

# Strategy for a Flood Resistant Southern Tier Central Region

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## Flood Education Plan

*This plan presents a strategy for educating the public about flooding issues in the Southern Tier of New York. It was developed as Part II of the Community Outreach and Education Plan for the Strategy for a Flood Resistant Southern Tier Central Region project.*



Prepared by Southern Tier Central Regional Planning  
and Development Board

December 2014

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## *Flood Education Plan*

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Cover photograph courtesy of Tioga County, NY, Department of Economic Development & Planning.

# Strategy for A Flood Resistant Southern Tier

## *Flood Education Plan*

### I. Introduction

The Southern Tier of New York is prone to flooding and flash flooding, which cause damage to property and threaten the safety of citizens. Effective management of flood risks is a community-wide endeavor that requires support of citizens, businesses, government agencies, and other organizations. Well-informed people are able to make better decisions to protect themselves and their property from flooding.

Because flooding and flash flooding are the highest ranked hazards in Chemung, Schuyler, and Steuben Counties, the County Emergency Management Offices, municipal governments, and numerous other organizations have undertaken flood hazard outreach and education efforts. However, this outreach has generally not been coordinated.

This Flood Education Plan was prepared to enhance safety and reduce the vulnerability to flood damage by improving the effectiveness of public information programs. It presents a long-term strategy for coordinated public education about flood risks in the Southern Tier Central region. This plan identifies messages and outreach activities to promote improved understanding of the region's flood hazards and provide specific actions that can be taken to reduce risk. The objective is to promote additional public education about flooding and enhance the effectiveness of those efforts by identifying target audiences, key messages, outreach projects, and implementation partners.

Regional coordination of flood education activities is desirable because Chemung, Schuyler, and Steuben Counties have a strong tradition of coordinating on flood warning, flood education, and flood mitigation activities. In order to improve flood warnings in this region, Environmental Emergency Services (EES) was established in 1982 as a regional non-profit corporation through which public and private partners operate a local Flood Warning Service. The EES Public Information and Education Committee conducts and coordinates public education efforts about flooding and other emergency management topics. The region is also served by Southern Tier Central Regional Planning and Development Board (STC), which has implemented a Regional Flood Assistance Program since 1996. Most flood education activities have historically been undertaken by these and other regional entities (such as regional media) or the counties. Some municipalities also implement local flood education projects.



*Big Flats, 2004 (courtesy of Melissa Yearick)*

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### **II. Flood Education Goals**

This regional Flood Education Plan presents a comprehensive approach for coordinated messages and resources related to flood hazards. It supports the following goals:

- Promote public safety by encouraging risk reduction actions before, during, and after flood events
- Reduce and avoid flood damage to infrastructure, public property, and private property
- Build support for improved public policies that affect flood risks (local, state, and national)
- Promote improved management of floodplains, watersheds, and hydraulic systems

All of these goals require the understanding and support of citizens, businesses, elected officials, and organizations throughout the region. Well-informed people make better decisions and they take steps to protect themselves from flooding by retrofitting flood-prone buildings, buying flood insurance, and planning the actions they will take during the next flood. They will also support local floodplain management efforts and measures to protect natural floodplain functions.

This Plan is built on the following research findings about public education programs:

- Public information efforts need to explain the problem and the solutions. It is not enough that people know there is a flood hazard; they also need to know what they can do to cut their losses. This information empowers people to take responsible actions.
- Key messages need to be repeated many times before people absorb their meaning.
- Messages are more likely to be accepted if they are delivered from different credible sources. These multiple messages should be clear and consistent.
- Messages should relate to what is important to the audience, be presented in a manner that is easily understood, and promote positive outcomes.

### **III. Planning Process**

This Plan was prepared as part of a 3-year project to promote improved flood resilience in the three-county Southern Tier Central Region,<sup>1</sup> The planning process was facilitated by Southern Tier Central Regional Planning and Development Board (STC).

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<sup>1</sup> The “Strategy for a Flood Resistant Southern Tier Central Region” project is funded by the New York State Department of State through the Local Waterfront Revitalization Program and encompasses 42 municipalities located along designated inland waterways in Chemung, Schuyler, and Steuben Counties.

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The plan was developed utilizing the seven-step planning process for preparing a Program for Public Information (PPI) specified by the Community Rating System (CRS) program.

- Step 1: Establish a planning committee
- Step 2: Assess the public information needs
  - Assess flooding problems
  - Determine target audiences
  - Inventory other public information efforts
- Step 3: Formulate messages
- Step 4: Identify outreach projects to convey the messages
- Step 5: Examine other public information activities
- Step 6: Prepare a Flood Education Plan
- Step 7: Implement, monitor, and evaluate the program

The Community Rating System (CRS) is a part of the National Flood Insurance Program (NFIP) that enables reduced flood insurance premiums in participating communities. The reductions are based on community floodplain management programs, including public information activities. Eleven municipalities in Chemung and Steuben Counties currently participate in CRS, enabling 5 or 10% reductions in the cost of flood insurance.

Although this plan incorporates as many CRS elements as possible, it is not a PPI plan for the eleven CRS communities in the region. Information in this plan is presented primarily at a county and regional level and lacks the detail about municipal outreach activities that is needed for a PPI plan. However, this plan is intended to serve as a basis for subsequent development of PPI plans by interested CRS communities (either single or multi-jurisdictional). Information from the regional plan can be included as appropriate, along with details specific to the CRS municipality, to simplify the process of developing PPIs.

### **Flood Education Committee**

The planning committee for developing this regional plan was the Project Advisory Committee for the “Flood Resistant Southern Tier Central Region” project. This committee is comprised of at least one representative from each of the waterfront communities in the project area; county, state, and federal agencies; non-profit organizations, and citizens.

The initial planning meeting on March 3, 2013 was very well attended, with representatives from numerous organizations that will participate in implementing the plan. Attendees included representatives from:

- Municipalities (elected officials, staff, appointed boards)
- Local businesses and residents
- County departments (emergency management, planning, public works)
- Regional organizations (regional planning, flood warning operations, land trust, river protection/recreation group)

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- State departments (Department of Environmental Conservation, Department of State)
- National organizations (Congressional staff, American Red Cross, US Geological Survey)

Draft information presented by project staff and excellent group discussions enabled the committee to assess the region's public education needs and identify key messages. The group reviewed flooding problems, identified target audiences, and inventoried existing public information efforts. They then deliberated on priority topics and key messages for promoting proactive flood risk reduction measures.

A draft Flood Education Plan was developed based on the information and ideas presented at the meeting. Email correspondence and phone calls enabled project staff to fill in additional information, particularly regarding proposed outreach projects. A draft of this plan was distributed for review and comments.

A Community Rating System (CRS) Subcommittee, comprised of representatives from CRS communities, met on April 16, 2014. This meeting began with participation in a CRS Webinar: Developing Outreach Projects (Activity 330). This was followed by review of the draft *Public Education Plan* and discussion about forming a CRS Users Group. After this meeting it was determined that incorporation of all PPI requirements into this regional plan was too unwieldy.

Once comments and additions were incorporated into the plan, it was distributed to the planning committee and posted on the STC website.

## **IV. Flood Hazards and Risks**

The Southern Tier region is particularly susceptible to flooding due to the characteristics of soil, slope, land use, and weather patterns. Floods and flash floods can occur at any time of year as a result of heavy rains or snow melt. Debris or ice jams can block normal flow paths. In addition, man-made structures, such as storm sewers, dams, and levees may not operate as intended and contribute to flood damage.

**"Floods are 'acts of God,'  
but flood losses are largely  
acts of man."  
- Gilbert F. White, 1945**

Although flooding is a natural process, the risks associated with flooding result from location of development in vulnerable areas. In addition to inundation by water, flooding can also result in significant erosion damage. Some streams in the region have moved 50 feet or more in a single storm event.

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*Bath, 1935*

Detailed discussions of areas that are vulnerable to flooding are included in the Hazard Mitigation Plans developed by each county.<sup>2</sup> Some municipalities have also developed flood mitigation plans and multi-hazard mitigation plans, which are not current but include valuable information.

The planning committee agreed that the flood education program should cover all of the following flooding problems:

- **Major river floods**, which have historically occurred about every 20 years.
- **Flash flooding of tributary streams**, which occurs somewhere in the region almost every year, and several times in some years. Damage often occurs outside of mapped Special Flood Hazard Areas (as indicated on Flood Insurance Rate Maps).
- **Lakeshore flooding and waves**, affecting cottages, year-round residences, and other development on the shores of Keuka Lake, Seneca Lake, and many smaller lakes.
- **Local drainage problems**, which can occur anywhere that it rains.
- **Streambank erosion**, which can damage development that complies with floodplain development standards or is located outside of mapped floodplains.
- **Ice jams** on rivers, streams, and drainage ditches.
- **Levee failure or overtopping** in communities protected by engineered levees, many of which remove protected areas from the regulated floodplain as shown on effective Flood Insurance Rate Maps.
- **Dam failure**, particularly structures with a high hazard rating (Class C) for which failure may result in widespread or serious damage; but all structures are a concern.
- **Road ditch flooding and erosion**, which is a problem throughout the region.



*Elmira, 1972*

<sup>2</sup> 2012 Chemung County Hazard Mitigation Plan (<http://www.chemungcounty.com/index.asp?pageId=522>), 2008 Schuyler County Hazard Mitigation Plan (<http://ny-schuylercounty.civicplus.com/DocumentCenter/View/1632>), and 2009 Steuben County Hazard Mitigation Action Plan (<http://www.steubencony.org/pages.asp?PID=285>).



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*Campbell, 2003 (courtesy of Town of Campbell)*



*Rathbone, 2003 (courtesy of Steuben County Emergency Management Office)*

### **Flood Insurance Data**

A summary of flood insurance policy and claims data for the three counties is provided below. About 40% of the policies in the region are for buildings located outside of the mapped Special Flood Hazard Area (SFHA)<sup>3</sup>. But only 3% of the flood insurance claims are outside of the SFHA.

#### **Flood Insurance Policies (as of 3/25/2014)**

<b>County</b>	<b>Total Number of Policies</b>	<b>Policies in SFHA</b>	<b>Policies outside of SFHA</b>	<b>Total Coverage</b>	<b>Total Premiums</b>
Chemung	748	431	317	\$118,576,000	\$630,135
Schuyler	73	30	43	\$13,428,600	\$60,218
Steuben	951	611	340	\$147,030,600	\$868,586
<b>TOTAL</b>	<b>1,772</b>	<b>1,072</b>	<b>700</b>	<b>\$279,035,200</b>	<b>\$1,558,939</b>

#### **Flood Insurance Claims since 1978 (as of 3/25/2014)**

<b>County</b>	<b>Total Number of Claims</b>	<b>Claims in SFHA</b>	<b>Claims outside of SFHA</b>	<b>Total Paid</b>
Chemung	292	281	11	\$2,862,937
Schuyler	50	50	0	\$302,890
Steuben	384	370	14	\$2,168,369
<b>TOTAL</b>	<b>726</b>	<b>701</b>	<b>25</b>	<b>\$5,334,196</b>

<sup>3</sup> Special Flood Hazard Area is the regulated floodplain shown on a Flood Insurance Rate Map. It is the area with a 1% or greater probability of flooding in any given year (also called the 100-year floodplain).



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### **V. Target Audiences**

The region experiences a diversity of flooding problems that affect local communities in different ways. This necessitates a flood education campaign that targets many different audiences with messages tailored to each. The planning committee identified the following target audiences for additional flood information.

#### 1. Owners, Renters, and Users of Flood-Prone Property

People who own, use, or are considering the purchase of property in flood-prone areas need to have accurate information about the flood hazard so they can incorporate it into their decision-making process. They should know how to obtain flood warning information and be familiar with flood safety measures. They should also have access to accurate information about development standards and techniques for protecting property (insurance, floodproofing, drainage improvements, etc.). Education on these topics should not be limited to the regulated “flood zone” as depicted on FEMA maps. The target areas for property owner and renter education include:

- Regulated floodplains (Special Flood Hazard area or mapped “1% annual probability” floodplain, also called the “100-year” floodplain, as shown on effective Flood Insurance Rate Maps published by FEMA)
- Stream corridors and erosion hazard zones
- Levee-protected areas
- Dam inundation areas
- Other flood-prone areas that the community is aware of due to historic flooding or flood hazard analysis.

#### 2. Municipal and County Officials

Local governments can only have strong floodplain management, flood safety, and flood mitigation programs if municipal personnel have accurate information. Well-intentioned local governments may mislead constituents or issue inappropriate permits if they lack information about local flood hazards, floodplain development requirements, flood response procedures, mitigation options, and the impacts that flooding can have on the community. Flood education should target the following local staff, appointed boards, and elected officials:

- Code Enforcement / Building Departments
- Planning and Zoning Boards
- Highway Departments
- Elected Officials

#### 3. Professionals

The planning committee identified several types of professionals who should be knowledgeable about flooding issues in order to provide accurate and useful information to their clients. Committee members cited numerous examples of insurance agents, mortgage lenders, real estate agents, and other professionals

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providing inaccurate information about flood zones, maps, flood insurance, and other topics. In addition, building professionals should know about floodplain construction requirements, flood resistant design/materials, and post-disaster reconstruction. Land surveyors also interact with the public on flooding issues when they prepare Elevation Certificates and assist with Letters of Map Change. The following professionals are key partners in conveying information about flood hazards and should thus have access to information and resources about these topics:

- Insurance Agents and Adjusters
- Real Estate Agents
- Lenders
- Builders and building contractors
- Building supply stores
- Land surveyors
- Design professionals (engineers, architects, landscape architects)

#### 4. The Community at Large

All Southern Tier residents should have a basic understanding of flood hazards. Flooding can occur anywhere for a variety of reasons and everyone travels through and shops in areas that could flood. Everyone in the region should be able to make informed decisions about flood safety and sound public policy.

- Residents
- Drivers
- Students
- Voters



Canisteo, 1996

## VI. Existing Public Information Efforts

In order to promote action, flood education messages need to originate from as many different trusted sources as possible. These partners should deliver consistent messages using as many different communication channels as possible.

Numerous ongoing public information activities include or could incorporate the flood education messages identified in this plan. Many of these educational efforts are undertaken at the county and regional level and are thus well-suited for implementing this regional plan. The following table lists existing public information and outreach efforts that target the Southern Tier region and present opportunities for implementation of this plan.

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Organization	Projects	Topics
Municipal governments	Individual assistance, interactions with applicants, websites, handouts and brochures, newsletters, public meetings, direct mailing, outreach projects, social media	Floodplain development, building code, flood hazard areas (map information), zoning, flood safety, flood insurance, mitigation, stormwater management, other flood-related topics
Fire Departments	Exhibits, fairs, social media	Safety
Chemung County Public Information Officer	Website, press releases	Emergency conditions
Chemung County Emergency Management Office	Website, outreach projects, Facebook, Twitter, press releases, presentations, interviews with reporters	Safety, mitigation, emergency planning, flood hazard areas
Schuyler County Emergency Management Office	Website, outreach projects, Facebook, Twitter, press releases, presentations, interviews with reporters	Safety, mitigation, emergency planning, flood hazard areas
Steuben County Emergency Management Office	Website, outreach projects, Facebook, press releases, presentations, interviews with reporters	Safety, mitigation, emergency planning, flood hazard areas
Chemung County Planning Department	Website, individual assistance, training, presentations, Facebook	Land use planning
	Flood map information service	Flood hazard areas, flood insurance
Schuyler County Planning Department	Website, individual assistance, training, presentations	Land use planning, flood hazard areas
Steuben County Planning Department	Website, individual assistance, training, presentations	Land use planning, flood hazard areas
Chemung County Soil & Water Conservation District	Individual technical assistance, website, newsletter, presentations, environmental field days, handouts and brochures	Stream processes, wetlands, floodplain functions, agriculture, watershed functions
Schuyler County Soil & Water Conservation District	Individual technical assistance, website, Facebook, newsletter, presentations, environmental field days, storm drain markers, handouts and brochures	Stream processes, wetlands, floodplain functions, agriculture, watershed functions, stormwater management, erosion and sediment control, green infrastructure

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<b>Organization</b>	<b>Projects</b>	<b>Topics</b>
Steuben County Soil & Water Conservation District	Individual technical assistance, newsletter, presentations, handouts and brochures	Stream processes, wetlands, floodplain functions, agriculture, watershed functions, stormwater management, erosion and sediment control, green infrastructure
Schuyler County Watershed Protection Agency	Individual assistance, website, handouts, exhibits	Onsite wastewater treatment systems
Chemung County Stormwater Coalition	Website, brochures, Facebook, public service announcements, school programs, workshops, presentations, exhibits, outreach projects, storm drain markers	Stormwater management, erosion and sediment control, pollution prevention, watershed functions, green infrastructure
Chemung County Water Quality Strategy Committee	Water Quality Strategy, Annual Reports, website, presentations to legislature, tire collection, special projects	Non-point source pollution, water quality, invasive species, pollution prevention
Schuyler County Water Quality Coordinating Committee	Water Resources Strategy, Annual Reports, website, handouts, presentations to legislature, special projects	Non-point source pollution, water quality, lake management, invasive species, pollution prevention
Steuben County Water Quality Coordinating Committee	Water Quality Strategy, Annual Reports, website, handouts, presentations to legislature, special projects	Non-point source pollution, water quality, lake management, invasive species, pollution prevention
Cooperative Extension of Chemung County	Website, individual assistance, handouts and brochures, newsletters, youth education, public events, printed resources, Facebook, special projects	Agriculture, youth education, other topics
Cooperative Extension of Schuyler County	Website, individual assistance, handouts and brochures, newsletters, youth education, public events, printed resources, Facebook, Twitter, special projects	Agriculture, youth education, other topics
Cooperative Extension of Steuben County	Website, individual assistance, handouts and brochures, newsletters, environmental field days, youth education, public events, printed resources, Facebook, special projects	Agriculture, youth education, other topics
Chemung County Environmental Management Council	Special projects	Various environmental topics

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<b>Organization</b>	<b>Projects</b>	<b>Topics</b>
Schuyler County Environmental Management Council	Special projects	Various environmental topics
Steuben County Environmental Management Council	Special projects	Various environmental topics
Southern Tier Central Regional Planning & Development Board (STC)	Website, web-based GIS map viewers, newsletter, annual Leadership Conference, workshops, press releases, handouts, presentations, outreach projects	Flood safety, mitigation, floodproofing, floodplain management, stream processes, flood history, watershed planning, stormwater management, land use, environmental planning, other topics
Environmental Emergency Services (EES)	Website, presentations, brochures, special projects	Flood warnings, flood safety, flood history
Upper Susquehanna Coalition	Website, training, technical assistance, special projects	Emergency stream intervention, stream processes, floodplain functions, wetlands, watersheds
Rural Stormwater Coalition	Training, handouts and brochures, website, exhibits, special projects (rain barrels, storm drain markers, etc.)	Stormwater management, erosion and sediment control, pollution prevention, watershed functions, green infrastructure
NYS Department of Environmental Conservation (NYS DEC)	Individual assistance, Community Assistance Visits, interactions with permit applicants, training, presentations, website	Floodplain management, levees, stormwater management, stream processes, wetlands, habitat, other environmental topics
National Weather Service	Website, newsletter, Facebook, Twitter, YouTube, presentations, special programs	Flooding, severe weather, flood warnings, river forecasts
US Geological Survey (NY Water Science Center)	Website, reports, newsletter	Stream gauge data and statistics, flood information
American Red Cross	Printed materials, website, Facebook, Twitter, classes, special programs	Emergency preparedness, safety
Friends of the Chemung River Watershed	Website, Facebook, newsletter, river cleanup, presentations, special programs	Recreation, safety, water quality, other river topics
Finger Lakes Land Trust	Website, newsletter, Facebook, Twitter, Flickr, individual assistance, special programs	Natural beneficial floodplain functions, ecosystems, land protection

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<b>Organization</b>	<b>Projects</b>	<b>Topics</b>
News media	Newspapers, television, radio, websites, social media	News, weather, public service announcements, special features, various flood-related topics
WSKG Public Radio and Television	News, documentary films, classroom tools, social media	Various; "Agnes: The Flood of '72" documentary film and classroom tools
Libraries	Books, newspapers, references, internet access, brochures, special events	Various flood-related topics
Museums	Exhibits, special events, high water mark (Corning Museum of Glass)	History
Nature centers	Exhibits, youth programs, special events, social media	Natural systems
Chambers of commerce	Events, publications, websites, social media	Resilience, insurance, public policy
Schools/colleges	Classes, clubs, special events	Earth science, safety, drivers education
Youth organizations	Special events	Various
Insurance professionals	Individual assistance	Flood insurance, flood hazards
Real estate professionals	Individual assistance	Flood hazards, flood insurance
Lending institutions	Individual assistance	Flood zone determinations, flood insurance
Building professionals (design professionals, builders, building supply stores, etc.)	Individual assistance with new construction and retrofitting existing buildings.	Flood resistant design and materials
Land surveyors	Individual assistance, flood zone determinations, Elevation Certificates, Letters of Map Amendment	Flood hazards (maps and elevations)
Professional engineers	Individual assistance, flood hazard analysis/modeling, Letters of Map Revision, project design	Flood hazards, flood resistant design, flood control projects



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### VII. Flood Education Messages

The Planning Committee identified flood education messages for each of the following priority topics:

1. Know your flood hazard
2. Know the local flood history
3. Protect people
4. Protect property
5. Insure property
6. Build responsibly
7. Protect natural stream and floodplain systems
8. Understand flooding (general flood education)
9. Understand and protect levees
10. Preserve watershed functions

The committee wanted each message to be clear and concise. However, they felt that a single phrase often failed to include enough information about why the person should act, what they should do, how those actions can reduce losses, and where to learn more about how to proceed. Each of the following messages consists of a short phrase or slogan that is easy to remember. This is followed by several bullets that expand and explain the message. This can be used to quickly and efficiently make the desired point. These messages can also be expanded to incorporate additional information.

#### **Topic 1: Know Your Flood Hazard**

Studies have shown that homeowners' *actual* flood risks are often much higher than their *perceived* risks.<sup>4</sup> An accurate understanding of the flood risk is thus an important first step toward reducing or managing that risk. This is increasingly important because heavy downpours are increasing over time<sup>5</sup> and land use changes are causing increased and faster runoff, resulting in increased flood risks.



*Flood height marker in Boulder, CO  
(courtesy of Janet Thigpen)*

<sup>4</sup> Vrem, Mary Joe, May 2014: *NFIP Research Underscores Misperception of Flood Risk, Informs Outreach Efforts*. Association of State Floodplain Managers, Insider, p. 13-14.

<sup>5</sup> Melillo, Jerry M., Terese (T.C.) Richmond, and Gary W. Yohe, Eds., 2014: *Climate Change Impacts in the United States: The Third National Climate Assessment*. U.S. Global Change Research Program, pp. 36-37 (Section 2, Key Message 6: *Heavy Downpours Increasing*).

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### Message 1a

#### Flooding will happen.

- **Where it rains it can flood.**
- **Know your flood zone.**
- **Learn more from the FEMA Map Service Center ([www.msc.fema.gov](http://www.msc.fema.gov)) and your municipal building department.**

#### Audience:

- Owners, renters, and users of flood-prone property, targeting people who are new to the area and potential home buyers
- Municipal and county officials, including elected officials, building department staff, and planning/zoning boards
- Professional land surveyors, real estate agents, and mortgage lenders
- The community at large

### Message 1b

#### Flood risks are increasing.

- **Floods are becoming more frequent and more severe.**
- **Anticipate flooding that is worse than past events.**
- **Learn about how land use affects flooding (US Geological Survey Water Science School, <http://water.usgs.gov/edu/urbaneffects.html>) and about climate change impacts (Cornell Climate Change, [www.climatechange.cornell.edu/tools-resources/climate-change-101](http://www.climatechange.cornell.edu/tools-resources/climate-change-101)).**

#### Audience:

- Owners, renters, and users of flood-prone property, targeting areas adjacent to the flood zones on current maps
- Municipal and county officials
- The community at large

## Topic 2: Know the Local Flood History

Information about past floods and the resulting damage enriches the public's understanding of flood risks. Although information about the extent and depth of historic floods may be limited, high water marks and pictures of known landmarks can have an impact that maps and words do not. Images of flood and flash flood damage also highlight the potential for erosion, sediment damage, debris jams, landslides, and flooding beyond the mapped floodplain boundaries.



*Tioga County, NY*

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### Message 2a

**If it's flooded before, it can flood again.**

- **Mother Nature doesn't look at the flood map.**
- **Know about past floods and flash floods.**
- **Learn more from your neighbors, historical society, and local government.**

#### Audience:

- Owners, renters, and users of flood-prone property, targeting areas that have sustained past damage
- Municipal and county officials, including elected officials, building department staff, and planning/zoning boards
- The community at large

### Topic 3: Protect People

Each year, more deaths occur due to flooding than from any other severe weather related hazard.<sup>6</sup> Although government agencies and other organizations disseminate flood warnings and assist with emergency management tasks (road closings, evacuations, etc.), each individual is ultimately responsible for his or her own safety. This requires that the general public know what to do before, during, and after a flood to protect themselves and their loved ones.



*Sign in Boulder, CO (courtesy of Janet Thigpen)*

### Message 3a

**Plan for floods. There may only be a moment's notice.**

- **Floods are the number one storm-related killer in the United States.**
- **Be prepared to protect what matters by having a current emergency plan and following it.**
- **Learn about flood safety (National Weather Service, [www.floodsafety.noaa.gov](http://www.floodsafety.noaa.gov)), flood plans ([www.focusonfloods.org/flood-plans](http://www.focusonfloods.org/flood-plans)), and how to prepare for an emergency (American Red Cross, [www.redcross.org/prepare](http://www.redcross.org/prepare)).**

#### Audience:

- Owners, renters, and users of flood-prone property, targeting people in and outside of mapped flood zones
- Municipal and county officials
- The community at large, including children and adults

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<sup>6</sup> NOAA National Weather Service.

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### Message 3b

#### Turn Around Don't Drown® (TADD).<sup>7</sup>

- **Over half of all flood deaths occur in cars.**
- **Most cars will float in as little as two feet of water. And the driver can't see how deep the water is or if the road surface is still there.**
- **Never drive through floodwaters.**



#### Audience:

- The community at large, targeting drivers, drivers education students, senior driving students, and defensive driving students

### Message 3c

#### Don't be caught unaware.

- **Flood warnings can save lives.**
- **Enroll in NY-ALERT to receive public safety messages for the locations you select (by voice phone call, text message, or email) at [www.nyalert.gov](http://www.nyalert.gov).**
- **Learn how to sign up to get email or cell phone alerts for a specific river gauge at [www.focusonfloods.org/flood-alerts](http://www.focusonfloods.org/flood-alerts).**

#### Audience:

- Owners, renters, and users of flood-prone property, targeting people in and outside of mapped flood zones, facilities serving high need populations, and facilities with hazardous materials
- Municipal and county officials, including everyone involved in emergency operations
- The community at large



### Topic 4: Protect Property

The Southern Tier region has a legacy of existing neighborhoods and buildings that are susceptible to flood damage (often because they pre-date floodplain development standards or are outside of mapped flood zones). Retrofitting these structures to increase flood resilience should be the social norm, particularly after a flood when repairs are underway. In addition to encouraging floodproofing and providing helpful information, a flood education campaign should also promote conversations about retrofitting projects in flood-prone neighborhoods.

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<sup>7</sup> NOTE: “Turn Around Don't Drown®” is a registered trademark of NOAA, so any use of this term must comply with National Weather Service policy. This policy and other resources are available at <http://tadd.weather.gov>.

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## Flood Education Plan

### Message 4a

#### **Floodproof buildings to lessen the loss.**

- **If it's flooded before, it can flood again.**
- **Floodproof: Protect your property by using flood-resistant materials and techniques.**
- **Learn more from the STC Floodproofing web page ([www.stcplanning.org/index.asp?pageId=107](http://www.stcplanning.org/index.asp?pageId=107)).**

#### Audience:

- Owners, renters, and users of flood-prone property, particularly those with non-elevated buildings
- Municipal building officials
- Professionals: builders and building contractors, building supply stores, land surveyors, design professionals

### **Topic 5: Insure Property**

Uninsured flood losses can limit a community's ability to recover from a disaster. Not every property owner in the Southern Tier needs flood insurance. But decisions about whether to obtain coverage should be based on accurate information about flood risks and insurance. A recent study found that the primary reason policyholders buy flood insurance is for peace of mind. And the main reasons non-policyholders cite for declining flood insurance are lack of perceived risk and belief that flood insurance is not worth the cost.<sup>8</sup> Because insurance agents are generally the primary resource for information about flooding and flood insurance, it is imperative that these professionals have the training and resources they need to provide accurate information about both flood risks and flood insurance. In the STC region there have been many anecdotal reports of residents receiving incorrect information from insurance agents and other professionals.



### Message 5a

#### **Uninsured flood losses can break the bank. Protect what matters.**

- **Low risk is not the same as no risk.**
- **Make informed decisions about whether you need flood insurance to protect your financial investment.**
- **Information is at [www.FloodSmart.gov](http://www.FloodSmart.gov).**

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<sup>8</sup> Vrem, Mary Joe, May 2014: *NFIP Research Underscores Misperception of Flood Risk, Informs Outreach Efforts*. Association of State Floodplain Managers, Insider, p. 13-14.



# Strategy for A Flood Resistant Southern Tier

## Flood Education Plan

### Audience:

- People who own or rent flood-prone property, in and outside of mapped flood zones

### Message 5b

#### Reduce confusion about flood insurance.

- **In the Southern Tier Central region, flood insurance is based on old paper maps and new rating procedures.**
- **Provide clients with accurate information about flood risks and flood insurance.**
- **Attend professional training to keep up-to-date about the complex and changing National Flood Insurance Program.**

### Audience:

- Professional insurance agents, insurance adjusters, mortgage lenders, real estate agents, inspectors, appraisers, and assessors.
- Municipal and county officials.

### **Topic 6: Build Responsibly**

Most development decisions are made when the water is low and flooding seems unlikely. As a result, both property owners and local communities may consider floodplain development requirements to be unnecessary restrictions. Outreach is needed to remind all parties involved about the importance of protecting development from damage when (not if) flooding occurs. The simplest strategy for preventing flood damage is to locate development outside of high risk areas. When development does occur in flood-prone locations, it should meet or exceed floodplain management standards.

### Message 6a

#### Build high to stay dry.

- **The mapped flood zone is a high hazard floodplain.**
- **Floodplain permits are required for all floodplain development – not just buildings.**
- **Locate development outside of the regulated flood zone or get a permit from the municipality.**
- **Fact sheets are available on the STC Floodplain Development Standards web page ([www.stcplanning.org/index.asp?pagelD=108](http://www.stcplanning.org/index.asp?pagelD=108)).**



### Audience:

- Property owners in regulated floodplain
- Municipal building officials, planning/zoning boards, and elected officials
- Professionals: builders and building contractors, land surveyors, and design professionals



# Strategy for A Flood Resistant Southern Tier

## Flood Education Plan

### Message 6b

#### Say yes to flood-safe development.

- Public safety and protecting property are fundamental duties of local government.
- Build safe, sustainable, and flood resilient communities by managing the use of flood-prone areas.
- Obtain training and assistance to implement current floodplain development requirements and move toward “no adverse impact” floodplain management (contact STC at 607-962-5092 or [stcrpdb@stny.rr.com](mailto:stcrpdb@stny.rr.com)).

#### Audience:

- Municipal building officials, planning/zoning boards, and elected officials
- Professionals: builders and building contractors, land surveyors, and design professionals

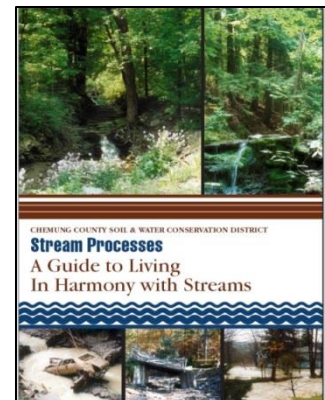
### Topic 7: Protect Natural Stream and Floodplain Systems

Most people do not understand that floodplains are integral parts of stream and river systems. When high flows overflow the banks, water spreads out on a floodplain where friction slows the water down and dissipates energy. This provides valuable flood protection for downstream areas by storing floodwater and reducing peak flows. It also reduces the erosive power of the stream and thus the potential for erosion damage.

### Message 7a

#### Live in harmony with streams: Let them move and let their floodplains flood.

- Streams are active systems that change course over time and need floodplains to carry high flows.
- Locate development away from stream channels where it is safe from erosion and doesn't obstruct flow.
- Read “Stream Processes: A Guide to Living in Harmony with Streams” ([www.stcplanning.org/index.asp?pageId=103](http://www.stcplanning.org/index.asp?pageId=103)).



#### Audience:

- Property owners with streams, lakes, and wetlands (primarily rural)
- Municipal and county officials

### Message 7b

#### Dredging can increase flood damage.

- If a stream channel is changed, the system will adjust, which often causes increased erosion or flooding.

## Strategy for A Flood Resistant Southern Tier

### *Flood Education Plan*

- **Do not dredge or alter stream channels without considering the long-term channel stability.**
- **Get technical assistance from the County Soil and Water Conservation District.**

#### Audience:

- Property owners with streams
- Municipal and county highway departments and elected officials
- The community at large

#### **Message 7c**

##### **Don't dump in streams: The house you flood may be your own.**

- **Debris in streams can clog culverts, divert flow, and cause flooding.**
- **Do not put debris or yard waste in streams or store material where it can be washed downstream during a flood.**
- **Contact the municipal Code Enforcement Department to report dumping.**

#### Audience:

- Property owners with streams
- Municipal officials
- The community at large.

#### **Topic 8: Understand Flooding (general flood education)**

An informed public is better able to make responsible decisions about acceptable risks and actions that can reduce those risks. In addition, public support is crucial for floodplain management and flood mitigation programs. Sound public policies thus require that both community leaders and the general public be informed about flood hazards and flood protection measures.

#### **Message 8a (for students)**

##### **Floods happen. Lessen the loss.**

- **Floodplains are places that naturally flood.**
- **Streams naturally adjust to changes.**
- **People can make these problems worse.**
- **People can be prepared and reduce damage.**
- **Learn more: [www.focusonfloods.org/projects](http://www.focusonfloods.org/projects).**
- **Be prepared: [www.ready.gov/kids](http://www.ready.gov/kids).**



*Chemung County Stormwater Educator at Environmental Field Day (courtesy of Janet Thigpen)*

#### Audience:

- Students, student organizations, and families

# Strategy for A Flood Resistant Southern Tier

## Flood Education Plan

### Message 8b (for adults)

**“Floods are ‘acts of God,’ but flood losses are largely acts of man.” (Gilbert F. White, 1945)**

- **The Southern Tier is prone to flooding, flash flooding, and stream bank erosion.**
- **To improve flood resilience:**
  - **Manage water where it falls.**
  - **Make space for water.**
  - **Live with floods.**
- **Learn more at the Focus on Floods website ([www.focusonfloods.org](http://www.focusonfloods.org)) and STC Flood Mitigation pages (<http://www.stcplanning.org/index.asp?pageid=20>).**

### Audience:

- The community at large, particularly community leaders

### **Topic 9: Understand and Protect Levees**

The STC region has 50 miles of flood control levees, which provide valuable protection from flooding. However, these projects and excessive reliance on the protection they provide may also contribute to increased flood losses at some location. Education is needed to avoid the complacency regarding the residual flood risks in levee-protected areas.

### Message 9a

**Levees reduce—but do not eliminate—flood risks.**

- **When a levee overtops or fails, the damage may be more catastrophic than it would have been without the levee.**
- **Mitigate flood risks behind levees by receiving emergency alerts, preparing an emergency plan, purchasing flood insurance, and floodproofing your home.**
- **Learn more at the Levee Safety website ([www.leveesafety.org/lvlevee101.cfm](http://www.leveesafety.org/lvlevee101.cfm)).**

### Audience:

- Residents and businesses in levee-protected areas
- Municipal and county officials.

### Message 9b

**Protect the levees that protect your community.**

- **Damage to the protective vegetation on a levee places the entire community at risk of catastrophic results.**
- **Do not drive on levees or damage the sod.**



*Levee patrol training, Elmira  
(Courtesy of NYS DEC)*

# Strategy for A Flood Resistant Southern Tier

## Flood Education Plan

- **Report violations to State Flood Control staff (607-732-2214).**

### Audience:

- Owners of flood control land.
- The community at large, including children and teenagers who may be tempted to drive bikes, motorcycles, or all-terrain vehicles (ATVs) on levees

### **Topic 10: Preserve Watershed Functions**

Undeveloped landscapes are comprised of a matrix of natural systems that affect the amount and speed of runoff into lakes, streams and rivers. Upland landowners generally fail to recognize that alterations on their land can increase flood peaks for downstream neighbors. Public education is needed about the value of protecting and replacing natural landscape functions so that flooding problems are not made worse.

#### **Message 10a**

##### **Slow it down. Spread it out. Soak it in.**

- **More runoff into streams leads to more flooding.**
- **Manage water near where it falls by protecting natural features, limiting impervious cover, and using stormwater management practices.**
- **Visit STC Stormwater webpages ([www.stcplanning.org/index.asp?pageId=44](http://www.stcplanning.org/index.asp?pageId=44)).**

### Audience:

- Municipal and county officials
- Professionals: builders, building contractors, and design professionals
- The community at large



*Rain garden, Montour Falls  
(courtesy of Schuyler County  
Soil and Water Conservation  
District)*

## **VIII. Post-Flood Messages**

After a flood, a common response is to get the community “back to normal” as quickly as possible. Unfortunately, “normal” often means leaving a community susceptible to damage from the next flood. In addition to post-flood messages about safety, insurance claims procedures, and applying for disaster assistance, there is also a need for public information messages about resilient re-building to create a safer community. These post-flood messages must be clear and relevant because people in a stressed state of mind have a reduced capacity to process information. It is very difficult for them to hear, understand, and remember what is said.

# Strategy for A Flood Resistant Southern Tier

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## *Flood Education Plan*

### **Topic 3: Protect People**

- **Wait until it is safe to return.**
- **Travel with care. Watch for washed out roads, earth slides, and downed trees or power lines.**
- **Use extreme caution when entering flooded buildings. There may be hidden dangers.**
- **A flooded home is no longer a safe place.**  
Provide information about cleanup procedures, including discarding of contaminated food and medicine, boiling drinking water, ventilation, disinfecting, etc.
- **Get professional help.**  
Provide information about sources of emergency assistance, the potential need for medical or mental health care, testing of drinking water, professional inspection of electrical systems, procedures for restoring gas service, etc.

### **Topic 4: Protect Property**

- **Pump out flooded basements gradually to avoid structural damage.**
- **Prevent mold.**  
Provide information about how to clean and protect flood-damaged buildings and property.
- **Stop and think – you don't want to go through this again. Floodproof while you repair.**  
Provide the public with guidance on how to “stop and think” and resources about flood damage prevention techniques. Provide building professionals (municipal building officials, contractors, building supply stores, etc.) with training and technical resources about floodproofing techniques. Provide municipal boards with information about strategies for building back smarter and the use of a temporary reconstruction moratorium to allow time for owners of flood-damaged property to “stop and think” and learn about flood resistant reconstruction techniques.

### **Topic 5: Insure Property**

- **Take pictures of the damage.**
- **Get assistance with insurance claims.**  
Provide the public with information about flood insurance coverage, the claim process, Increased Cost of Compliance (ICC), and who to contact for assistance. Provide insurance professionals with contact information for training and assistance.

# Strategy for A Flood Resistant Southern Tier

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## *Flood Education Plan*

### **Topic 6: Build Responsibly**

- **Get a permit for repairs.**  
New York State building standards and municipal floodplain development permit requirements apply to repair and reconstruction projects.
- **Severely damaged buildings may need to be elevated.**  
Provide the public and municipal officials with information about substantial damage requirements. Provide municipal officials with information about how to obtain assistance with substantial damage determinations and enforcement, as well as the potential consequences of failure to enforce floodplain development standards.

### **Topic 7: Protect Natural Stream and Floodplain Systems**

- **Is this a safe place to be? Consider buyouts and floodplain restoration.**  
Provide owners of severely damaged structures and community officials with information about FEMA buyout programs.
- **It is sometimes beneficial to restore stream functions and channel stability. This is generally not accomplished by dredging, which can make flooding problems worse.**  
Provide the public with information about stream processes, maintenance needs, and effective remedial actions. Provide highway departments, contractors, and Soil and Water Conservation Districts with training, resources, and access to technical expertise on emergency stream intervention techniques.

### **Topic 8: Understand Flooding**

- **Floods happen. It's not your fault.**  
Educate children about what causes flooding to help them understand and accept what has happened.
- **Flooding is natural. Build back smarter.**  
Public education about flood risks is needed to overcome the perception that it will never happen again. Provide community leaders with resources to help them develop a vision for a more flood-resistant community and a plan for achieving that vision.

## **IX. Strategy for Conveying Flood Education Messages**

The Committee identified existing and new outreach activities for delivering key messages to priority audiences. These proposed tasks utilize various media and techniques for conveying the messages and can be implemented by numerous partners. The proposed outreach activities for conveying each message are listed in the following table.



# Strategy for A Flood Resistant Southern Tier

## Flood Education Plan

Message	Proposed Activities	Messengers*
<b>Topic 1: Know Your Flood Hazard</b>		
1a: Flooding <u>will</u> happen...	Provide Flood Insurance Rate Map information when requested.	Municipal building departments, county planning
	Provide website links to FEMA’s Map Service Center ( <a href="http://www.msc.fema.gov">www.msc.fema.gov</a> ).	Municipalities, county planning, county emergency management, STC
	Display Flood Insurance Rate Maps in municipal building departments or other municipal offices.	Municipal building departments
	Include maps showing approximate flood zone boundaries (and other relevant flood hazard information if available) in comprehensive plans, hazard mitigation plans, watershed plans, online GIS mapping sites, and other planning documents.	Planning consultants, comprehensive planning committees, STC, and others involved in planning efforts
	Provide training for municipal building officials, municipal planning boards, county planning staff, land surveyors, real estate agents, and mortgage lenders on: Flood Insurance Rate Maps, Elevation Certificates, Letters of Determination Review, Letters of Map Amendment, and Letters of Map Revision.	NYS DEC, STC, or other presenters
	Distribute handout(s) about investigating flood risks (such as the Chemung County “Before You Build or Buy” brochure). Seek ways to get this information to people who are new to the area and potential home buyers.	Municipalities, real estate agents, mortgage lenders, SWCDs, county planning, county emergency management
	Post signs in visible locations to indicate boundaries of the Special Flood Hazard area or Base Flood Elevations.	Municipal building departments, county departments, STC, or other
1b: Flood risks are increasing ...	Provide exhibits and reference materials about changing flood risks: museum exhibits, nature center exhibits, information/links on local websites, library references, etc.	Museums, nature centers, libraries, county departments, STC; resources from National Weather Service, US Geological Survey, state agencies, and universities

# Strategy for A Flood Resistant Southern Tier

## Flood Education Plan

Message	Proposed Activities	Messengers*
1b (continued)	Include information about the anticipated impacts of climate change in county hazard mitigation plans.	Planning consultants, county emergency management
	Publicize new reports or predictions about changing flood risks that are relevant to the STC region: newsletter articles, press releases, newspapers, broadcast media, social media, etc.	Local news outlets, municipalities, county departments, STC
<b>Topic 2: Know the Local Flood History</b>		
2a: If it's flooded before, it can flood again...	Post high water marks in public places to show historic flood levels or the extent of historic flooding.	Municipalities, counties, EES,, STC, or other
	Provide exhibits, photographs, and reference materials about historic floods: informational signs for pedestrians, museum exhibits, nature center exhibits, photos in municipal and county office buildings, library books, photos and information on local websites, etc.	Museums, nature centers, historical societies, libraries, municipalities, county departments, EES, STC
	Publicize anniversaries of historic floods: newsletter articles, press releases, newspapers, broadcast media, social media, etc.	Local news outlets, counties, municipalities, EES, STC
<b>Topic 3: Protect People</b>		
3a: Prepare for a flood...	Provide information about disaster planning and preparedness: websites, print materials, libraries, individual assistance (on request).	County emergency management, American Red Cross, EES, municipalities, libraries
	Publicize flood preparedness information and advice during Flood Awareness Week (national and NY usually in the spring), Severe Weather Preparedness Week (national and NY usually in the spring), or at other times: newsletter articles, press releases, newspapers, broadcast media, public service announcements, social media, posters, etc.	County emergency management, local news outlets, municipalities, STC; use resources from the National Weather Service, and NYS Office of Emergency Management
	Encourage participation in the NOAA Weather-Ready Nation Ambassador Initiative. Ambassadors collaborate with NOAA on delivery of preparedness messages to the public and serve as examples by implementing resilience best practices. Potential Ambassadors: broadcast media, libraries, educational organizations, insurance companies, local governments, and others.	NWS and EES can promote the program.

## Strategy for A Flood Resistant Southern Tier

### Flood Education Plan

Message	Proposed Activities	Messengers*
3a (continued)	Disseminate reminders about being prepared for flooding when the NWS Hazardous Weather Outlook indicates an elevated flood risk for the region: press releases, newspapers, broadcast media, social media, etc.	National Weather Service, county emergency management, and local news outlets
	Conduct youth education about flood preparedness through school programs or other youth organizations, as well as website links (ex. Owlle Skywarn information on the National Weather Service website, <a href="http://www.weather.gov/owlle">www.weather.gov/owlle</a> ).	County emergency management, municipalities, EES, National Weather Service, American Red Cross
3b: Turn around don't drown® (TADD)...	Establish Turn Around Don't Drown® road signs along flood-prone roadways and obtain portable signs that can be deployed as needed.	Highway departments
	Incorporate TADD videos and other flood safety information into driver training: drivers education classes, AARP driver safety courses (for seniors), defensive driving classes, bus driver training, etc.	Driving instructors
	Incorporate flood safety information into drivers' educational materials: New Driver information distributed by the Steuben County Traffic Safety Board, Chemung County Traffic Safety Brochure, NYS Driver's Manual (TADD brochure can be distributed locally to supplement inadequate information until the manual is updated), AARP online Driving Resource Center, AAA resources, etc.	County Traffic Safety Boards, NYS Department of Motor Vehicles, AARP, AAA
	Broadcast and disseminate TADD public service announcements and information about 511NY (which provides information about current road conditions), focusing on times when the NWS hazardous weather outlook indicates an elevated flood risk: broadcast media, social media, websites.	Broadcast media, county emergency management
	Locate print material (posters and handouts) in public places and include TADD messages on websites.	Libraries, county offices/websites, municipalities, schools, etc.
3c: Don't be caught unaware...	Continue to maintain County StormReady certification.	County emergency management offices

## Strategy for A Flood Resistant Southern Tier

### Flood Education Plan

Message	Proposed Activities	Messengers*
3c (continued)	Disseminate information (in person, on websites, and print materials) about methods for receiving emergency messages: NY-ALERT, National Weather Radios, Emergency Alert System, Wireless Emergency Alerts, River Gauge Alerts, Code Red (Steuben County), ping4alerts (Schuyler County), and social media.	County emergency management offices
<b>Topic 4: Protect Property</b>		
4a: Floodproof buildings to lessen the loss...	Disseminate information about floodproofing techniques as handouts and on websites (including STC fact sheets and technical references by FEMA and others).	Municipal building departments, STC, Finger Lakes Home Builders and Remodelers Association
	Provide training for municipal building officials, contractors, building supply stores, and others about flood-resistant building materials, techniques for retrofitting flood-prone structures, and measures that can be taken to reduce flood insurance costs (such as elevating utilities).	NYS Department of State, Finger Lakes Home Builders and Remodelers Association, other presenters
	Provide targeted outreach and technical assistance to owners of non-elevated flood-prone buildings.	Municipal building departments
	Publish newsletter articles and provide media coverage of retrofitting projects in flood-prone areas.	Municipalities, EES (draft newsletter articles, issue press releases), local news outlets
	Provide the public with ideas and information about floodproofing opportunities, through exhibits at fairs, the Finger Lakes Home Builders and Remodelers Association Home Show, and at public meetings following flood events.	Municipal building officials
<b>Topic 5: Insure Property</b>		
5a: Uninsured flood losses can break the bank. Protect what matters...	Disseminate information about the costs and benefits of flood insurance as handouts (including printed material from FEMA), on websites (links to floodsmart.gov), and in targeted mailings to flood-prone property owners.	Insurance agents, real estate agents, mortgage lenders, municipalities, counties, libraries

## Strategy for A Flood Resistant Southern Tier

### Flood Education Plan

Message	Proposed Activities	Messengers*
5b: Reduce confusion about flood insurance...	Provide training workshops about flood insurance (including map determinations, Letters of Map Amendment, elevation certificates, mandatory purchase requirements, how policies are rated, etc.) tailored for various professionals: insurance agents, insurance adjusters, mortgage lenders, real estate agents, inspectors, appraisers, and assessors. This should include local workshops as well as webinars. Provide attendees (and other professionals) with informational material (such as FEMA handouts) for distribution to clients.	FEMA, H2O Partners (FEMA's contractor for NFIP training), local professionals (as presenters), county and regional agencies (to organize and help with logistics)
	Include basic information about flood insurance in presentations and correspondence with municipal and county officials (building officials, elected officials, planning boards, etc.), particularly when program changes are implemented and after floods.	NYS Department of State, NYS DEC, other trainers
<b>Topic 6: Build Responsibly</b>		
6a: Build high to stay dry...	Distribute information summarizing floodplain development requirements and recommendations for flood resilient development (in and outside of the regulated floodplain): brochures, direct mailing to owners of flood-prone property, newsletter articles, websites, etc.	Municipalities, real estate agents, SWCDs, county planning, county emergency management, EES, STC
	Provide applicants for floodplain development with information and individual assistance about required development standards and about opportunities for improving flood resilience.	Municipal building departments
	Provide applicants for development in potentially flood-prone areas outside of the regulated floodplain (near the mapped floodplain, areas with historic flooding, etc.) with recommendations about flood protection measures.	Municipal building departments
	Maintain reference materials that provide guidance for complying with floodplain development standards (such as the Floodplain Factsheets developed by STC) and additional flood protection suggestions: websites and print materials.	Municipalities, county planning, STC
6b: Say yes to flood-safe development...	Provide training for municipal building officials, planning boards, zoning boards of appeal, and elected officials about local floodplain development permits, existing standards, and opportunities for enacting higher standards.	NYS DEC, STC, other presenters

# Strategy for A Flood Resistant Southern Tier

## Flood Education Plan

Message	Proposed Activities	Messengers*
6b (continued)	Provide technical assistance with enforcing existing floodplain development standards, enacting higher standards, integrating flood hazards into local plans, and implementing additional flood resilience measures. This includes website resources (such as Floodplain Factsheets developed by STC) and individual assistance.	DEC, STC, county planning
	Provide municipalities with information about the Community Rating System (CRS) program and assistance with implementing existing and new CRS programs (to improve flood resilience and enable flood insurance discounts).	STC, EES, county emergency management, county planning
<b>Topic 7: Protect Natural Stream and Floodplain Systems</b>		
7a: Live in harmony with streams: Let them move and let their floodplains flood...	Disseminate information about stream processes (including natural floodplain functions, the hazards of developing within active stream corridors, the value of riparian buffers, and the flood protection benefits of preserving natural stream functions) as handouts (such as “Stream Processes: A Guide to Living in Harmony with Streams” by STC and the Chemung County SWCD), on websites, and in libraries.	SWCDs, Upper Susquehanna Coalition, county planning, county emergency management, municipalities, STC, libraries, nature centers
	Utilize the EmRiver model (owned by the Chemung County SWCD) for demonstrations and interactive learning about how streams respond to changes: at fairs, youth education events (such as Environmental Field Days), as part of training workshops, and other venues.	Chemung County Stormwater Coalition, SWCDs, Upper Susquehanna Coalition
	Provide training for local planning boards, comprehensive planning committees, and elected officials about planning tools for promoting development patterns that are resilient to flooding, do not cause adverse impacts, and protect natural resources (stream setbacks, overlay districts, conservation zones, buffer vegetation requirements, etc.).	County planning departments, STC
	Provide planning assistance to incorporate protection of stream corridors, lake shores, and floodplain functions into municipal and county Comprehensive Plans and local land use regulations.	County planning departments, STC
7b: Dredging can increase flood damage...	Disseminate information about the detrimental impacts of stream dredging and appropriate stream management strategies as handouts (such as the STC factsheet, “Dredging: Is it a Good Solution to Flooding Problems?”) and on websites.	SWCDs, Upper Susquehanna Coalition, municipalities, STC



## Strategy for A Flood Resistant Southern Tier

### Flood Education Plan

Message	Proposed Activities	Messengers*
7b (continued)	Provide Emergency Stream Intervention workshops for municipal officials and in-depth training for highway departments and contractors.	Upper Susquehanna Coalition Stream Team, SWCDs
	Provide technical assistance with the design, permitting, and implementation of stream projects	SWCDs, Upper Susquehanna Coalition Stream Team
7c: Don't dump in streams: The house you flood may be your own...	Disseminate information about the detrimental impacts of stream dumping: as handouts, on websites, and on signs (in locations where dumping has been a problem).	Municipalities, Chemung County Stormwater Coalition, SWCDs, highway departments
	Provide planning assistance with stream dumping regulations.	County planning departments, STC
	Publicize stream cleanup events: newsletter articles, press releases, newspapers, broadcast media, social media, etc.	Friends of the Chemung River Watershed, local news outlets, municipalities, counties, STC
<b>Topic 8: Understand Flooding (general flood education)</b>		
8a (for students): Floods happen. Lessen the loss...	Include flood education stations and exhibits at Environmental Field Days, nature centers, fairs (such as Elmira River Fest, county fairs and Earth Day events), and after-school/summer youth programs. Where appropriate utilize interactive tools and activities, such as the stormwater-floodplain model (owned by Environmental Emergency Services), the EmRiver model (owned by Chemung County SWCD), and Project Wet activities.	Chemung County Stormwater Coalition, SWCDs, Cooperative Extension, EES, county Water Quality Coordinating Committees, nature centers
	Provide support as needed to incorporate and enhance flood education in school classrooms for all grade levels. This can include outside presenters, training for teachers, lending of educational tools (such as models), classroom resources (such the film developed by WSKG, "Agnes: The Flood of '72"), curriculum development, and other assistance.	Schools, EES, National Weather Service, Chemung County Stormwater Coalition, WSKG, SWCDs, Cooperative Extension
8b (for adults): "Floods are 'acts of God,' but flood losses are largely acts of man." (Gilbert White)...	Disseminate information about flood hazards and flood resilience strategies as handouts, on websites, in libraries, as museum/nature center exhibits, and as exhibits at fairs and events.	EES, National Weather Service, municipalities, counties, libraries, nature centers, museums, others

# Strategy for A Flood Resistant Southern Tier

## Flood Education Plan

Message	Proposed Activities	Messengers*
8b (continued)	Facilitate local dissemination of flood education materials developed for Flood Awareness Week (by the National Weather Service), Focus on Floods (by Nature Nurture Center), and other organizations: on websites, by local news media, social media, in newsletters, etc.	EES, National Weather Service, county emergency management, municipalities, local news outlets, STC
	Make presentations about flooding for civic groups and public events. Use the documentary film developed by WSKG, "Agnes: The Flood of '72," as appropriate.	EES, National Weather Service, WSKG, other presenters
<b>Topic 9: Understand and Protect Levees</b>		
9a: Levees reduce—but do not eliminate—flood risks...	Disseminate information about flood risks associated with levees: as handouts, on websites, on signs near levees, in newsletter articles, library resources, and by direct mailing to owners of levee-protected property.	NYS DEC, EES, municipalities, STC
	Provide planning assistance to develop and implement development standards and recommendations that improve flood resilience and are appropriate for the flood risks in levee-protected areas.	NYS DEC, STC, county planning
9b: Protect the levees that protect your community...	Include information about protecting levees and levee maintenance needs in the outreach materials developed for Message 9a: handouts, websites, signs, newsletter articles, library resources, and direct mailing to levee-protected areas.	NYS DEC, EES, municipalities, STC
	Respond to threats to levees (from motor vehicles, mowing, construction, landscaping, etc.) with targeted education, in addition to any enforcement actions: targeted distribution of handouts (such as the DEC "Guide for Use of Flood Control Project Lands"), press coverage, newsletter articles, and individual contacts.	NYS DEC, municipalities, local news outlets
	Provide training on levee patrols and installation of levee closures for personnel who may be involved in these activities. Include information about "dry weather" observations that could indicate problems and procedures for reporting concerns.	NYS DEC
	Build community support for levee protection measures and expenses (operation, maintenance, vegetation removal, certification, etc.) when warranted: news coverage, newsletter articles, and individual contacts.	NYS DEC, municipalities, counties, EES, local news outlets

## Strategy for A Flood Resistant Southern Tier

### *Flood Education Plan*

Message	Proposed Activities	Messengers*
<b>Topic 10: Preserve Watershed Functions</b>		
10a: Slow it down. Spread it out. Soak it in...	Continue to implement comprehensive stormwater education programs, emphasizing the relationship between runoff and flooding: handouts, websites, newsletter articles, press coverage, public workshops, advertisements, public service announcements, storm drain markers, signs, exhibits, youth education, training workshops, technical assistance, etc.	Chemung County Stormwater Coalition, Rural Stormwater Coalition, SWCDs, county planning, county Water Quality Coordinating Committees, STC, Cooperative Extension
	Provide training, technical assistance, and planning assistance to support implantation of effective stormwater management and watershed management practices.	Chemung County Stormwater Coalition, Rural Stormwater Coalition, SWCDs, county planning, STC, Cooperative Extension

\* EES = Environmental Emergency Services; NYS DEC = New York State Department of Environmental Conservation; STC = Southern Tier Central Regional Planning and Development Board; SWCD = Soil and Water Conservation District.



# Strategy for A Flood Resistant Southern Tier

## Flood Education Plan

Many of the proposed flood education activities are currently implemented by local partners. Some are conducted on a consistent basis, while others are more sporadic. An enhanced regional flood education program could support these ongoing efforts and facilitate improved coordination of the messages. This should include both an initial effort to assemble resources that convey the identified messages to appropriate audiences, followed by ongoing implementation assistance.

Unfortunately, the proposed flood education efforts cannot all be accomplished with existing staff and resources. It is anticipated that multiple funding sources will be required to enable coordinated implementation of the proposed regional flood education program by multiple partners.

Key elements of the proposed Regional Flood Education Program are summarized below.

### Printed Materials

Identify and/or develop brochures and other printed materials that are suitable for conveying each flood education message to target audiences in the southern tier. This will include brochures and in-depth reference materials. When these resources are already available, select those that are most suitable for this region. For many messages, it may be desirable to develop new brochures and documents that are tailored to the local conditions and audiences. Maintain hard copies of these printed materials in a centralized location and post as many as possible on a website.

For each handout or document, identify appropriate locations for dissemination (municipal offices, libraries, etc.) and distribute as appropriate. Locations disseminating brochures should be contacted periodically to confirm that they have sufficient copies.

It will be necessary to periodically review these materials to assess the continued relevance and update as appropriate. Ideally this will be done annually.

### Websites

Develop local websites that include relevant flood information and internet links to additional resources related to each flood education message. Much of this information can be at a centralized location, such as the flood mitigation pages currently on the STC website. However, municipalities, counties, and partner organizations should also have information on their websites that is relevant to their organizations, with links to the centralized site and other resources as appropriate.



Ready Steuben website

# Strategy for A Flood Resistant Southern Tier

## *Flood Education Plan*

Once websites are developed ongoing maintenance is needed to ensure that links are current and resources remain relevant.

### **Signs and Exhibits**

Signs and exhibits have been identified as effective communication tools for many of the flood education messages (1a, 1b, 2a, 3b, 4a, 7c, 8a, 8b, 9a, 9b, and 10a). These include permanent road signs, portable signs that can be deployed as needed (Turn Around Don't Drown®), informational signs for pedestrians, historic markers, high water marks, photographs in public places, permanent exhibits in museums or nature centers, and temporary exhibits for special events. It is recommended that an inventory be developed of existing flood information signs, exhibits, and high water marks. Additional opportunities can be identified and suggestions shared with the relevant organizations. A list of desired projects should be maintained and implemented as resources permit.



*Color-coded river gauge promotes understanding of water levels, Binghamton, NY (courtesy of Janet Thigpen)*



*Children's artwork conveys flood safety messages on a gate that is closed during high water events, Boulder, CO (courtesy of Janet Thigpen)*

### **News and Social Media**

Newspapers, radio, television, and newsletters are means of disseminating timely information related to current events and other information. Ongoing efforts are needed to disseminate press releases, write flood-related newsletter articles, distribute Flood Awareness Week information, and provide other support. Public service announcements and paid advertising can also be used to communicate flood education messages.

In recent years, the public has begun to rely on social media for information (in addition to the traditional news sources). This can be a powerful tool for flood education because people trust information and recommendations that they receive from their peers (through social media as well as other means). Many local organizations who are partners in disseminating flood education messages are already utilizing Facebook, Twitter, and other social media platforms. It is recommended that a regional social media strategy be developed to support and enhance the current flood-related messaging. This would begin

## **Strategy for A Flood Resistant Southern Tier**

### *Flood Education Plan*

with an analysis of existing efforts to identify the strengths, weaknesses, and gaps in flood education information. If new social media accounts are desired technical assistance can be provided to develop those programs (objectives, audience, platforms, procedures, etc.). In order to build a network of contacts and maintain credibility, each account must stay active, periodically posting engaging content. A messaging plan can be developed to provide a framework for ensuring that the key messages identified in this plan are periodically conveyed through social media channels. Messages related to flood emergencies can be pre-drafted for use when needed.



*Cover image for Chemung County's Fire and Emergency Management Facebook page*

### **Training and Technical Assistance**

The public often receives information related to flooding through individual interactions with municipal officials, county employees, and professionals (insurance agents, surveyors, etc.). Trained personnel are essential for word-of-mouth delivery of flood education messages. Professional training, technical assistance, and planning assistance are included in this flood education plan because the professionals and government officials who interact with the public on flood related issues (insurance, development, land use, emergency response, etc.) need to be knowledgeable so they can be reliable sources of accurate information. The messages for which training and assistance are integral to message delivery are: 1a, 3b, 4a, 5b, 6a, 6b, 7a, 7b, 7c, 8a, 9a, 9b, and 10a. In some cases, existing training resources and knowledgeable presenters are available. For other topics, new material should be developed. This effort requires an ongoing commitment of staff and resources to conduct periodic training, update training materials, provide technical assistance, and provide planning assistance as needed.

### **Youth Education**

Educating children about flooding is important for their safety and provides the foundation for them to become knowledgeable adults who make sound decisions. Although some youth education on flooding issues occurs currently, much more could be done. The stormwater-floodplain model (purchased by Environmental Emergency Services) is an



## Strategy for A Flood Resistant Southern Tier

### *Flood Education Plan*

excellent tool for hands-on learning and is available for use by trained presenters. It is recommended that additional efforts be made to take this tool and flood education messages into the schools and to other youth organizations. The EmRiver model owned by the Chemung County Emergency Management Office is also an excellent tool for youth education. The objective of an enhanced youth education program about flooding would be to integrate flood education projects into school **curricula at multiple age levels. This could be accomplished by informal educators who** deliver flood education programs to classrooms and youth organizations and also by working with teachers to integrate flood information into their curricula.



*Students interacting with the EES stormwater-floodplain model at Environmental Field Day (courtesy of Janet Thigpen)*

### **CRS Outreach Programs**

The eleven STC communities that participate in the Community Rating System program can get credit for flood outreach projects and website information provided that those efforts are ongoing, are consistent with CRS criteria, and are well-documented. Additional credit is available if the community designs and implements a Program for Public Information (PPI). Although this regional Flood Education Plan cannot serve as the PPI plan for the CRS communities, it contains messages and other information that can be used to develop such plans. It is recommended that each CRS community (or groups of communities) form a PPI committee to develop a local plan that fulfills flood education needs and qualifies for CRS credit. Coordination among CRS communities is desirable and could be achieved if county or regional personnel provide coordination, planning assistance, assist with webpage design, and implement some of the outreach projects. Funding is needed to provide this assistance with initiating new CRS outreach programs. Ongoing assistance may also be desired for annual program implementation.

### **Flood Response Preparation**

In addition to the ongoing flood education messages, this plan also identifies post-flood messages and information that are needed to promote safety and recovery during and after a flood. The Flood Education Committee recommends that post-flood educational projects be developed so that these messages can be delivered efficiently following a flood. Handouts, reference materials, and other resources should be identified and assembled so they are ready for reproduction and dissemination when needed. Templates for press releases and language for social media messages should be developed so that they can be customized and used when flooding occurs. Public presentations and training can also be developed in advance. The assembled resources should be retained at each county

# **Strategy for A Flood Resistant Southern Tier**

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## *Flood Education Plan*

Emergency Management Office for use and distribution to municipalities as needed. These post-flood resources should be reviewed and updated annually.

### **Coordination of Flood Education Activities**

Ongoing leadership is needed to facilitate implementation of this regional Flood Education Plan and coordinated delivery of flood education messages. This effort would start with distribution of the identified messages to local media and other partners. Ongoing efforts would be required to assist with coordination, updating of resources, distributing materials, and other tasks. It is recommended that the Public Information and Education Committee of Environmental Emergency Services facilitate this ongoing program coordination.

## **X. Evaluation of Flood Education Programs**

It is proposed that the EES Public Information and Education Committee meet periodically to evaluate this plan and incorporate any needed revisions. Key partners in plan implementation will be asked to participate in these meetings. The evaluation will cover:

- A review of the projects that were completed
- Progress toward the desired outcomes
- Recommendations regarding projects that are not completed
- Changes in the messages and/or target audiences
- Recommendations for additional projects

This information will be documented and shared with implementation partners.