal Standards Board of The Appraisal Foundation and that were in place at the time this appraisal report was prepared.
5. If this appraisal report was transmitted as an "electronic record" containing my "electronic signature," as those terms are defined in applicable federal and/or state laws (excluding audio and video recordings), or a facsimile transmission of this appraisal report containing a copy or representation of my signature, the appraisal report shall be as effective, enforceable and valid as if a paper version of this appraisal report were delivered containing my original hand written signature.

**APPRAISER**

Signature *Guy Rocco*  
 Name GUY ROCCO  
 Company Name ATLAS APPRAISAL GROUP  
 Company Address P.O. BOX 832  
NORWALK, CT 06852  
 Telephone Number 203-257-0839  
 Email Address ATLASAPPRAISALCT@AOL.COM  
 Date of Signature and Report March 3, 2014  
 Effective Date of Appraisal February 22, 2014  
 State Certification # RCR.0000816  
 or State License # \_\_\_\_\_  
 or Other \_\_\_\_\_ State # \_\_\_\_\_  
 State CT  
 Expiration Date of Certification or License 04/30/2014

ADDRESS OF PROPERTY APPRAISED  
38 LUTHER STREET  
BRIDGEPORT, CT, 06606  
 APPRAISED VALUE OF SUBJECT PROPERTY \$ 1,000  
 CLIENT  
 Name Mr. Reyes  
 Company Name MR. MIGUEL REYES  
 Company Address 115 LUTHER STREET  
BRIDGEPORT, CT, 06606  
 Email Address \_\_\_\_\_

**SUPERVISORY APPRAISER (ONLY IF REQUIRED)**

Signature \_\_\_\_\_  
 Name \_\_\_\_\_  
 Company Name \_\_\_\_\_  
 Company Address \_\_\_\_\_  
 Telephone Number \_\_\_\_\_  
 Email Address \_\_\_\_\_  
 Date of Signature \_\_\_\_\_  
 State Certification # \_\_\_\_\_  
 or State License # \_\_\_\_\_  
 State \_\_\_\_\_  
 Expiration Date of Certification or License \_\_\_\_\_

**SUBJECT PROPERTY**

- Did not inspect subject property  
 Did inspect exterior of subject property from street  
 Date of Inspection \_\_\_\_\_  
 Did inspect interior and exterior of subject property  
 Date of Inspection \_\_\_\_\_

**COMPARABLE SALES**

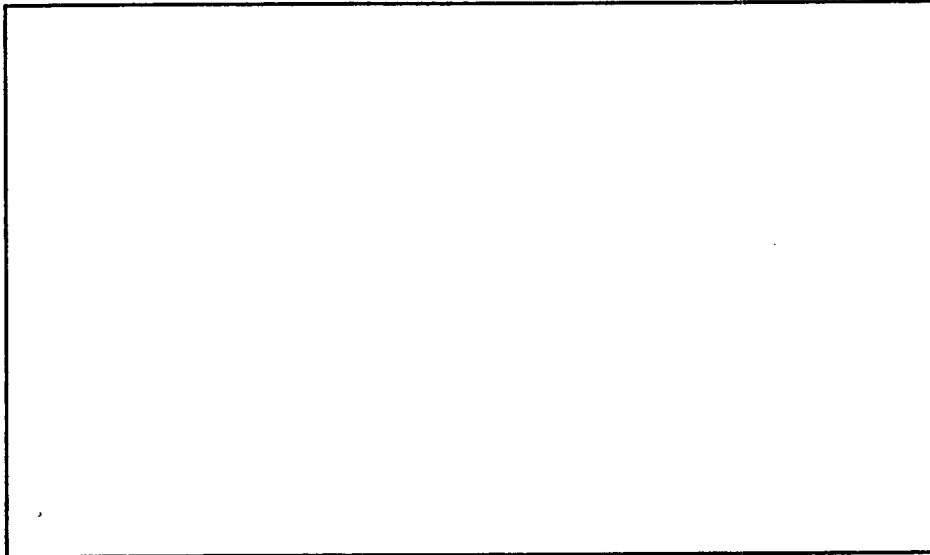
- Did not inspect exterior of comparable sales from street  
 Did inspect exterior of comparable sales from street  
 Date of Inspection \_\_\_\_\_

PHOTOGRAPH ADDENDUM

Intended User CITY OF BRIDGEPORT  
Property Address 38 LUTHER STREET  
City BRIDGEPORT County FAIRFIELD State CT Zip Code 06606  
Client MR. MIGUEL REYES



FRONT VIEW OF  
SUBJECT PROPERTY



REAR VIEW OF  
SUBJECT PROPERTY



STREET SCENE OF  
SUBJECT PROPERTY

PHOTOGRAPH ADDENDUM

Intended User CITY OF BRIDGEPORT  
Property Address 38 LUTHER STREET  
City BRIDGEPORT County FAIRFIELD State CT. Zip Code 06606  
Client MR. MIGUEL REYES

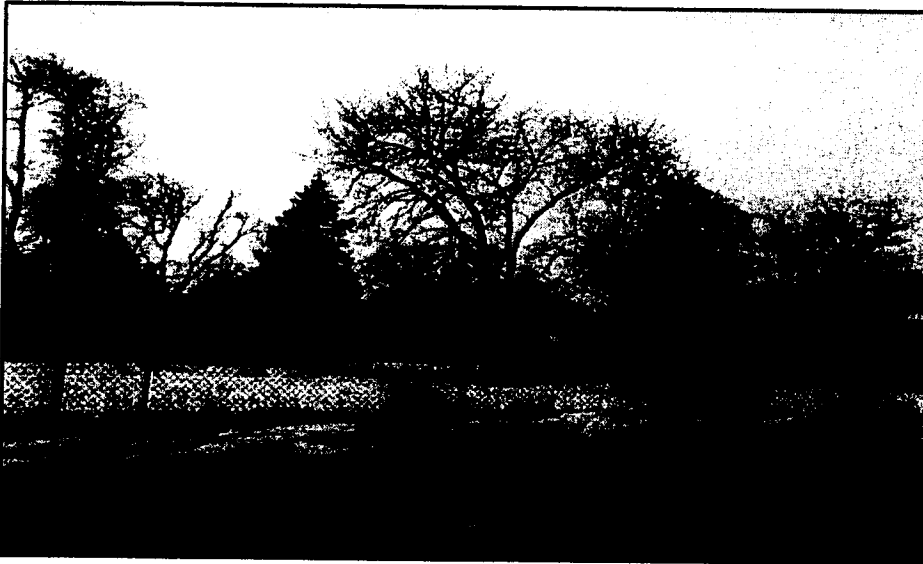


COMPARABLE #1

425 PEQUONNOCK STREET  
BRIDGEPORT, CT.

PRICE \$2,000  
PRICE/SF 33,333  
DATE 04/04/2012  
LIVING AREA .06 ACRES

VALUE INDICATION \$1,000



COMPARABLE #2

50 RITA AVENUE  
BRIDGEPORT, CT.

PRICE \$5,000  
PRICE/SF 41,667  
DATE 06/12/2013  
LIVING AREA .12 AC/NO WETLND

VALUE INDICATION \$1,000



COMPARABLE #3

42 RITA AVENUE  
BRIDGEPORT, CT.

PRICE \$5,000  
PRICE/SF 41,667  
DATE 06/12/2013  
LIVING AREA .12 AC/NO WETLND

VALUE INDICATION \$1,000



**SUBJECT TAX SHEET**

Intended User **CITY OF BRIDGEPORT**  
 Property Address **38 LUTHER STREET**  
 City **BRIDGEPORT** County **FAIRFIELD** State **CT.** Zip Code **06606**  
 Client **MR. MIGUEL REYES**

**Tax Property Full**

Click icon to go to MLS Listings

**Property Location & Identification**

**38 Luther St, Bridgeport CT 06606 1816** Property ID: **130M2605B11A**  
 County: **Fairfield** Carrier Rte: **C032** Latitude: **41.220963** Longitude: **-73.216345**  
 Census Tract: **072700** Census Block: **3000**

**Current Property and Ownership**

**Current Owners Information**

1: **Bridgeport City Of**  
2:

How Related:  
Owner Occupied: **No**

**Owner's Address**

**45 Lyon Ter  
Bridgeport CT 06604-4023**

**Most Recent Tax Information**

Assess Land Value: **\$64,740**  
 Assess Bldg Value:  
 Assess Total Value: **\$64,740**

Tax Year(July+): **July 2013-June 2014**  
 Fiscal Year: **2013** Base Mil Rate: **41.850**  
 Tax District: Additional Dist. Mil Rate:  
 Total Mil Rate: **41.85**  
 Tax Amount:

**Most Recent Sale Information**

Date: **07/02/2007** Amount: **\$1**  
 Type: **Foreclosure Sale**

Arm Length?: **No** Nominal?:  
 Deed: **Strict Frclsure** Record(Vol/Pg): **7544/9**

**Most Recent Mortgage Information**

Name: Date: Amount:

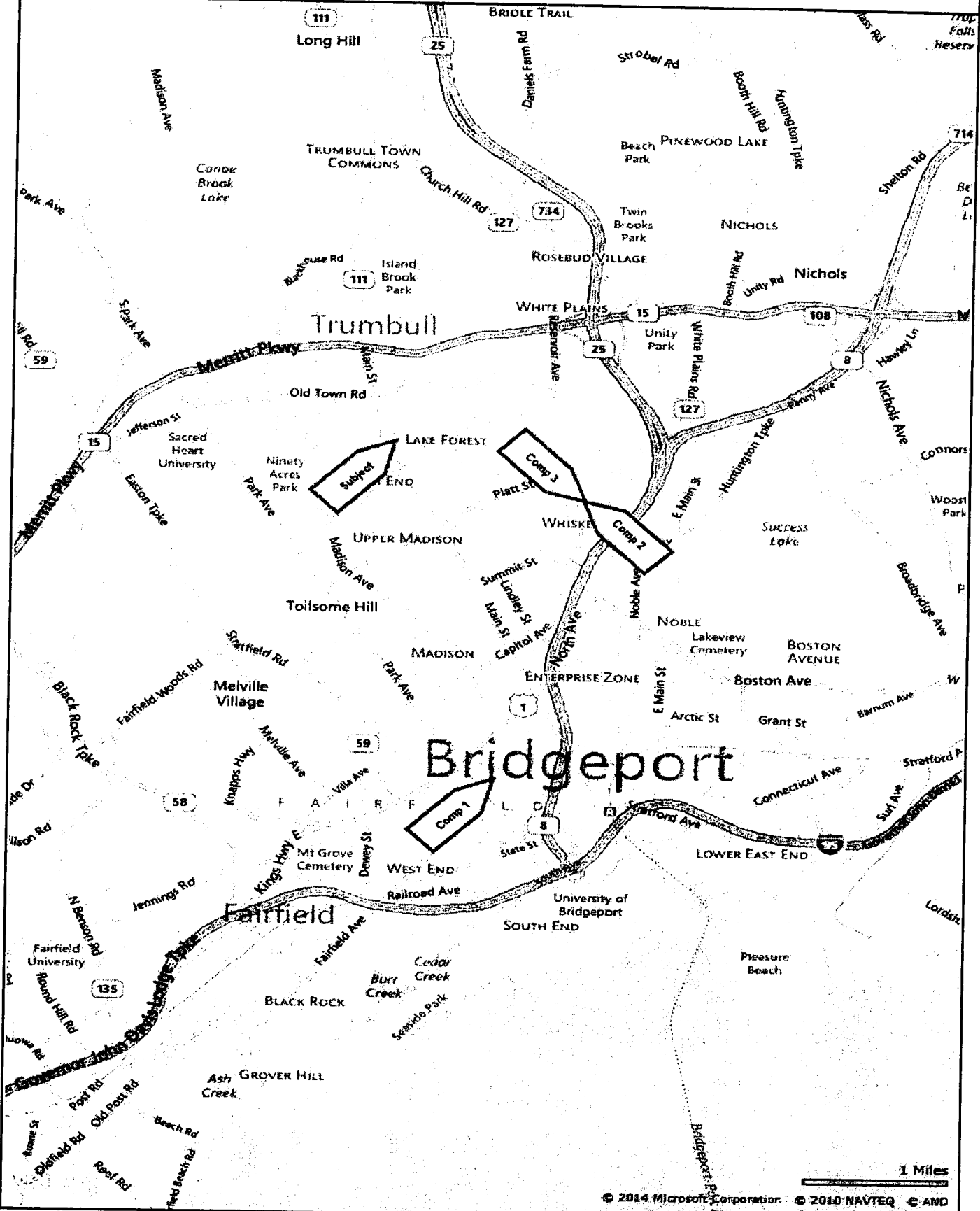
**Property Characteristics and Use Information**

Lot Size in Acres: **.11** # Buildings:  
 Lot Size in Sq Ft: **5,000** # of Units:  
 Building Area: # of Floors:  
 Living Area: # Rooms:  
 Basement Sq Ft: # Beds:  
 Unfinished Bsmt Sq Ft: # Full Baths:  
 Attic Sq Ft: # Half Baths:  
 Frst Floor Sq Ft: # Fireplaces:  
 Amenity 1: # Parking:  
 Amenity 2: Major  
 Amenity 3: Renovation:  
 Amenity 4: Year Built:  
 Amenity 5: Common Own%:  
 Condo Floor:

Property Usage: **Cty/Twn Prop**  
 Parking Type:  
 Bldg Style:  
 Building Condition:  
 Construction:  
 Exterior:  
 Roof Type:  
 Roof Material:  
 Basement Type:  
 Heat Type:  
 Heat Fuel:  
 Zoning:

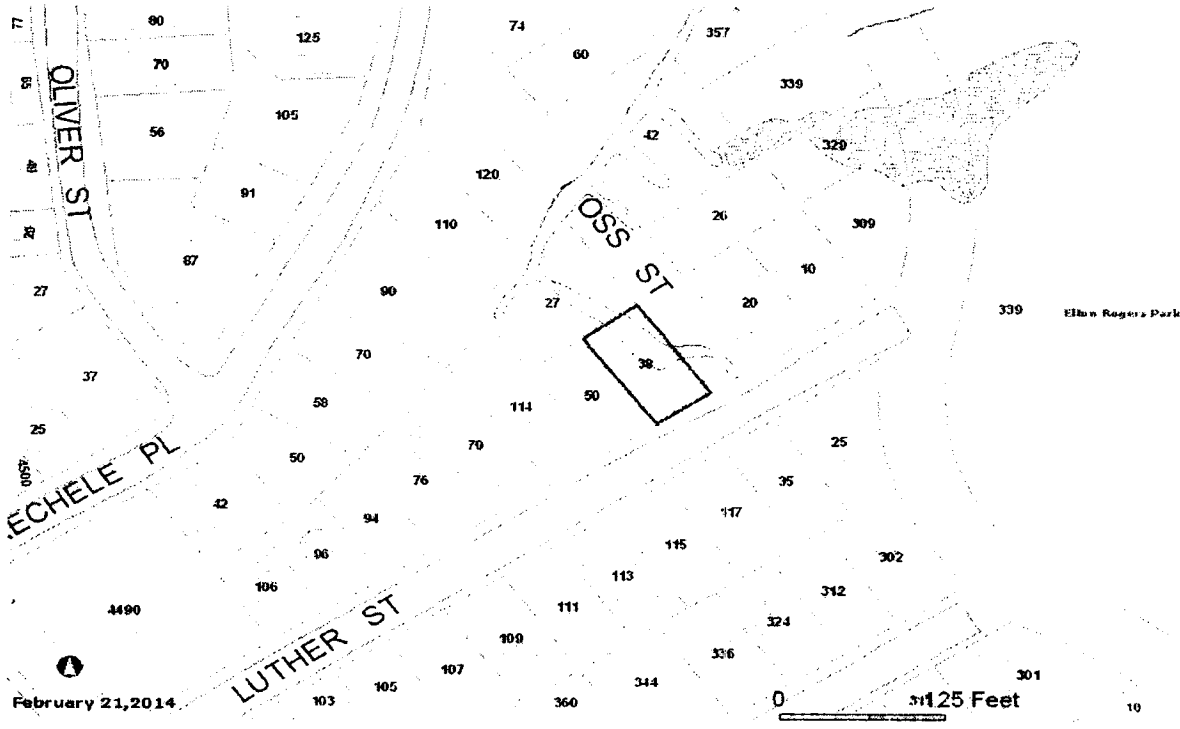
Location Map

Intended User	CITY OF BRIDGEPORT		
Property Address	38 LUTHER STREET		
City	BRIDGEPORT	County	FAIRFIELD
State	CT.	Zip Code	06606
Client	MR. MIGUEL REYES		



### SITE PLAN

Intended User	CITY OF BRIDGEPORT		
Property Address	38 LUTHER STREET		
City	BRIDGEPORT	County	FAIRFIELD
		State	CT.
		Zip Code	06606
Client	MR. MIGUEL REYES		



FLOOD MAP

Intended User **CITY OF BRIDGEPORT**  
 Property Address **38 LUTHER STREET**  
 City **BRIDGEPORT** County **FAIRFIELD** State **CT.** Zip Code **06606**  
 Client **MR. MIGUEL REYES**



**Flood Zones**

- |                                                                                     |                                                           |                                                                                     |                                                  |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------|
|  | Areas inundated by 500-year flooding                      |  | Floodway areas                                   |
|  | Areas outside of the 100- and 500-year flood plains       |  | Floodway areas with velocity hazard              |
|  | Areas inundated by 100-year flooding                      |  | Areas of undetermined but possible flood hazards |
|  | Areas inundated by 100-year flooding with velocity hazard |  | Areas not mapped on any published FIRM           |

**Flood Zone Determination**

Latitude: 41.221355  
 Longitude: -73.215607  
 Community Name:  
 BRIDGEPORT, CITY OF  
 Community: 090002  
 SFHA (Flood Zone): Yes

Within 250 ft. of multiple flood zones: Yes  
 Zone: A  
 Panel: 0427F  
 FIPS Code: 09001  
 Map #: 09001C0427F  
 Panel Date: 06/18/2010  
 Census Tract: 727

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STATE OF CONNECTICUT + DEPARTMENT OF CONSUMER PROTECTION

Be it known that

**GUY R ROCCO**  
PO BOX 832  
NORWALK, CT 06852


has been certified by the Department of Consumer Protection as a licensed

**CERTIFIED RESIDENTIAL REAL ESTATE APPRAISER**

License # RCR.0000816

Effective: 05/01/2013

Expiration: 04/30/2014

  
William M. Rubenstein, Commissioner

**\*78-13 Consent Calendar**

Disposition of City Owned Property located at 63  
Waldorf Avenue to Habitat for Humanity.

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**Report  
of  
Committee  
on  
CEA & Environment**

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Submitted: July, 7 2014

Adopted: \_\_\_\_\_

*Fleeta C Hudson*

Attest: \_\_\_\_\_

City Clerk

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Approved \_\_\_\_\_

Mayor

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# City of Bridgeport, Connecticut

*To the City Council of the City of Bridgeport.*

The Committee on **ECD and Environment** begs leave to report;  
and recommends for adoption the following resolution:

## **\*78-13 Consent Calendar**

**WHEREAS**, over time, by foreclosure and other conveyances, a substantial amount of property has come to ownership of the City of Bridgeport, most of which is severely blighted and deteriorated or consists of vacant lots, both buildable and non-buildable, on properties that at one time or another have had accumulations of rubbish and debris, fire damage, building and fire code violations and the continuance of various neighborhood nuisances; and

**WHEREAS**, the City owns one such property as follows:

1. 63 Waldorf Avenue      Res-Lot      216-17      Sell

**WHEREAS**, The City proposes to transfer the one above-listed property to the Habitat for Humanity of Costal Fairfield County so that Habitat for Humanity may develop this property as a duplex two-family affordable homes; and

**WHEREAS**, all parcels are being offered for sale in "as is/where is" condition and will remain in their current land use and zoning classification as part of this sale, and will be subject to the City's standard reverser clause to ensure that development of the sites takes place as per plans and within a reasonable time; and

**WHEREAS**, Habitat for Humanity of Costal Fairfield County is entering its 25th year and, has completed constructed of 156 houses in Bridgeport Property taxes paid by Habitat homeowners exceed \$500,000 per year; and

**WHEREAS**, Habitat for Humanity will fund the development of these sites with privately raised funds and/or, in part, with funds to be provided by the Wheels in the Wood Foundation, and then only for the development of homes affordable to people earning no more than 50% of the area's median income; and

**WHEREAS**, Selection as a Habitat homeowner is based on ability to repay a zero interest mortgage loan, the need to move out of substandard housing and the willingness to partner by investing 500 hours of sweat equity and



Report of Committee on ECD and Environment  
\*78-13 Consent Calendar

-2-

**WHEREAS,** Habitat brings together large numbers of volunteers, with diverse backgrounds, in a unified effort, to produce a highly beneficial, visible civic result; and

**SO, THEREFORE BE IT RESOLVED** that the City Council authorizes the transfer of the following one property to Habitat for Humanity of Costal Fairfield County for the total price of \$1.00 (One dollars and no cents):

- 63 Waldorf Avenue Res-Lot 216-17 Sell

**BE IT FURTHER RESOLVED** that the City Council authorizes the Mayor and/or the Director of OPED to execute any contracts or agreements, or to take any other such necessary actions consistent with and to effectuate the purposes of this resolution.

RESPECTFULLY SUBMITTED,  
THE COMMITTEE ON  
ECONOMIC AND COMMUNITY DEVELOPMENT & ENVIRONMENT

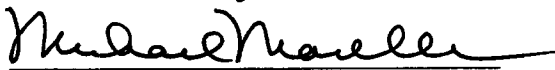
  
Lydia N. Martinez Co-Chair

  
Jack O. Banta Co-Chair


  
Mary A. McBride-Lee

  
Richard DeJesus

Michelle A. Lyons

  
Michael J. Marella

Eneida Martinez-Walker

  
Thomas C. McCarthy, President  
(Sat in to make Quorum)



## 63 WALDORF AV #65



Click to enlarge

MBLU : 11/ 216/ 17/ / /  
 Location: 63 WALDORF AV #65  
 Owner Name: JOSEPH PIERRE ANTOINE AND  
 Account Number: RJ-0039985



### Parcel Value

Item	Assessed Value
Improvements	0
Land	17,140
<b>Total:</b>	<b>17,140</b>



### Owner of Record

JOSEPH PIERRE ANTOINE AND  
 THERESE JOSEPH (SURV)



### Ownership History

Owner Name	Book/Page	Sale Date	Sale Price
JOSEPH PIERRE ANTOINE AND	2496/ 207	5/18/1988	

1.



### Land Use [\(click here for a list of codes and descriptions\)](#)

Land Use Code	Land Use Description
100	Vac Res Land



### Land Line Valuation

Size	Zone	Assessed Value
0.11 AC	RC	17,140



### Construction Detail

Item	Value
STYLE	Vacant Land



### Building Valuation

Item	Value
Living Area	0 square feet
Year Built	



### Outbuildings (click here for a list of codes and descriptions)

Code	Description	Units
No Outbuildings		



### Extra Features (click here for a list of codes and descriptions)

Code	Description	Units
No Extra Building Features		



### Building Sketch (click here for a list of codes and descriptions)

Vacant Land, No Sketch

Parcel ID : 0216--17-----  
GIS ID : 216-17  
Owner Name : JOSEPH PIERRE ANTOINE AND  
Property Location : 63 WALDORF AV #65  
Co-Owner : THERESE JOSEPH (SURV)  
Owner Addr : 142 SERIBNER AVE  
Owner City : NORWALK, CT 06854  
Account : RJ-0039985  
Land Area (Acres) : 0.11478421  
Land Value : \$17,140  
Building Value : \$0  
Total Value : \$17,140  
Land Use : Vac Res Land  
Style :  
Rooms:  
Total/Beds/Baths : N/A  
Year Built :  
Living Area :  
Last Sale Date : 5/18/1988  
Last Sale Price : \$140,000  
Qualified Sale? : U  
Book/Page : 2496/ 207

[View On-Line Vision Property Assessment Record](#)

[View LOCAL LIVE Bird's Eye Imagery](#)



**\*89-13 Consent Calendar**

Grant Submission: re United States Conference of Mayors for 2014 Lead Safe for Kids Sake Grant Program.

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**Report  
of  
Committee  
on  
ECB & Environment**

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Submitted: July 7, 2014

Adopted: \_\_\_\_\_

Attest: \_\_\_\_\_

*Fleeta C Hudson*  
City Clerk

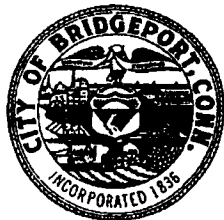
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Approved \_\_\_\_\_

\_\_\_\_\_  
*Mayor*

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# City of Bridgeport, Connecticut

*To the City Council of the City of Bridgeport.*

The Committee on **ECD and Environment** begs leave to report;  
and recommends for adoption the following resolution:

## **\*89-13 Consent Calendar**

### **A Resolution by the Bridgeport City Council Regarding the United States Conference of Mayors (USCM) 2014 Lead Safe for Kids Sake Grant**

**WHEREAS**, the United States Conference of Mayors (USCM) is authorized to extend financial assistance to municipalities in the form of grants; and

**WHEREAS**, this funding has been made possible through the 2014 Lead Safe for Kids Sake Grant Competition; and

**WHEREAS**, funds under this grant will be used to implement a program that will promote and provide access to nutritious foods that are necessary in reducing the risk of lead poisoning and

**WHEREAS**, it is desirable and in the public interest that the City of Bridgeport, Department of Health and Social Services, submit an application to the United States Conference of Mayors in an amount not to exceed \$50,000 for the purposes of promote and provide access to nutritious foods to children in Bridgeport, Connecticut; Now, therefore be it

#### **RESOLVED BY THE CITY COUNCIL:**

1. That it is cognizant of the City's grant application to and contract with the United States Conference of Mayors to promote and provide access to nutritious foods that will help in reducing lead poisoning in Bridgeport, Connecticut.
2. That it hereby authorizes, directs and empowers the Mayor or his designee to execute and file such application with United States Conference of Mayors for the 2014 Lead Safe for Kids Sake Grant and to provide such additional information and to execute such other contracts, amendments, and documents as may be necessary to administer this program.



Report of Committee on ECD and Environment  
**\*89-13 Consent Calendar**

-2-

RESPECTFULLY SUBMITTED,  
THE COMMITTEE ON  
ECONOMIC AND COMMUNITY DEVELOPMENT & ENVIRONMENT

Lydia N. Martinez Co-Chair

Jack O. Banta Co-Chair

Mary A. McBride-Lee

Richard DeJesus

Michelle A. Lyons

Michael J. Marella

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Eneida Martinez-Walker

Council Date: July 7, 2014

**\*90-13 Consent Calendar**

Grant Submission: re United States Environmental Protection Agency Targeted Brownsfield Assessment (TBA) Program.

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**Report  
of  
Committee  
on  
CEA & Environment**

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**Submitted: July 7, 2014**

Adopted: \_\_\_\_\_

Attest: \_\_\_\_\_

*Fleeta C. Hudson*

City Clerk

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Approved \_\_\_\_\_

\_\_\_\_\_  
Mayor

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# City of Bridgeport, Connecticut

*To the City Council of the City of Bridgeport.*

The Committee on **ECD and Environment** begs leave to report; and recommends for adoption the following resolution:

## **\*90-13 Consent Calendar**

### **A Resolution by the Bridgeport City Council Regarding the United States Environmental Protection Agency's (EPA) Targeted Brownfields Assessment (TBA) Program**

**WHEREAS**, the United States Environmental Protection Agency (EPA) is authorized to extend financial assistance and/or services to municipalities in the form of grants and/or grants of services; and

**WHEREAS**, these services have been made possible through the Targeted Brownfields Assessment (TBA) Program; and

**WHEREAS**, services under this Program will be used to for environmental site assessments at 179 Trowel Street, 336 Central Avenue, 349 & 364 Adams Street and 370 DeForest Avenue and other potentially contaminated sites located along Johnson's Creek in Bridgeport, Connecticut; and

**WHEREAS**, it is desirable and in the public interest that the City of Bridgeport, Office of Planning and Economic Development, submit an application to the United States Environmental Protection Agency in an amount not to exceed \$100,000 in EPA services for the purposes of providing environmental site assessments to various properties in Bridgeport, Connecticut; Now, therefore be it

#### **RESOLVED BY THE CITY COUNCIL:**

1. That it is cognizant of the City's grant application to and contract with the United States Environmental Protection Agency for environmental assessments at 179 Trowel Street, 336 Central Avenue, 349 & 364 Adams Street, 370 DeForest Avenue and other potentially contaminated sites located along Johnson's Creek in Bridgeport.
2. That it hereby authorizes, directs and empowers the Mayor or his designee to execute and file such application with United States Environmental Protection Agency's Targeted Brownfields Assessment Program and to provide such additional information and to execute such other contracts, amendments, and documents as may be necessary to administer this program.



Report of Committee on ECD and Environment  
\*90-13 Consent Calendar

-2-

RESPECTFULLY SUBMITTED,  
THE COMMITTEE ON  
ECONOMIC AND COMMUNITY DEVELOPMENT & ENVIRONMENT

*Lydia N. Martinez*

Lydia N. Martinez Co-Chair

Jack O. Banta Co-Chair

*Mary A. McBride-Lee*

Mary A. McBride-Lee

*Richard DeJesus*

Richard DeJesus

Michelle A. Lyons

Michael J. Marella

Eneida Martinez-Walker

**\*99-13 Consent Calendar**

Grant Submission: re KaBOOM! Community Partner  
Playground Program.

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**Report  
of  
Committee  
on  
ECB & Environment**

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**Submitted: July 7, 2014**

Adopted: \_\_\_\_\_

*Fleeta S. Hudson*

Attest: \_\_\_\_\_

City Clerk

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Approved \_\_\_\_\_

Mayor

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# City of Bridgeport, Connecticut

*To the City Council of the City of Bridgeport:*

The Committee on ECD and Environment begs leave to report; and recommends for adoption the following resolution:

**\*99-13 Consent Calendar**

**A Resolution by the Bridgeport City Council  
Regarding the  
KaBOOM! Community Partner Playground Program**

**WHEREAS**, the KaBOOM! is authorized to extend financial assistance and/or services to municipalities in the form of grants and/or grants of services; and

**WHEREAS**, these services have been made possible through the Community Partner Playground Program; and

**WHEREAS**, services under this grant are provided in the form of playground equipment and volunteers to build a playground on a site designated by the city using KaBOOM! community-build model which brings together volunteers who work together to build a new playground in one day; and

**WHEREAS**, the build will take place on a day in August or September 2014 as designated by KaBOOM!; and

**WHEREAS**, it is desirable and in the public interest that the City of Bridgeport Central Grants Office in partnership with the Public Facilities, Parks and Recreation Department, submits an application to KaBOOM! for the purpose of committing to build a playground, in a site designated by the city, using the KaBOOM! community-build model which brings together volunteers who work together to build a new playground in one day; Now, therefore be it

**RESOLVED BY THE CITY COUNCIL:**

1. That it is cognizant of the City's grant application to and contract with KaBOOM! for the purpose of the Community Partner Playground Program; and
2. That it hereby authorizes, directs and empowers the Mayor or his designee to execute and file such application with KaBOOM! for the Community Partner Playground Program and to provide such additional information and to execute such other contracts, amendments, and documents as may be necessary to administer this program.



Report of Committee on ECD and Environment  
\*99-13 Consent Calendar

-2-

RESPECTFULLY SUBMITTED,  
THE COMMITTEE ON  
ECONOMIC AND COMMUNITY DEVELOPMENT & ENVIRONMENT

Lydia N. Martinez Co-Chair

Jack O. Banta Co-Chair

Mary A. McBride-Lee

Richard DeJesus

Michelle A. Lyons

Michael J. Marella

Eneida Martinez-Walker

**\*109-13 Consent Calendar**

Resolution Authorizing a Tax Incentive Development Agreement for the Security Building in Downtown North.

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**Report  
of  
Committee  
on  
CEA & Environment**

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**Submitted: July 7, 2014**

Adopted: \_\_\_\_\_  
Attest: *Fleeta B Hudson*  
City Clerk

---

Approved \_\_\_\_\_

\_\_\_\_\_  
Mayor

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# City of Bridgeport, Connecticut

*To the City Council of the City of Bridgeport.*

The Committee on ECD and Environment begs leave to report; and recommends for adoption the following resolution:

## **\*109-13 Consent Calendar**

### **A Resolution by the Bridgeport City Council Authorizing a Tax Incentive Development Agreement for the Historic Restoration and Mixed-Use Redevelopment of the Security Building Complex in Downtown North at 1105, 1115, and 1135 Main Street**

**WHEREAS**, Bridgeport Historic Ventures LLC (the "Developer"), pursuant to a private purchase in July of 2012, is the owner of three historic commercial buildings located at 1105, 1115, and 1135 Main Street (hereinafter known collectively as the "Property"); and

**WHEREAS**, the Property's three buildings are each over one-hundred years old, with two dating from 1905 and one dating from 1904; and

**WHEREAS**, the Property comprises 113,000 square feet of space, the entirety of which was formerly used as commercial space, and the vast majority of which is currently vacant; and

**WHEREAS**, the Developer proposes to invest approximately \$20 million in the historic renovation of the Property to create a mixed-use facility consisting of 70 residential units as well as 10,000 square feet of retail space (the "Project"); and

**WHEREAS**, the Developer has secured for the Project a \$4 million award from the State Department of Housing's CHAMP Program as well as a \$1 million award from the State's Office of Brownfield Redevelopment; and

**WHEREAS**, the Developer expects to attract over \$7 million in Federal and State Historic Tax Credit Equity for the Project; and

**WHEREAS**, the balance of the Project's required funding, which equates to approximately \$8 million in permanent capital, must be secured through additional sources consisting of approximately \$2 million in private developer equity and approximately \$6 million in private financing; and

**WHEREAS**, in order to attract such private capital, the Project's financial structure must offer a reasonable rate of return on equity and sufficient cash flow to repay debt; and



Report of Committee on ECD and Environment  
\*109-13 Consent Calendar

-2-

**WHEREAS**, in recognition of these financial facts, Chapter 3.20 of the Bridgeport Municipal Code ("Tax Incentive Development Program") enables the City to provide real estate tax abatements to incentivize the redevelopment of property within the City by providing a stable, predictable, phase-in of real estate taxes toward full payment; and

**WHEREAS**, this Project meets the eligibility criteria of the City's Tax Incentive Development Program in that the City's Office of Planning and Economic Development ("OPED") finds that it:

- (1) represents at least \$3 million in investment;
- (2) is compatible with the Master Plan;
- (3) has received OPED's economic pro-forma analysis;
- (4) creates public benefits in neighborhood improvement;
- (5) shall not generate any less in taxes than in the year prior;
- (6) shall begin construction within two years;
- (7) has earned OPED's favorable report on economic impact

**WHEREAS**, it is in the City's interest to encourage the redevelopment of these historic buildings so as to create new housing and so as to spur the rebirth of Downtown North; Now, therefore be it

**RESOLVED** that the Director of the Office of Planning and Economic Development is authorized to negotiate and execute a Tax Incentive Development Agreement that will fix the real estate taxes at the Property for the first ten years after the issuance of a Certificate of Occupancy as follows:

Year 1:	\$ 90,000
Year 2:	\$ 92,700
Year 3:	\$ 95,481
Year 4:	\$ 98,345
Year 5:	\$101,296
Year 6:	\$104,335
Year 7:	\$107,465
Year 8:	\$110,689
Year 9:	\$114,009
Year 10:	\$117,430
<b>Total:</b>	<b>\$1,031,750</b>



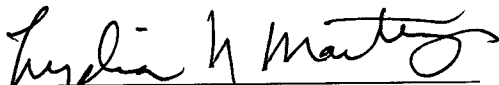


Report of Committee on ECD and Environment  
\*109-13 Consent Calendar


-3-

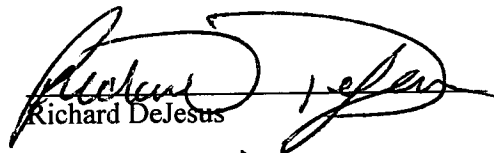
**BE IT FURTHER RESOLVED** that the Mayor and the Director of the Office of Planning and Economic Development are each authorized to execute such agreements and take such other necessary or desirable actions in furtherance of the Project and consistent with this resolution in the best interests of the City.

RESPECTFULLY SUBMITTED,  
THE COMMITTEE ON  
ECONOMIC AND COMMUNITY DEVELOPMENT & ENVIRONMENT

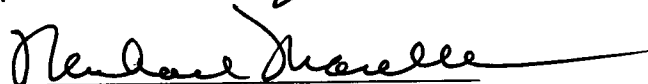
  
Lydia N. Martinez Co-Chair

  
Jack O. Banta Co-Chair

  
Mary A. McBride-Lee

  
Richard DeJesus

\_\_\_\_\_  
Michelle A. Lyons

  
Michael J. Marella

\_\_\_\_\_  
Eneida Martinez-Walker

**\*98-13 Consent Calendar**

Appointment of Tania Mayen (D) to the Harbor  
Commission.

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**Report  
of  
Committee  
on  
Miscellaneous Matters**

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**Submitted: July 7, 2014**

Adopted: \_\_\_\_\_

Attest: Fleeta G Hudson

City Clerk

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Approved \_\_\_\_\_

\_\_\_\_\_  
Mayor

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# City of Bridgeport, Connecticut

*To the City Council of the City of Bridgeport.*

The Committee on **Miscellaneous Matters** begs leave to report; and recommends for adoption the following resolution:

## **\*98-13 Consent Calendar**

**RESOLVED**, That the following named individual be, and hereby is, Appointed to the Harbor Commission in the City of Bridgeport and that said appointment, be and hereby is, approved, ratified and confirmed.

### **NAME**

### **TERM EXPIRES**

Tania Mayen (D)  
59 Bennell Street Apt. 42  
Bridgeport, CT 06605

September 30, 2015

\*This will fill a vacancy.

RESPECTFULLY SUBMITTED,  
THE COMMITTEE ON MISCELLANEOUS MATTERS

absent.  
AmyMarie Vizzo-Paniccia, Co-Chair

[Signature]  
Patricia Swain, Co-Chair

[Signature]  
Denese Taylor-Moye

[Signature]  
Susan T. Brannely

\_\_\_\_\_  
Milta I. Feliciano

\_\_\_\_\_  
Robert E. Halstead

[Signature]  
Jack O. Banta

Council Date: July 7, 2014

**\*107-13 Consent Calendar**

Appointment of Rosa J. Correa (R) to the Planning & Zoning Commission.

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**Report  
of  
Committee  
on  
Miscellaneous Matters**

---

**Submitted: July 7, 2014**

Adopted: \_\_\_\_\_

*Fleeta C Hudson*

Attest: \_\_\_\_\_

City Clerk

---

Approved \_\_\_\_\_

\_\_\_\_\_  
Mayor

---

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# City of Bridgeport, Connecticut

*To the City Council of the City of Bridgeport.*

The Committee on **Miscellaneous Matters** begs leave to report; and recommends for adoption the following resolution:

**\*107-13 Consent Calendar**

**RESOLVED**, That the following named individual be, and hereby is, Appointed to the Planning & Zoning Commission in the City of Bridgeport and that said appointment, be and hereby is, approved, ratified and confirmed.

**NAME**

**TERM EXPIRES**

Rosa J. Correa (R)  
56 Clover Hill Avenue  
Bridgeport, CT 06606

December 31, 2016

\*This will replace the seat held by Scott Powley.

RESPECTFULLY SUBMITTED,  
THE COMMITTEE ON MISCELLANEOUS MATTERS

*absent*

\_\_\_\_\_  
AmyMarie Vizzo-Paniccia, Co-Chair

\_\_\_\_\_  
Patricia Swain Co-Chair

\_\_\_\_\_  
Denese Taylor-Moye

\_\_\_\_\_  
Susan T. Brannelly

\_\_\_\_\_  
Milta I. Feliciano

\_\_\_\_\_  
Robert E. Halstead

\_\_\_\_\_  
Jack O. Banta



# City of Bridgeport, Connecticut

*To the City Council of the City of Bridgeport:*

The Committee on **Miscellaneous Matters** begs leave to report; and recommends for adoption the following resolution:

**\*117-13 Consent Calendar**

**RESOLVED**, That the following named individual be, and hereby is, Appointed to the WPCA Commission in the City of Bridgeport and that said appointment, be and hereby is, approved, ratified and confirmed.

**NAME**

**TERM EXPIRES**

Alfred Yazbak (D)  
170 Midland Street  
Bridgeport, CT 06605

December 31, 2015

\*This will fill a vacancy.

RESPECTFULLY SUBMITTED,  
THE COMMITTEE ON MISCELLANEOUS MATTERS

\_\_\_\_\_  
AmyMarie Vizzo-Paniccia, Co-Chair

\_\_\_\_\_  
Patricia Swain, Co-Chair

\_\_\_\_\_  
Denese Taylor-Moye

\_\_\_\_\_  
Susan T. Brannelly

\_\_\_\_\_  
Milta I. Feliciano

\_\_\_\_\_  
Robert E. Halstead

\_\_\_\_\_  
Jack O. Banta

Amendment to the Municipal Code of Ordinances,  
Chapter 6.04 Animal Control Regulations Generally  
amended Section 6.04.010 Keeping of Certain Animals  
Prohibited, **DENIED.**

**Report**  
**of**  
**Committee**  
**on**  
Ordinances

Submitted: July 7, 2014

Adopted: \_\_\_\_\_

Attest: \_\_\_\_\_

*Fleeta S. Hudson*

City Clerk

Approved \_\_\_\_\_

\_\_\_\_\_  
Mayor



# City of Bridgeport, Connecticut

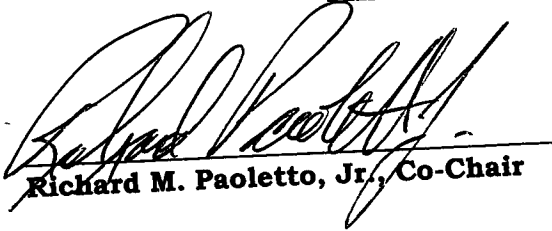
To the City Council of the City of Bridgeport:

The Committee on **Ordinances** begs leave to report; and recommends for adoption the following resolution:

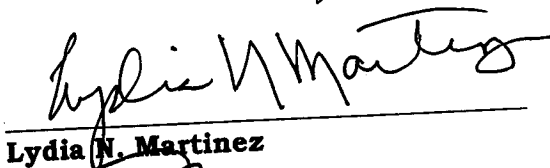
61-13

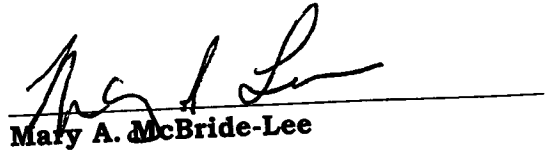
**BE IT ORDAINED:** By the City Council of the City of Bridgeport that Resolution 61-13 regarding Amendment to Municipal Code of Ordinances, Chapter 6.04 Animal Control Regulations Generally, amended Section 6.04.010 Keeping of Certain Animals Prohibited to include new language be and it hereby, is **DENIED**.

Respectfully submitted,  
**THE COMMITTEE ON ORDINANCES**

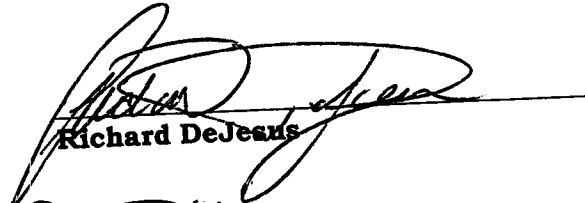
  
Richard M. Paoletto, Jr., Co-Chair

  
Eneida L. Martinez-Walker, Co-Chair

  
Lydia N. Martinez

  
Mary A. McBride-Lee

  
Rick Torres

  
Richard DeJesus

  
Amy Marie Vizzo-Paniccia

City Council Date: July 7, 2014