

LONG TERM COMMUNITY RECOVERY STRATEGY

Date: September, 2013

Village of Owego, New York



Sponsored by the NYS
Department of State,
Office of Communities
and Waterfronts





This document is intended to be printed double-sided on letter size paper.





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Project Overview



The State of New York Department of State (DOS) has provided funding to the Village of Owego to create the Long Term Community Recovery Strategy (LTCRS). The Village is working in conjunction with the Tioga County Department of Economic Development and Planning, and the Department of State to complete this study.

Regional Setting

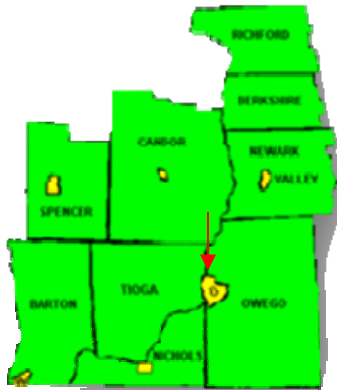
The Village of Owego is located in the southeast corner of Tioga County. The County, which measures 523 square miles, is located approximately 30 miles west of the City of Binghamton and is within a three- to four-hour drive to major metropolitan centers such as Philadelphia, New York, and Buffalo.

Tioga County is comprised of nine towns and six villages, and according to the 2010 US Census, includes 51,125 residents. The County is well served by a network of interstate, state, and local highways including Interstate 86 and State Routes 17C (the Southern Tier Expressway), 34, 38, 79, 96, and 434. Tioga County's strategic location and proximity to major transportation routes helps drive the local economy, which is dependent on a wide variety of industries including tourism, agriculture, manufacturing, and education. The majority of the County's residents live within the Town of Owego.



Community Profile

The Village of Owego is a charming community located in the Southern Tier Region of New York State. The Village, which has served as the Tioga County Seat since 1822, encompasses approximately 2.5 square miles within the Town of Owego. Owego is bound by the Town of Tioga to the west, the Town of Newark Valley to the north, Broome County to the east, and Bradford County, Pennsylvania to the south.



The Village is characterized by tree-lined streets, historic 19th century architecture, breathtaking views of the Susquehanna River, and a quaint downtown filled with shops, restaurants and art galleries. With all of its cultural amenities, festivals, and scenic waterfront parks and walkway, it's no surprise that the Village of Owego was named the "Coolest Small Town in America" by Budget Travel Magazine readers in 2009.

The major employers in the Village are the Tioga County Government and the Owego/ Apalachin School system. Other key employment sectors include tourism, manufacturing and retail trade.

In 2010, the U.S. Census reported that the Village of Owego's population was 3,896 residents. This represents a 15 person decrease from the 3,911 person population reported in 2000. The median age of community residents was 39.6 years, which is slightly less than the 42.5 years of age

reported for the County. The 2010 Census also reported that the Village population was predominately white (97%), the median household income was \$53,093 (similar to the County figure of \$53,789 and the \$56,951 reported for New York State), and that approximately 50% of the Village's housing units are owner occupied and the remaining 50% are rentals.

The Village has an adopted Comprehensive Plan, Zoning Ordinance, Site Plan Review and Subdivision Review in place.

Impact of Tropical Storm Lee

On September 7, 2011 Tropical Storm Lee stalled over the Southern Tier and dropped over 11" of rain on Tioga County during a 24-hour period. The torrential rains, coupled with a swollen Susquehanna River and saturated grounds leftover from Hurricane Irene, led to record high water levels. The Susquehanna River crested at a record high 39.62 feet on September 8, 2011 in Owego. The previous record was 35.90 feet in June of 2006.

The rising waters caused severe flash flooding, destroying homes, businesses and infrastructure. Reports estimate that 90% of the buildings in the Village of Owego were flooded as a result of the storm. On September 10, 2011 the Tioga County Emergency Management Office requested the assistance of the Disaster Assistance Response Team (DART) to inspect 3,750 homes in Tioga County, 3,000 of which were located in the Village of Owego.

Residents living in the low-lying Turtle Town

and the Flats neighborhoods were hit hardest by the storm.

During and immediately after the storm, travel along NYS Route 17 to the triple cities was difficult, if not impossible. The Village became an island, with no way to get water pumped out. The Downtown and the Flats were separated into two areas, and vehicular traffic and emergency response vehicles could not maneuver between the two. Major road closures included: Dutchtown Road, Gary Hunt, 17C, Main Street Taylor, Bodle, RT 86, Marshland, Hilton Road, Long Creek Road, Pennsylvania Ave; Long Creek Road, Sulpher Springs and Valley Road.

Today, the Village of Owego is still recovering from the devastation experienced as a result of Tropical Storm Lee. In 2012, it was recommended that the buyout or acquisition of 34 severely damaged homes begin. Additional structures may be added to the list through 2015.



Extreme Weather Events

According to the recent report, *ClimAID: the Integrated Assessment for Effective Climate Change Adaptation Strategies in New York State*, the need to plan for the mitigation and recovery from future flood events in the Village of Owego, and the entire Southern Tier, is a growing concern as we enter into the 21st century.

In 2008, the New York State Energy Research and Development Authority (NYSERDA) initiated “ClimAID” as part of its Environmental Monitoring, Evaluation, and Protection Program (EMEP). As part of the project, a three-year study was conducted by more than 50 scientists from Cornell University, Columbia University, and the City University of New York to identify and assess climate change impacts and adaptation options for New York

State.

The results of the study were compiled in the 600-page report that warns that New Yorkers should begin to prepare for an increased number of heat waves and snowier winters, severe floods, and a range of other effects on the environment, communities and human health. Average annual temperatures in New York State are projected to rise by 4 to 9 degrees by the year 2080, and the amount of precipitation that falls in the State is projected to increase by 5 to 15 percent.

A summary of extreme weather events predicted for the Southern Tier in the 21st century is provided below:

ClimAID Region 3 (Southern Tier): Projected Extreme Events					
	Extreme Event	Baseline	2020s	2050s	2080s
Heat Waves	Number of days/ year with maximum temperature exceeding 90° F	10	11 - 25	15 - 45	19 - 70
	Number of days/ year with maximum temperature exceeding 95° F	1	2 - 7	2 - 18	4 - 38
	Number of heave waves/year	1	1 – 3	2 – 6	2 - 9
	Average duration of heat wave	4	4 – 5	4 – 5	4 - 7
Cold Events	Number of days/year with minimum temperature at or below 32° F	152	116 - 145	86 - 168	68 - 124
Intense Pre- cipitation	Number of days/year with rainfall exceeding 1 inch	6	5-8	5 - 8	5 - 10
	Number of days per year with rainfall exceeding 2 inches	0.6	0.5 - 1	0.5 - 1	0.4 - 2

Public Participation



Citizen participation provides an opportunity to compile the public's knowledge regarding the history of the community and understand the public's hopes, concerns and desires for the future of the Village. The goal of public participation during this project was to foster enhanced communication, create a sense of ownership and build trust between the public, Tioga County, the Village of Owego, and regulatory agencies.

To gather public input, the project team worked closely with the LTCRS Executive Committee, Owego LTCRS Steering Committee, collected input from various stakeholders, and community residents, business owners and representatives from non-profit organizations. The public outreach process involved two public meetings, including a public workshop, several stakeholder interviews, and a series of Steering Committee meetings.

LTCRS Executive Committee

In November of 2011, the NYS Department of State announced funding for the Long Term Community Recovery program. The program, which provides financial and technical assistance to those towns and villages hardest hit by Tropical Storms Irene and Lee, provides communities with the tools they need to develop a vision and strategies to reestablish themselves as vibrant communities that are less vulnerable to future disaster.

The Village of Owego, along with the Town and Village of Nichols and the town of Tioga, applied for and received Long Term Community Recovery grant funding. As the first step in the planning process, local leaders from each of the communities were invited to join a LTCRS Executive Committee.

Members of the Executive Committee include:

- Kevin Millar – Village of Owego
- Jana Ingalsbe – Village of Owego
- Louis Zorn – Town of Tioga
- Drew Griffin – Town of Tioga
- Barb Crannell – Town of Nichols
- Ches Spencer – Town of Nichols
- Elaine Jardine – LTCRS Coordinator

Executive Committee members served on the consultant selection team, organized the Community Workshop, attended a multi-state Peer-to-Peer Long Term Recovery Meeting, and have provided general guidance to the local Steering Committees.



Owego LTCRS Steering Committee

In the summer of 2012, the Mayor of Owego assembled a Steering Committee comprised of a cross section of the Village including representatives from local government, businesses, civic organizations, and private citizens. This committee was tasked with developing the Owego Long Term Community Recovery Strategy (LTCRS) which will serve as a guide to making flood-related decisions to ensure a more sustainable and resilient future for the Village of Owego.

Steering Committee members include:

- Kevin Millar, Chair
- John Baust
- Dennis Curatolo
- Lisa Curatolo
- Ronald Dougherty
- Rusty Fuller
- Doyle Gibbs
- Andy Hafer
- Jana Ingalsbe
- Phoebe Morris

Steering Committee members worked with the Project Team from Elan Planning, Design, and Landscape Architecture (Elan), New England Environmental (NEE), and Griffiths Engineering to identify issues and concerns, draft a community vision, identify recovery strategies, and prioritize long term recovery projects.

Stakeholder Interviews

As part of the public participation process, the Project Team met with several key stakeholders in the community to gain a better understanding of the impacts of Tropical Storm Lee as well as ongoing recovery efforts. Stakeholders included representatives from the Tioga County Soil and Water Conservation District and Tioga Opportunities, Inc.



Public Workshop

On October 25, 2012 the LTCRS Executive Committee hosted a public workshop at the Hubbard Auditorium located in the Tioga County office building. The event was publicized in print and electronic media (Owego Penny Saver, WBNG Binghamton), on the County website, and flyers were posted in local businesses and not-for-profit organizations. The workshop included a brief presentation about the LTCRS program, and then provided participants with an opportunity to share their ideas about how to make their community flood resistant and describe their vision for recovery.

As part of the public workshop, the residents of the Village of Owego were asked to identify their community's strengths and the challenges that they faced as a result of Tropical Storm Lee. A summary of their comments is provided.

Strengths	Challenges
Walkable community	85% of the Village was under water as a result of Hurricane Irene and Tropical Storm Lee
Residents	Poor communication before/during/after storm
Cultural amenities , festivals and community activities	Conflicting information regarding post flooding health and safety issues (boil water, soil samples)
Vibrant downtown, great commercial businesses	Shelter planning and supplies were weak
River Row and Riverwalk	Storm water system
Major transportation routes/Thruway access	Silt and debris in Owego Creek
History/historic charm	During the storm, the Village became a big island
Architecture	Lack of staff/capacity to handle grants
Gateway to the Finger Lakes	Emergency Response Plan was not adequate

You're Invited!

Come Share Your Ideas to Make
Your Community Flood Resilient

October 25, 2012
6:00 pm - 8:00 pm

Hubbard Auditorium
Tioga County Office Building
56 Main Street
Owego, NY

The Village of Owego and the Towns of Tioga and Nichols are each developing a Long Term Community Recovery Strategy to address flooding concerns in your communities.

Please join us and let us know...

- What you love about living and working in your community
- Your issues and concerns regarding recent flood events
- Your vision for your community



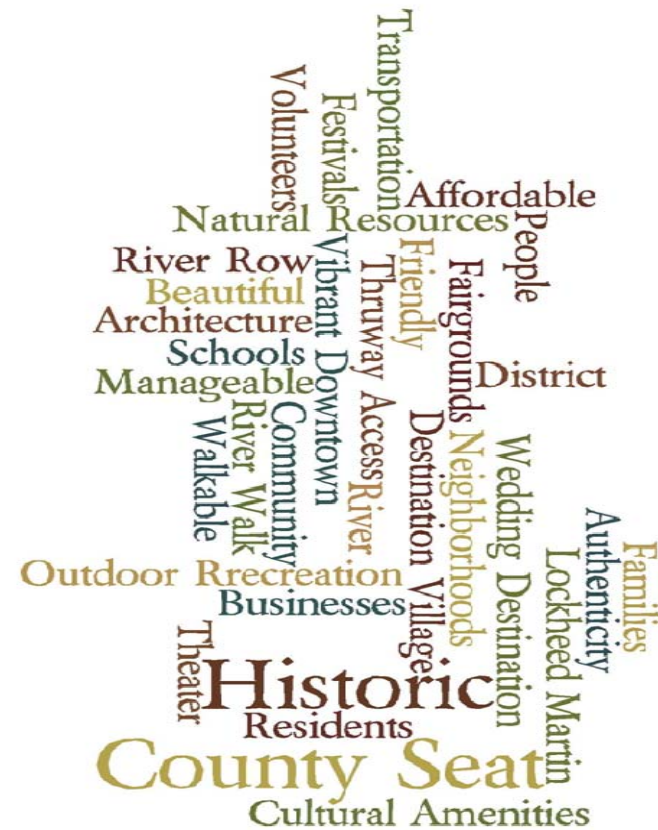
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Community Vision for Recovery

As part of the public workshop, community residents were asked to describe their vision of what the Village of Owego would be like twenty years from now. A snapshot of their responses is provided below:

- More development south side of River
- Quaint Village
- Abandoned buildings/vacant lots have been rebuilt and are occupied with mixed-use development
- More “Green Infrastructure”
- Village with its own identify
- Passenger RR terminal – Buffalo, NYC, Syracuse, Philadelphia
- Sustained flood mitigation plans. Make it happen. Matter of practice
- Walkable employment
- Internet access that makes it possible for people to work from home
- An economy that is diversified through tourism
- Small business incubator
- More young people in their 20s and 30s living in the Village
- Want people to say “I Found Owego on the Internet”

Using the input provided during the public workshop, coupled with their own knowledge of the Village, the Steering Committee developed a vision statement for the Village of Owego LTRCS.



Vision Statement

Owego is a quaint historic village located along the banks of the Susquehanna River that is home to young and old alike. Residents and visitors enjoy a wide variety of assets including:

- A walkable, historic, vibrant downtown that features a mix of uses (commercial, residential, retail, restaurants)
- A diversified economy supported by tourism, regional industry, and small businesses
- Innovative management of stormwater through the use of 'green infrastructure' (bioswales, rain gardens, infiltration, etc.)
- Aware and educated residents regarding emergency preparedness
- Critical facilities including schools, emergency services, businesses, and homes that are either protected from flooding or located outside of the floodplain
- Protected and preserved natural resources including Owego and Huntington Creeks (Monkey Run), wetlands, and floodplains



Peer to Peer Meeting

On April 27, 2013, FutureScapes, a 501(c)(3) nonprofit organization, hosted a Long-Term Recovery Peer to Peer Meeting in Sayre, PA. During the half-day workshop, representatives from the Town and Village of Nichols, the Village of Owego, and Tioga County were joined by their counterparts from Athens PA, West Pittston, PA, and Shickshinny, PA to discuss how their communities were impacted by Tropical Storm Lee and share their experiences preparing and implementing long term community recovery plans.

Topics of discussion, facilitated by Community Recovery Specialists from FEMA, included:

- Successes and challenges associated with the long-term recovery process
- Community involvement and volunteer management
- Mitigation measures
- Working with local government and elected officials
- Grants and fundraising efforts
- Partnerships and shared resources

At the close of the meeting, all of the participants agreed that steps should be taken to set a future meeting date and to continue the collaborative approach between the communities. Ideas for future meetings include site visits to peer communities to share success stories and brainstorming sessions to identify best practices to shared challenges.



Existing Conditions



To gain a better understanding of the existing conditions in the Village of Owego, the project team conducted an inventory and analysis of the existing land use conditions, local and regional planning studies, and natural resources. This analysis, combined with input from stakeholders, the Steering Committee and the public, helped to shape Owego's flood mitigation and recovery strategies in a manner that meets the Village's long-term vision and goals.

Existing Resources

As part of the planning process, the Project Team reviewed the following local and regional planning studies as well as local legislation:

- 2012 Tioga County Hazard Mitigation Plan
- 2012 Tioga County Emergency Management Plan (CEMP)
- 2012 Tioga County After Action Report/Improvement Plan – Tropical Storm Lee Flood Response
- 2010 Upper Susquehanna River Basin, NY: Flood Risk Management and Watershed Assessment
- U.S. Department of Commerce National Oceanic and Atmospheric Administration: Remnants of Tropical Storm Lee and the Susquehanna River Basin Flooding of September 6-10, 2011
- 2003 Village of Owego Comprehensive Plan
- Owego Village Recovery Plan Stakeholder Committee Meeting Minutes
- Village of Owego for Flood Damage Prevention local law
- Village of Owego Code
- Owego Brownfield Opportunity Area (BOA) Pre-Nomination Study
- Market Feasibility Analysis, Route 4343 Property, Tioga County

Land Use

The Village of Owego is located in the Southern Tier of New York State. The Village is bisected by the Susquehanna River, which flows from east to west through Owego. The northern portion of the Village is situated on a former floodplain created by an outside bend of the Susquehanna River. The western boundary of the Village is formed by Owego Creek, which flows from north to south terminating in the Susquehanna River at the southwestern edge of the Village. Huntington Creek creates the northernmost boundary which flows in an east to west direction connecting to Owego Creek at the northwestern corner of the Village boundary. The Village of Owego is 2.7 square miles in total area, with a high point elevation of approximately 850 feet near the northern Village boundary. The general topography of the Village area can be characterized as sloping to the south southeast toward the Susquehanna River

with a low point of approximately 786 feet.

The land coverage types within the Village can be generally described as developed, agricultural land, grassy open space, forested areas, and open water areas.

Natural Resources

The Village of Owego and the watershed ecosystems in the Southern Tier region were inundated by Tropical Storm Lee (2011), Hurricane Irene (2011) and Hurricane Sandy (2012). These recent storms caused rivers, streams, floodplains, and wetlands to overflow their banks throughout the watershed resulting in fractured infrastructure networks like roads, flooded houses and schools, decimated village and town centers, and significantly altered the shape and function of riparian ecosystems. Many areas within the Village were severed from emergency services due to the flooding and destruction of roads and utilities. These flood events were so severe that FEMA (Federal

Emergency Management Agency) has updated and expanded the flood mapping throughout the Southern Tier.

Over the past decade, this region has seen two 100-year flood events and one 500-year flood event. Each storm event and subsequent flooding impacts the watershed in different ways. In many cases, these storms have altered the streams, creeks and rivers within the watershed by eroding the banks of the water body and creating unstable riparian areas. The sediment and debris that has eroded from the up slope areas of the watershed moves down stream and settles in areas of the water body that may already be impounded by culverts or debris, or in “slack water” areas of the river or stream. This erosion and deposition/ sedimentation effect reduces the volume of water the channel can allow to pass within its banks.

The flood damage from these storm events may also be attributed in part, to the rise of the Susquehanna River. The Susquehanna River is the outlet for many of the creeks and streams in the Southern Tier. The increased elevation of the River causes the flow of water from the tributaries into the Susquehanna River to slow, and reduces the ability of the tributaries to drain water in the watershed. The outflow vicinity of the tributaries and their adjacent floodplains become inundated with “backwater” from the Susquehanna River and water flowing from up-slope in the watershed. This can cause the rivers and stream tributaries and riparian ecosystems in the watershed to overflow their banks, resulting in flood damage to utilities, infrastructure, and property.

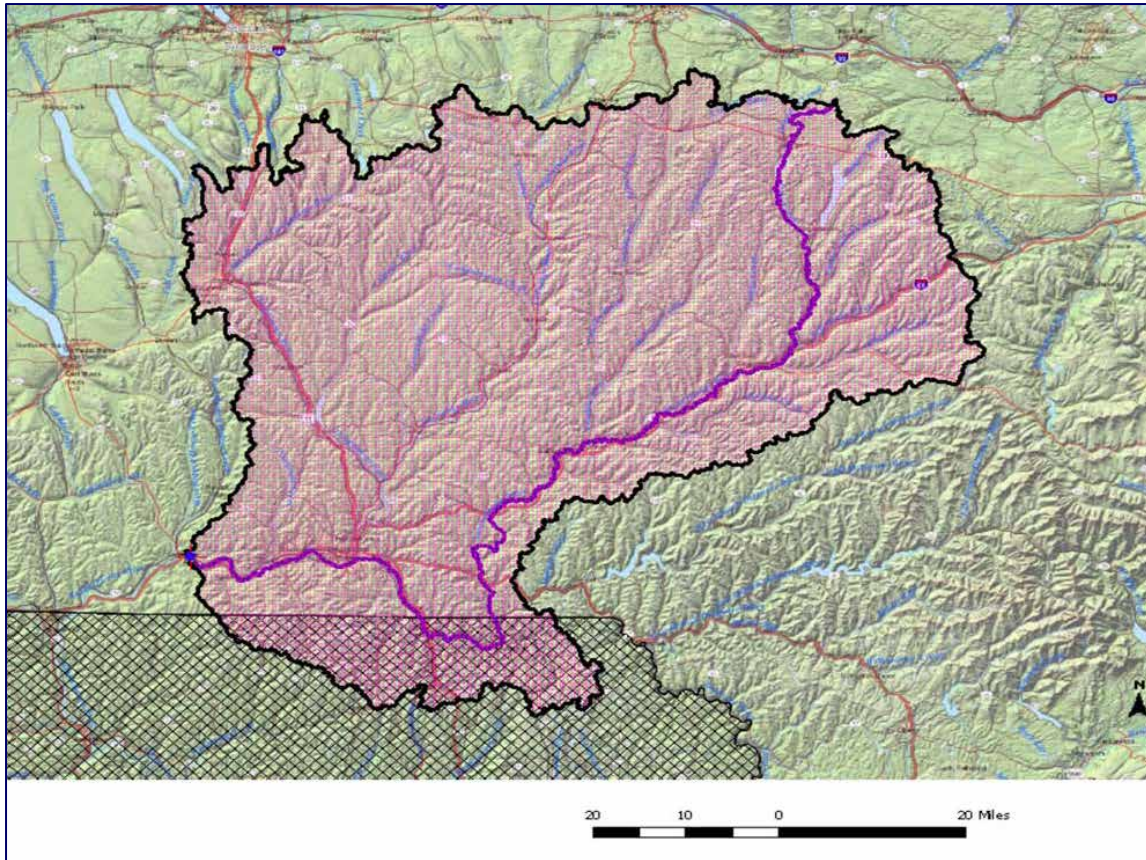
Some storm events can cause the river and stream tributaries to breach their banks first, while the Susquehanna River is still within its banks. This can be caused by a narrowing or an obstruction in the river or stream channel.

Generally, most of the creeks and streams within the Village are eroded and void of vegetation on the banks, causing an excessive amount of sediment to flow downstream during even a normal high water event. This sediment often collects at pinch points in the stream, such as culverts, bridge abutments, or a crossing with a center pier that collects debris during the high water event. This debris can clog many of these pinch points or structures in the waterbody, and reduce or obstruct a river or stream’s ability to convey the high water to pass. This can cause a stream to top its banks, create a ponding condition above the stream banks, and flood the adjacent areas. The volume and velocity of water will allow it to find its way around the impoundment and scour the downstream side of the pinch point, eventually causing a failure of the obstruction and allowing this built up ponded area on the up-gradient side to release downstream. When these events occur, the rivers and streams cannot handle

the volume and velocity of water, thus causing massive amounts of erosion on the banks, undercutting the vegetation and sending it down stream. When the flood water recedes, the debris often remains in the channel, locked into culverts, spread throughout the floodplain, and ultimately deposits into the Susquehanna River.

The watershed and flow direction of the Susquehanna River is another important consideration regarding flood impacts. The Susquehanna River flows east to west and bends in a southern direction at the Village of Owego. The outside bend of the River can be described as having fast-flowing water that has incisive forces specifically along the bank of the outside bend. This fast flowing water flows against the banks of the River along the Village of Owego, making it more susceptible to flood waters during storm events that cause the River to over-flow its banks. The velocities of these flood waters at the outside bend of the Susquehanna River are generally much lower than the flow from the tributaries, but due to the volume of water the impacts can be more severe.





The Susquehanna River as it enters into the eastern Village boundary has a watershed size of approximately 4220 square miles. The watershed generally is comprised of moderate to high sloping terrain with a shale bedrock base at varied depths. In large rain events, rainwater is conveyed in stream tributaries at a high velocity through the localized watersheds, flowing down slope into the Susquehanna River. The high velocity conveyance of rainwater from the tributaries to the outflow can create a situation in which the Susquehanna River water elevation rises quickly to a bank-full condition in a short time. This condition is often referred to as a “flashy” stream system, where the time between when the rain water falls on the ground to when it is conveyed through the watershed occurs quickly.

Figure 1: Susquehanna River Watershed from the Village of Owego up-gradient (Stream Stats - <http://streamstatsags.cr.usgs.gov>)

The Huntington Creek, located on the northern edge of the Village, has a localized watershed of 1.95 square miles with approximately 77% of the watershed being covered by forest. This creek has historically overtopped its banks during large rain events causing flooding and damaging parts of the Village's infrastructure, as well as flooding the middle school. Impervious surfaces such as asphalt paving, and undersized culverts are thought to be the cause of the flooding for this creek. The Village has worked with the Tioga County Soil and Water Conservation District to help reduce the impact of this creek during large rain events and has begun to implement some of these mitigation measures.

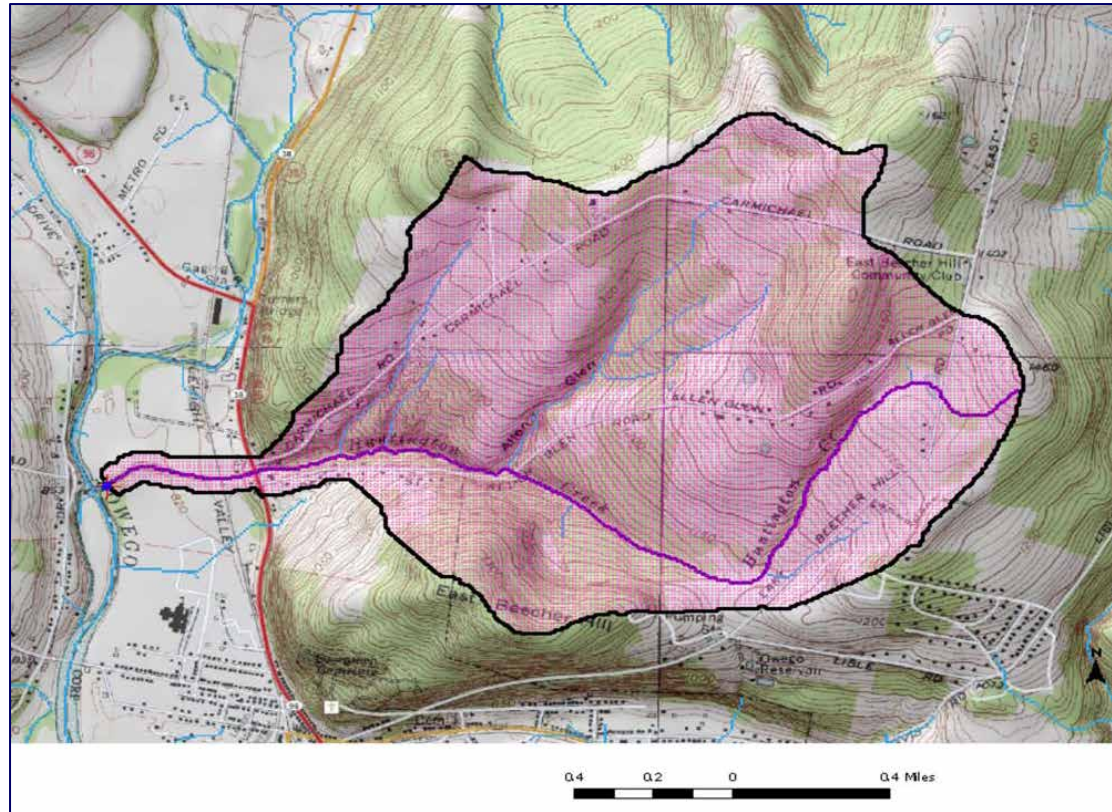
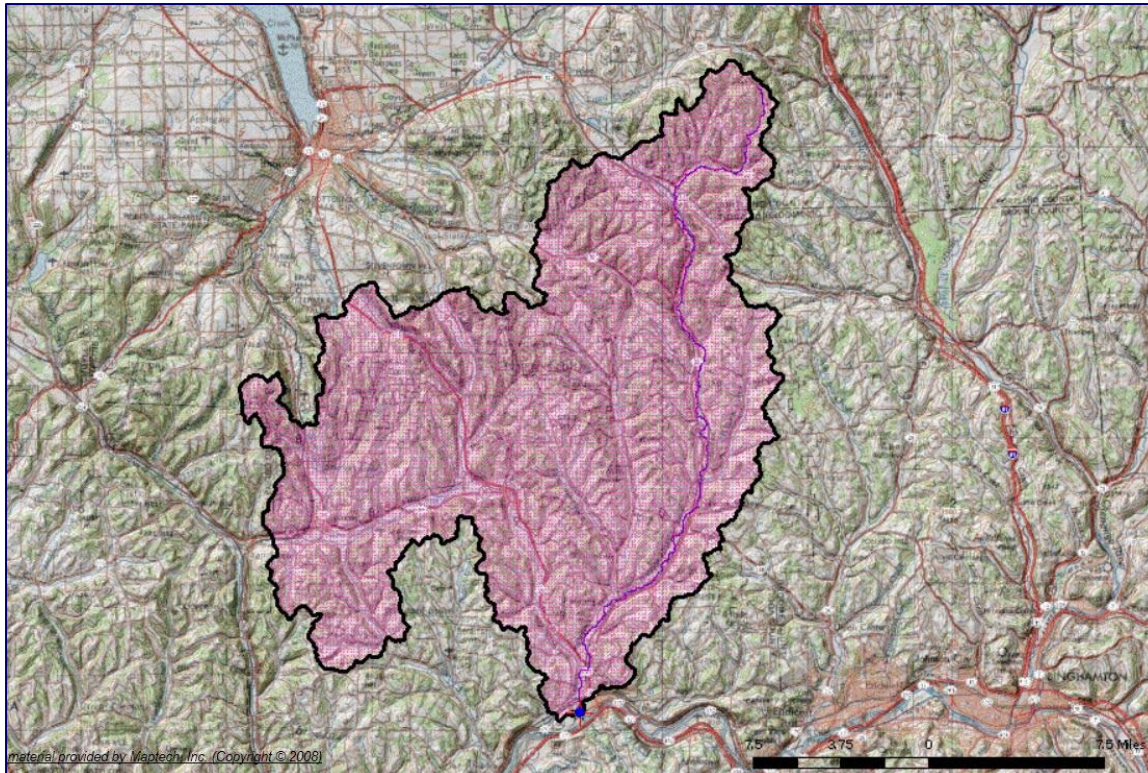


Figure 2: Huntington Creek Watershed (Stream Stats - <http://streamstatsags.cr.usgs.gov>)



Owego Creek on the western boundary of the Village has a watershed size of 341 square miles and drains from the north to the south, meeting the Susquehanna River at the southwestern corner of the Village boundary. This creek historically will overtop its banks during large flood events specifically when the Susquehanna River elevation rises, creating a back water effect and flooding the fairgrounds, neighborhoods such as “The Flats”, roads, and creating isolated pockets or islands.

Figure 3: Owego Creek Watershed (Stream Stats - <http://streamstatsags.cr.usgs.gov>)

New England Environmental conducted a small scale geomorphic assessment on a stretch of the Owego Creek adjacent to the Marvin Park. The information gathered was used to determine the creek profile and longitudinal survey. This information can also be used to analyze and compare the data against regional data providing a picture of the overall health, stability, relative dimensions, and slope of the Creek through this reference reach. This study will determine a classification for the stream channel in this location using Rosgen's Stream Classification System. This classification system compiles all the data collected during the survey to determine the classification. This classification will allow for the municipality to predict how the channel will react and adjust during high flooding events. This information is also used to determine what restoration techniques may be used if a stream is unstable and needs to be restored.



Figure 4: Owego Creek Locus Map for Reference Reach Example (Google Maps)



Figure 5: Owego Creek looking north taken on 12-6-2012

In the fall of 2012, the Owego Creek had been manipulated and “cleaned”, removing large amounts of woody debris and gravel bars. The following survey was completed in December of 2012, after the stream had been manipulated. This site was selected to confirm the dimensional profile of the Owego Creek in this location after the stream had been cleaned. The initial site inspection revealed a very wide, slow moving, and shallow stream. The bed material seemed to be a mix of gravel and cobble size. The vegetation on the banks is void, although the adjacent floodplain is heavily vegetated as a deciduous forest.

The information gathered during the site visit was used to create creek profiles. Figure 6 depicts a longitudinal profile of Owego Creek surveying parallel to the flow of the creek taken at the thalweg (deepest section of the creek).

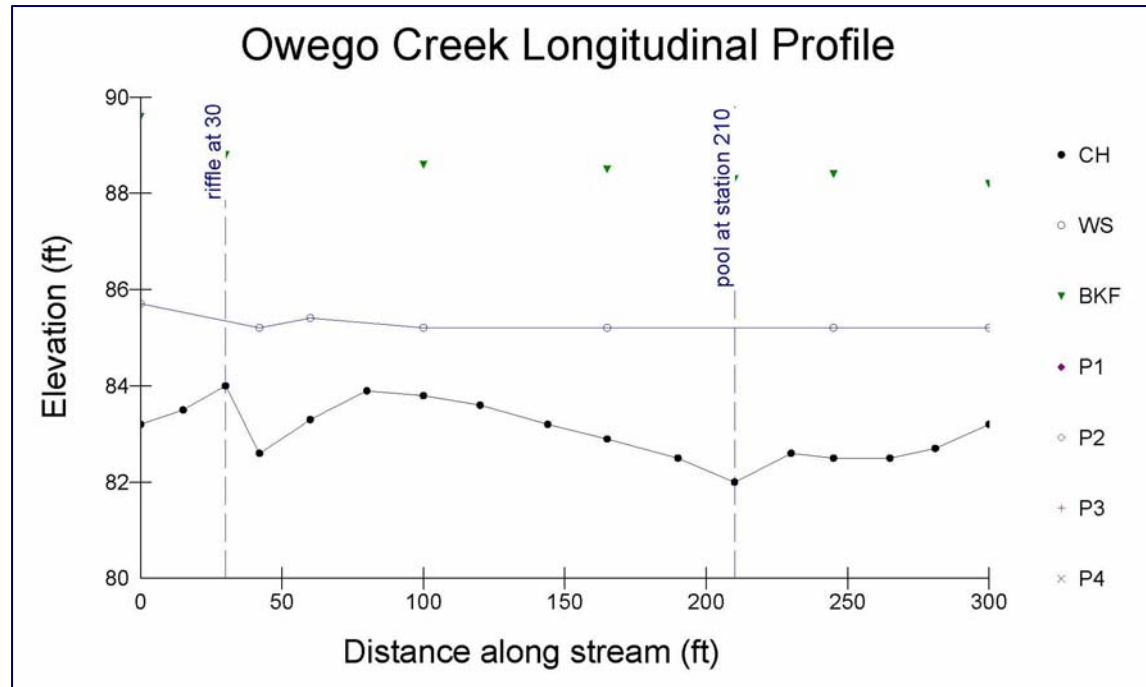


Figure 6: Owego Creek Longitudinal Profile

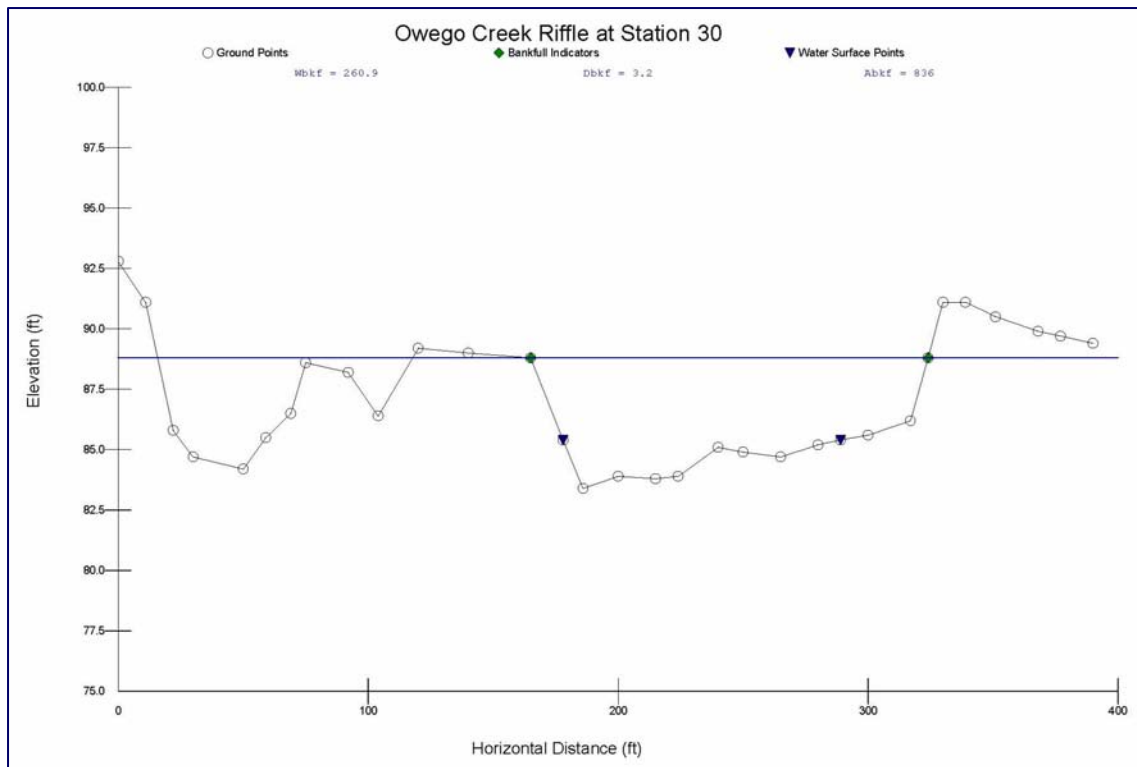


Figure 7: Owego Creek Riffle Cross Section

Once the longitudinal profile was created, two cross sections were taken; one in the shallowest section (Riffle) and one in the deepest section (Pool).

Riffle Cross Section Dimensions:

Width at bankfull = 260.9 feet

Depth at bankfull = 3.2 feet

Bankfull area = 836 square feet.

Pool Cross Section Dimensions:

Width at bankfull = 306.8 feet

Depth at bankfull = 2.7 feet

Bankfull area = 831 square feet.

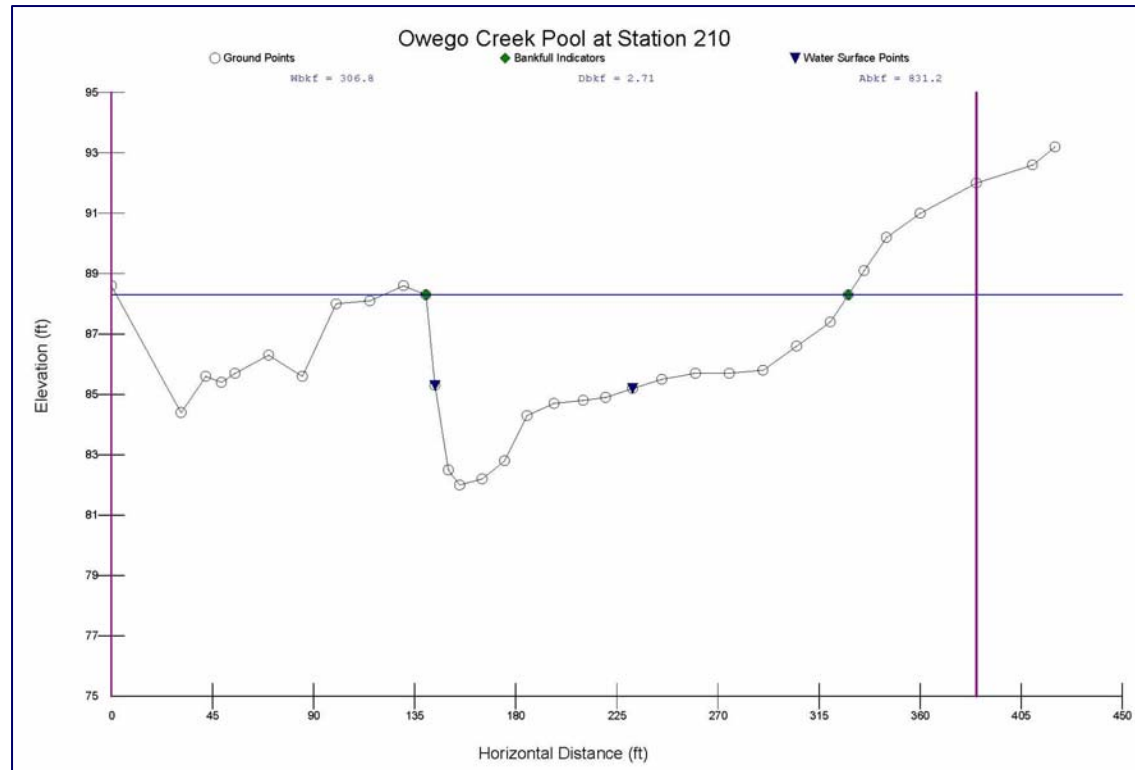


Figure 8: Owego Creek Pool Cross Section

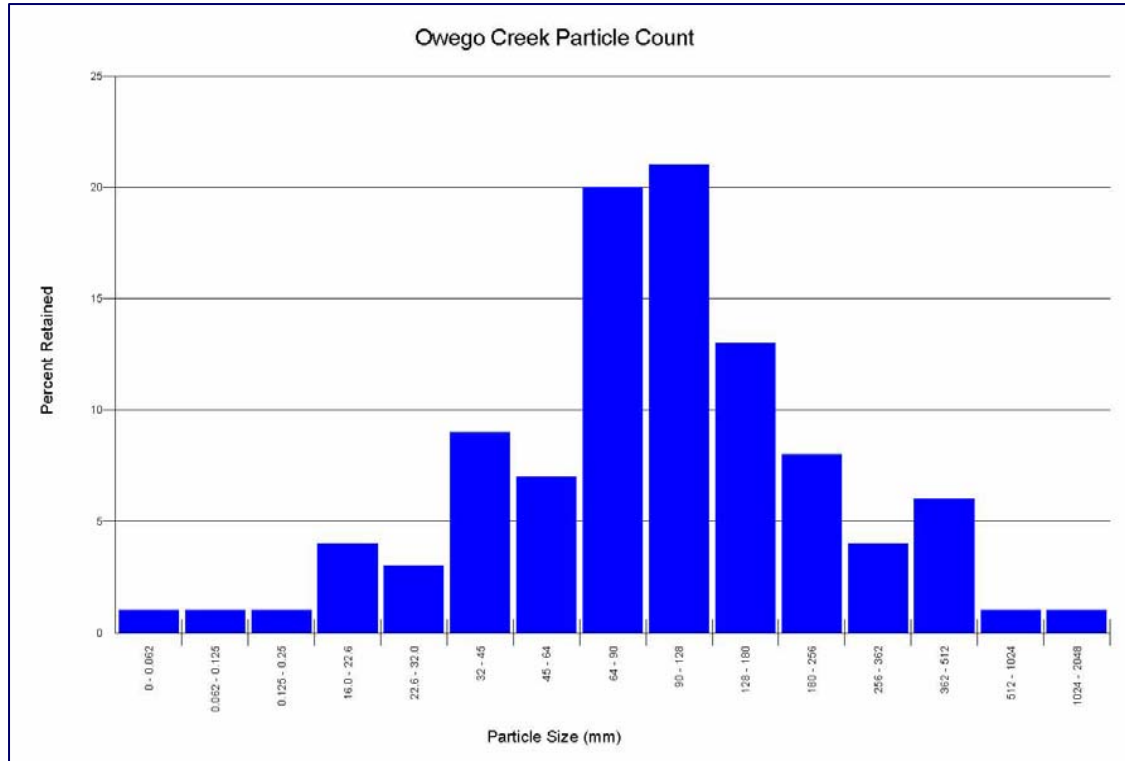


Figure 9: Owego Creek Particle Count Bar Graph

Upon completion of the Riffle and Pool cross-sections, the substrate of the channel was measured. This process (Pebble Count) was completed by blindly measuring 100 particles diameter across the reference reach area. This information was used to get a gradation of the material found in the channel reach.

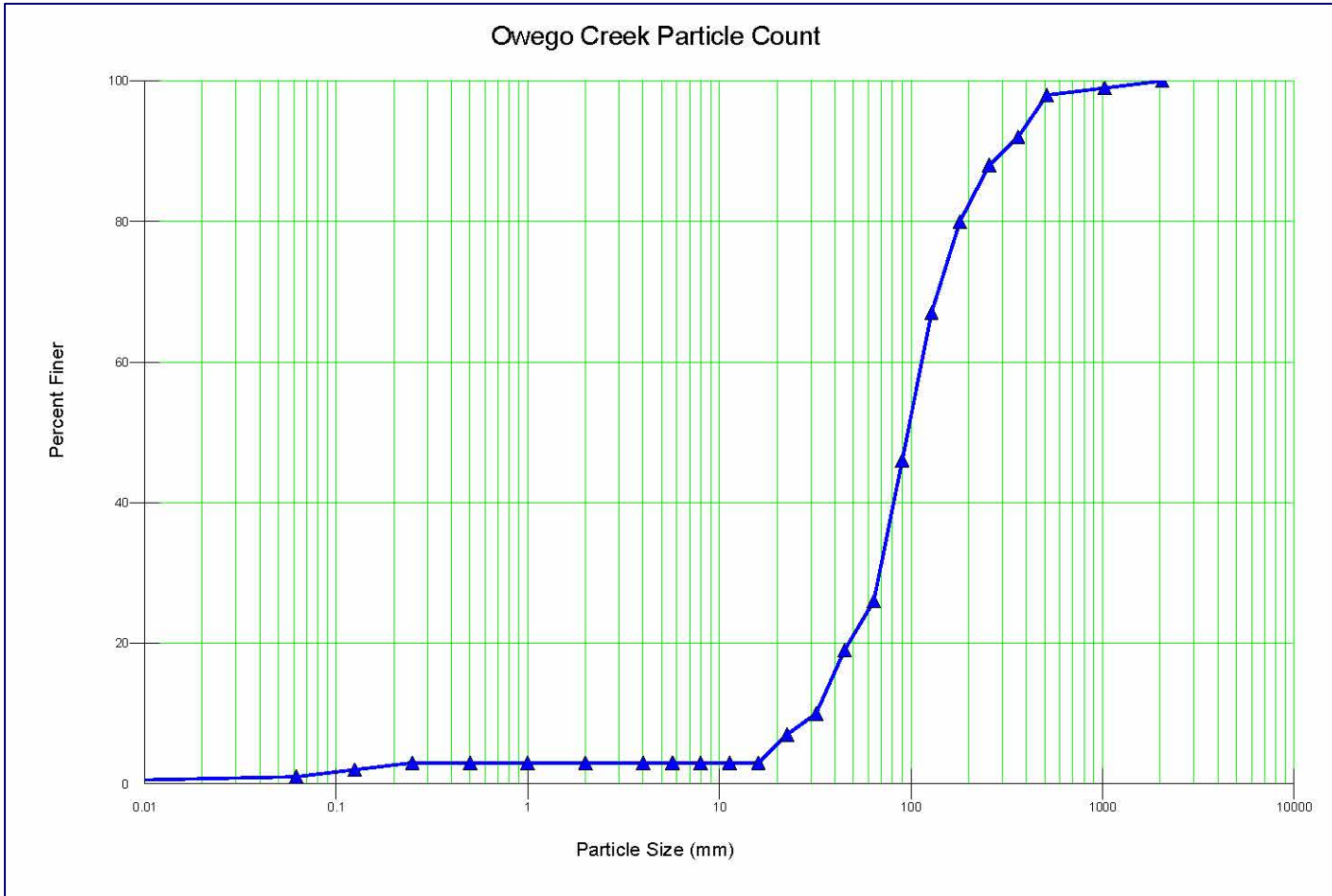


Figure 10: Owego Creek Particle Count Linear Graph

OWEGO CREEK RIVERMORPH STREAM CHANNEL CLASSIFICATION

River Name: Owego Creek	
River Name	Owego Creek
Reach Name	Owego Creek Bellfield Site
Drainage Area	341 sq mi
State	New York
County	Tioga
Latitude	42.0975
Longitude	76.2775
Survey Date	01/03/2013
Surveyed By	Andrew Bohne and Jesse Laford
Classification Data	
Valley Type	Type VI
Valley Slope	0.002 ft/ft
Number of Channels	Single
Width	370 ft
Mean Depth	4.32 ft
Flood-Prone Width	390 ft
Channel Materials D50	97.24 mm
Water Surface Slope	0.0017 ft/ft
Sinuosity	1.176
Discharge	7007.256 cfs
Velocity	4.382 fps
Cross Sectional Area	1599.1 sq ft
Entrenchment Ratio	1.05
Width to Depth Ratio	85.65
Rosgen Stream Classification	F3

Once all this information had been collected the classification information to the left was calculated.

Based on the regional curve data shown in the graph to the right, we can see that generally a river with a watershed 341 square miles in size, will have a bankfull width of approximately 220 linear feet, a bankfull depth of approximately 5 linear feet, and a bankfull area of approximately 900 square feet.

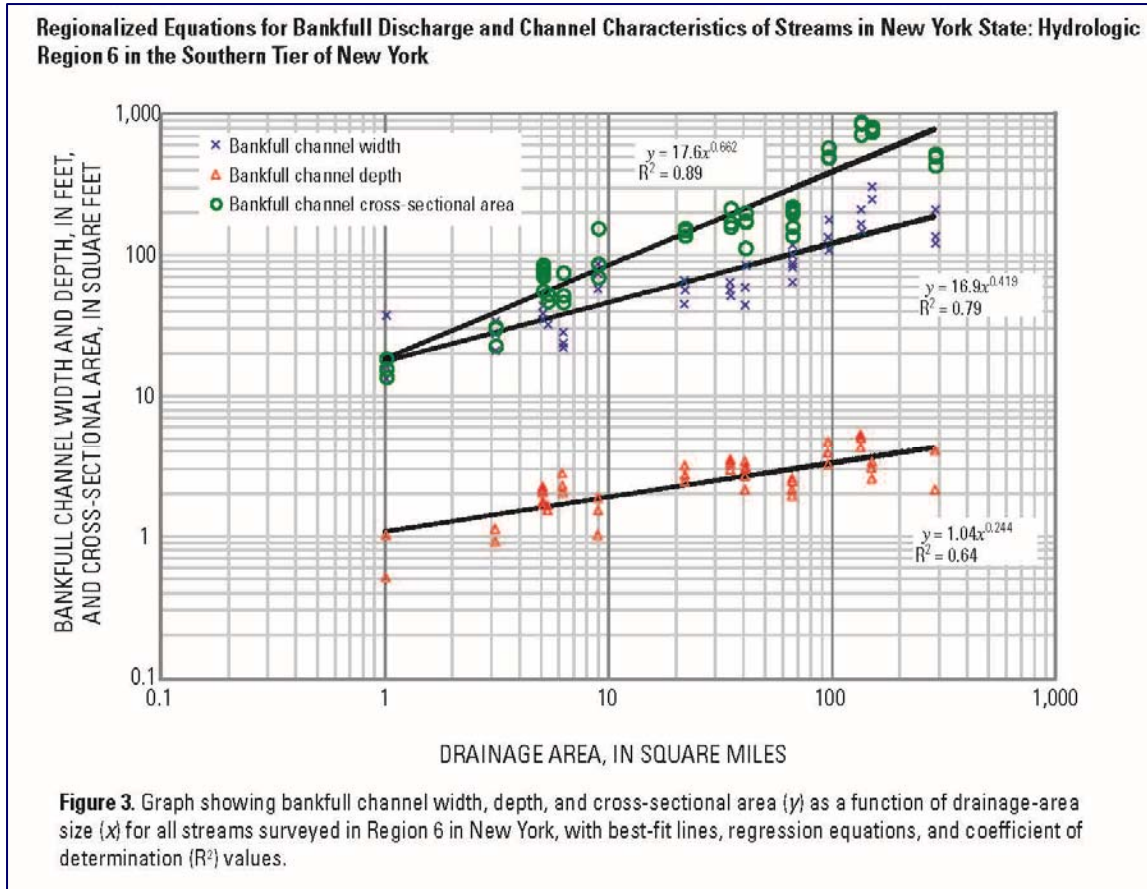


Figure 11: Southern Tier Regional Curve Data (USGS Regional Curve Data for Region 6 – Southern Tier)

Summary

Analyzing the data collected in the field and comparing this data to the regional curves will help the Village of Owego understand the overall conditions of their streams and rivers. It is important to note that this stream was recently re-shaped prior to the survey. This section of the stream seems to be a bit wider at bankfull and not as deep as the average streams with a similar watershed size, based on the regional curve data. The Susquehanna River's proximity to this site will have an impact on the dimensional profile, as the Susquehanna River level rises it will back up with sections of Owego Creek creating a ponding effect. When this section of the stream begins to pond, the velocity of the Susquehanna River is reduced, impairing the river's ability to properly move sediment. This sediment and debris will fall out of the water column at this location. The presence of very large sediment islands at this location are evident that this sedimentation is occurring.

Owego Creek at this location seems to have a good connection to its floodplain on its left (eastern) bank. If the Susquehanna River begins to down cut and becomes disconnected to the floodplain, the velocity of Owego Creek cannot slow down and will cause massive erosion.

The banks of Owego Creek at this location were void of vegetation and extremely unstable, collapsing under foot. These banks should be stabilized with native vegetation to help reduce the excessive movement of sediment downstream into the Susquehanna River. This area should be continually monitored to ensure the channel maintains its pattern and profile.

This location on Owego Creek with its proximity to the Susquehanna River will continue to flood. Development should be avoided in the floodplain to the maximum extent possible. This will help reduce the financial, cultural, and ecological impact of future flooding.

This information can also be used to model how the streams will perform during certain rain events (i.e., 5, 10, 50, 100 and 500 year storms). This information will prove extremely useful in determining at what level of rain event (in inches) flooding will begin to occur. Surveying, modeling and completing the overall geomorphological assessment will help guide the Village in developing possible flood mitigation measures, as well as aid in planning for emergency management and response.

Flood Mitigation and Prevention Projects



This Long Term Community Recovery Strategy (LTCRS) expresses the Village's vision for recovery following the flood-damage caused by Hurricane Irene and Tropical Storm Lee. During the public participation process, it became clear that one of the community's biggest concerns was taking steps to reduce future flood damage and loss. The Steering Committee recognizes that the majority of the Village of Owego (80-85%) has been developed in the 100-year flood-plain, and therefore one of the priority areas for long term recovery for the community is Flood Mitigation and Prevention.

Recommended Flood Mitigation and Prevention recovery projects include both pre- and post-disaster mitigation actions that are designed to either prevent the occurrence of an emergency or reduce the community's vulnerability in ways that minimize the adverse impact of future flood disasters.

As part of the planning process, the Owego LTCRS Steering Committee identified six initiatives that support the community's overall vision with respect to flood mitigation and prevention activities:

- Prevention Activities
- Property Protection
- Emergency Services Measures
- Public Information
- Structural Projects
- Natural Resource Protection

Prevention Activities (PA)

Background

Simply stated, flood mitigation and preventive activities keep problems from getting worse. The use and development of land located in floodplains and watersheds can have a direct impact on the movement and storage of water. If not designed and built with consideration to the floodplain or in areas vulnerable to flooding, new uses could negatively impact the community causing an increase in erosion or flood damages to the property itself or to other lands within the community. To prevent and minimize damages during a flood event, and to ensure sound use and development of areas of special flood hazard so as to minimize future flood blight areas, Owego can strengthen existing land use regulations and institute new measures to help control the type, amount, and location of new development within the Village especially within the floodplain.

Land use planning can be an effective tool to reduce the risk to life and property in the event of a future flood event. Improved land use tools, such as site plan review, overlay districts and zoning regulations can reduce risk to people and property in the event of a future flood.

Goal

To ensure that there is proper language in plans and ordinances to protect properties within the Village of Owego from future flooding.

Prevention Activities Recovery Projects

- PA-1: Customize local law Chapter 117 to “flood proof” new or replacement homes.
- PA-2: Update Site Plan Review Legislation.
- PA-3: Review and enforce special use language in zoning code.
- PA-4: Participate in the National Flood Insurance Program’s Community Rating System (CRS).

PA-1: Customize Local Law Chapter 117 to “Flood Proof” New or Replacement Homes.

Project Description

In 2012 the Village of Owego adopted Chapter 117 Flood Damage Prevention Law as authorized by the NYS Constitution, Article IX, Section 2, and the ECL, Article 36. This local law indicates that if development is to occur in the mapped flood hazard areas then the development is required to be built to certain standards, identified in the National Flood Insurance Program's regulations (44 CFR 60.3) and the New York State Building and Residential Codes. If development is being considered for a Special Flood Hazard Area as shown on the Flood Insurance Rate Map (FIRM) maps, then the local floodplain administrator, an office designated in the local law, reviews the development to ensure that construction standards have been met before issuing a floodplain development permit.

Chapter 117 was developed based on a local law template provided by the New York State Department of Environmental



Example of elevated home in Owego

Conservation (NYSDEC) and sets forth purpose, objectives, applicability, definitions, and prescribes methods of building in the Special Flood Hazard Area. It is intended as a preventive technique by taking into consideration the Base Flood Elevation (BFE) and building structures that use techniques to minimize flood damage.

While the Village has adopted this law, further evaluation of its specificity to Owego should be developed. Therefore, it is recommended that the Village review this law to determine if any sections could be

customized to meet the specific needs found in Owego and/or if the law could incorporate text and language that easily articulates the required standard.

For example, section 5.3-1 Elevation requires that, for new residential structures or residential structures proposing substantial improvements the lowest floor (including basement) be elevated to or two feet above the base flood elevation. The Village could require that, at a minimum, the lowest floor shall be two feet above BFE. The Town could articulate these standards using graphics that illustrate options such as building the first floor above a garage or building the structure on piers. The idea of creating ‘design standards’ to articulate these options is more fully described under Property Protection.

The Village Zoning Ordinance should also reference Chapter 117. Consideration should be given to adding this reference to Article XVIII Supplemental District Regulations.

Project Champion

- Village Board

Potential Partners

- Code Enforcement Officer/Floodplain Manager
- NYS Department of Environmental Conservation (DEC)
- NYS Department of State, Division of Local Government Services

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Program
- NYS Department of Environmental Conservation (DEC)



Homes in the Flats neighborhood impacted by Tropical Storm Lee

PA-2: Update Site Plan Review Legislation

Project Description

All permitted uses in zoning districts defined under the Village's zoning code in the CB, CBA, B, I and the High-Density/Mixed-Use Overlay District, require site plan approval by the Planning Board before a building permit is issued for the alteration or construction of any building. The language in the zoning code generally follows NYS General Municipal Law setting forth such authority.

In general, the site plan review process considers review of such project elements/aspects as vehicular circulation, interior site organization (parking, lighting, landscaping), setbacks, and harmony with adjacent uses. The regulations also refer the applicant to the potential need to comply with additional permitting requirements from other local laws, state or federal regulations, such as compliance with the State Environmental Quality Review Act (SEQRA).

To ensure that all projects are reviewed with regard to their potential impact on the floodplain, it is recommended that the Village incorporate language into §195-139 Site Plan Review subsection B(6) that references that the applicant must obtain a permit, if applicable, as per Chapter 117 Flood Damage Prevention Local Law.

It is further recommended that the Review Subsection B be reviewed and revised to incorporate additional objectives the Planning Board must refer to when reviewing site plan review applications.

Currently there are only three basic reviewing objectives as stated above. NYS General Village Law §7-725-a Site Plan Review grants the authority for Villages to utilize site plan review. It further stipulates the elements that the Planning Board may require and include, where appropriate, those project aspects related to parking, means of access, screening, signs, landscaping, architectural features, location and dimensions of buildings, adjacent land

uses and physical features meant to protect adjacent land uses as well as any additional elements specified by the town board in such zoning ordinance or local law.



To ensure that the proposed project does not adversely affect the surrounding properties, it is recommended that the Village revise the reviewing objectives to include these elements, as well as engineering aspects of the project specifically relating to stormwater management.

Project Champion

- Village Board

Potential Partners

- Planning Board
- Code Enforcement Officer/Floodplain Manager
- NYS Department of State, Division of Local Government Services

Potential Resources

- Municipal budget
- NYS Department of State, Local Waterfront Revitalization Program
- NYS Community Development Block Grant Program



Tropical Storm Lee flooding in the Village of Owego, aerial view looking south.

PA-3: Review and Enforce Special Use Language in Zoning Code

Project Description

Article VII of the Village’s zoning ordinance sets forth special use permit requirements for certain uses. Section 195-32 of Article VII sets forth specific information for ‘areas subject to flooding.’ While it is generally good that the Village has this section in its ordinance, it conflicts with Chapter 117 Flood Damage Prevention Law in that §195-32 outlines a different process to determine if the applicant is in an area subject to flooding and the mitigating factors that should be considered.

For example, §195-32 states that, “All applicants for building and use permits in areas ascertained by the Superintendent of Public Works as subject to flood conditions shall obtain from the Zoning Board of Appeals a special use permit....[provided certain conditions are met]” The Flood Damage Prevention Law located in Chapter 117 of the Village’s code applies to “all areas of special food hazard...” as defined by Flood Insurance Rate Maps and a scientific and engineering report entitled “Flood Insurance Study, Tioga County, New York, All Jurisdictions” dated April 17, 2012.

It is recommended that the Village utilize the regulations set forth in Chapter 117 and remove the specific regulations in §195-32. Rather, §195-32 should simply reference the Flood Damage Prevention Law to alert the applicant that the project may be in an area subject to flooding.

Project Champion

- Village Board

Potential Partners

- Planning Board
- Code Enforcement Officer/Floodplain Manager

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Program
- NYS Department of State, Division of Local Government Services

PA-4: Participate in the National Flood Insurance Program's Community Rating System

Project Description

The National Flood Insurance Program (NFIP) offers flood insurance in communities that comply with minimum standards for floodplain management. The NFIP's Community Rating System (CRS) recognizes community efforts beyond those minimum standards by reducing flood insurance premiums for the community's property owners. The CRS is similar to — but separate from — the private insurance industry's programs that grade communities on the effectiveness of their fire suppression and building code enforcement.

CRS discounts on flood insurance premiums range from 5% up to 45%. Those discounts provide an incentive for new flood protection activities that can help save lives and property in the event of a flood. To participate in the CRS, the community can choose to undertake some or all of the 18 public information and floodplain management activities described in the CRS Coordinator's Manual. The CRS assigns credit points for each activity. Example activities include issuing elevation certificates (which is a minimum requirement), providing FIRM maps to those who inquire, education and outreach about flood protection measures, advising potential purchasers of flood hazards, developing a website to disseminate flood protection information and providing technical advice on protection measures, among others. Many of these items have been discussed individually in the LTCRS. Implementing each of the

recommendations in coronation with the CRS can help residents save on the flood insurance premiums.

The FEMA brochure that describes the CRS system and the point scale can be found at: http://www.fema.gov/media-library-data/20130726-1708-25045-7720/99032_nfip_small_brochure.pdf

Project Champion

- Village Board

Potential Partners

- Tioga County Soil and Water Conservation District
- Resiliency Planning Committee
- National Flood Insurance Program (NFIP)

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Program
- NYS Department of State, Division of Local Government Services
- NYS Department of State, Local Waterfront Revitalization Program

Property Protection (PP)

Background

Property protection measures typically relate to individual owners on a building-by-building or parcel basis. Examples include relocation efforts, acquisition, retrofitting, and insurance. Often times it is a combination of many of these elements. Property protection methods are not intended to be a set of 'one size fits all' recommendations. Some options may work well for some building owners and not others. Also, there are many different property types from historic homes to older building stock. In some cases, retrofitting may not be feasible given the constraints of the property.

Goal

Ensure that new development/redevelopment conforms to current flood damage prevention local law.

Property Protection Recovery Projects

- PP-1: Develop and distribute a Resource Guide for Property Protection.
- PP-2: Continue participation in the NYS Hazard Mitigation Grant Programs (HMGP).
- PP-3: Protect historic publically owned buildings.
- PP-4: Develop and implement a Flood Proofing Technical Assistance Program.
- PP-5: Promote Route 434 E=MT3 site as a relocation option to residents and businesses.

PP-1: Develop and Distribute a Resource Guide for Property Protection

Project Description

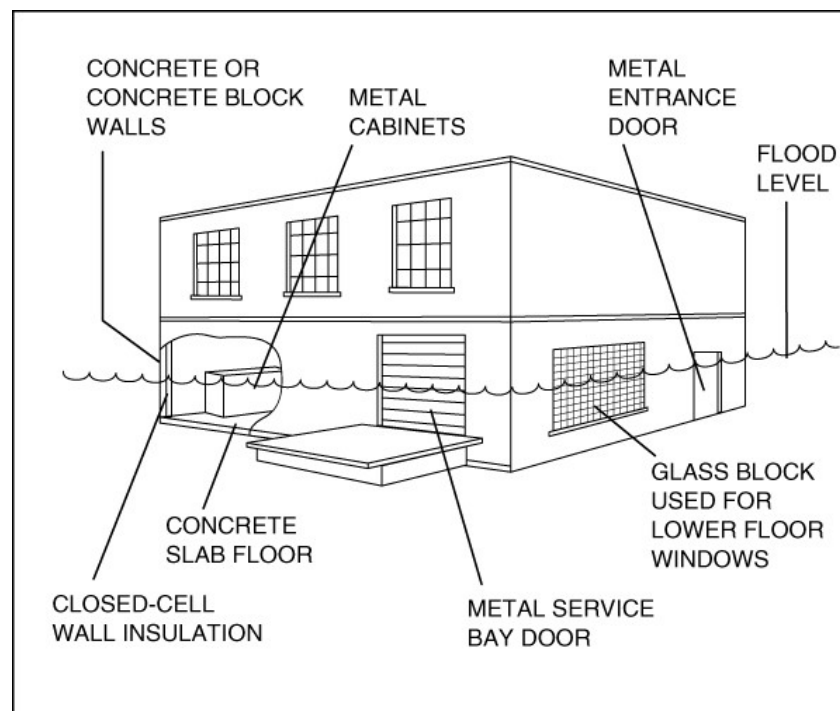
A *Resource Guide for Property Protection* would introduce Village residents to various design changes and flood damage resistant materials they can use to protect their property against future flood damage or loss. In 2009, the Flood Emergency Management Agency (FEMA) produced a “Homeowner’s Guide to Retrofitting”, which could be customized for the Southern Tier environment, and include information regarding the protection of historic structures. Guide elements could include:

- A definition of “retrofitting”. Some homeowners may be unaware that they can make their existing home more floodproof; providing a definition for retrofitting is the first step in resident education. FEMA defines retrofitting as “making changes to an existing building to protect it from flooding or other hazards such as high winds and earthquakes.”
 - Methods for retrofitting including elevation, wet floodproofing, relocation, dry floodproofing, levee and floodwall, and demolition.
 - Illustrations to show how each method of flood protection is implemented.
 - Information specific to the retrofitting homes located in the Village's Historic District. Historic preservation references are provided in the Potential Resources and Partners section below.
- Contact information for the local building official. This is a critical step, as local officials know which retrofitting methods meet state and local government requirements.
 - A list of potential financial assistance methods. The cost and extent of flood prevention and mitigation quickly become overwhelming to a homeowner, particularly when prefaced by retrofitting design strategies. Providing information on government and non-government financial assistance (i.e. loans, grants, and insurance payments) can help reduce feelings of being overwhelmed. For instance, under FEMA’s National Flood Insurance Program, a policy holder may qualify for Increased Cost of Compliance (ICC) coverage, which may help to pay for some types of retrofitting. In addition, the Hazard Mitigation Assistance grant programs are designed to provide financial assistance for retrofit projects.
 - A detailed section about building with flood damage resistant materials.

Build with Flood Damage Resistant Materials

If a property is in a flood hazard area, damage caused by flood waters can be reduced, and cleanup made easier by using flood damage resistant building materials. Building materials are considered flood resistant if they can withstand direct contact with flood waters for at least 72 hours without being significantly damaged. "Significant damage" means any damage that requires more than low cost, cosmetic repair (such as painting). As shown in the figure, flood damage resistant materials should be used for walls, floors, and other parts of a building that are below the base flood elevation (BFE). Both FEMA and the U.S. Army Corps of Engineers have published lists of these materials. Commonly available flood damage resistant materials include the following:

- Flooring Materials - Concrete, concrete tile, and pre-cast concrete; latex or bituminous, ceramic, clay, terrazzo, vinyl, and rubber sheets and tiles; pressure-treated (PT) or decay resistant lumber, PT wood and cold-formed steel
- Wall and Ceiling Materials - brick, metal, concrete, concrete block, porcelain, slate, glass block, stone, and ceramic and clay tile cement board, cold-formed steel, and reinforced concrete, polyester epoxy paint, PT and decay resistant lumber
- Other - hollow metal doors, cabinets, foam or closed-cell insulation



Source: FEMA Technical Bulletin 2, Flood Damage-Resistant Materials Requirements for Buildings Located in Special Flood Hazard Areas, August 2008

Project Champion

- Resiliency Planning Committee

Potential Partners

- Code Enforcement Officer
- Floodplain Manager

Potential Resources

- New York State Rural Area Revitalization Projects
- New York Works Flood Mitigation and Flood Control Grants
- FEMA Public Assistance (PA) Grant Program
- FEMA Hazard Mitigation Grant Program
- Small Business Administration Disaster Assistance Loans for Homes & Personal Property
- Community Development Block Grant (CDBG) Disaster Recovery Assistance
- USDA Rural Development Rural Repair and Rehabilitation Loans and Grants
- Farm Service Agency Emergency Conservation Program
- New York State Office of Parks, Recreation & Historic Preservation, Historic Preservation Office
- New York State Historic Home Ownership Rehabilitation State Tax Credit

PP-2: Continue Participation in the NYS Hazard Mitigation Grant Program (HMGP)

Project Description

Hurricane Irene, Tropical Storm Lee and Superstorm Sandy inflicted unprecedented damage in many areas of New York State. In response to that devastation, the State has committed to assist local governments, non-profit organizations, and the private sector rebuild stronger, more sustainable communities. These efforts are aimed at increasing the State's resiliency, mitigating the risks of loss and damage associated with future disasters, and reducing hardship.

In 2012, the Village of Owego applied for and received funding through the New York State Hazard Mitigation Grant Program (HMGP) Elevation and Acquisition programs. These monies are provided to communities to reduce or eliminate risk and losses, to people and property, from natural hazards and their effects.

Action Steps

The Owego LTCRS Steering Committee recommends that the Village Board continue to work with residents who have experienced long-term flood damage as a result of Tropical Storm Lee to:

- Designate areas for future buyouts focusing on cost-benefit ratio to justify buyout or elevation.
- Promote awareness to homeowners in future buyout areas.
- Pursue HMGP funding by the Village Board.

Project Champion

- Village Board

Potential Partners

- Resilience Planning Committee
- NYS Division of Homeland Security and Emergency Services

Potential Resources

- NYS Hazard Mitigation Grant Program (HMGP)



PP-3: Protect Historic Publically-Owned Buildings

Project Description

The primary damage to historic buildings in a flood disaster is from immersion of building materials in floodwaters and the moving force of floodwaters that can cause structural collapse. Storm and sanitary sewer backup during flooding is also a major cause of flood damage to buildings. In addition, floods may cause fire due to ruptured utility lines; result in the growth of mold and mildew; and lead to swelling, warping, and disintegration of materials due to prolonged presence of moisture.

One of the challenges in mitigating the flood risk to a “historic structure” is the need to incorporate mitigation measures in such a way that the structure does not lose its historic designation. When evaluating mitigation measures for historic structures, care should be taken so that new designs and new materials do not obscure existing significant historic features. Retrofitting a historic structure to reduce flood damages can be done that it has minimal impact on the structure’s historic integrity and so that it maintains its historic designation.

A range of mitigation measures may be available for a particular historic structure. By adhering to the *Secretary of the Interior’s Standards for the Treatment of Historic Properties* and by seeking the help of an architect or engineering professional experienced in rehabilitating historic structures, a structure’s original historic setting, scale, and distinctive features can be preserved.

Preservation Briefs published by the National Park Service also provides guidance on preserving, rehabilitating, and restoring historic buildings.

There is a variety of relatively simple measures that can be implemented to minimize the effects of flooding. Many of the techniques described below may have minimal impact on the character-defining design features of the historic structure and some are relatively inexpensive to implement.

- Relocate contents to a safer location.
- Create positive drainage around the building. In places where ground slope against the building facade is either flat or toward the building, increase the grade immediately adjacent to the façade to achieve positive drainage away from the building. In some situations, existing masonry and concrete window wells around basement windows may need to be built up to retain the extra height of the fill.
- Protect mechanical and utility equipment. Elevating mechanical and utility equipment (including electrical, heating, ventilation, plumbing and air conditioning equipment) above the BFE can protect them from flood damage.

-
- Remove modern finished materials from basements or other areas that are floodprone. Often historic structures are constructed from materials that are relatively flood resistant. For example, basements often had stone walls and dirt floors. These buildings often were repeatedly flooded with minimal flood damages except to building contents. In more recent years many of these areas have been finished off using modern materials that are less resistant to flood damage and building utilities added.
 - Use flood resistant materials below the BFE. When rehabilitating or repairing a damaged historic structure, use flood resistant materials below the BFE to improve the structure’s ability to withstand flooding.
 - Wet floodproofing the basement. This measure allows the internal flooding of a basement. Flooding of a structure’s interior is intended to counteract hydrostatic pressure on the walls, surfaces, and supports of the structure by equalizing interior and exterior water levels during a flood. Inundation also reduces the danger of buoyancy from hydrostatic uplift forces. Such measures may require alteration of a basement’s design and construction, use of flood- resistant materials, adjustment of the basement’s maintenance, relocation of equipment and contents, and emergency preparedness.
 - Install “mini” floodwalls to protect openings, such as a window well. For low level flooding, a type of “mini”-floodwall can be used to permanently protect various types of openings. Possible materials for this use include brick, concrete block and poured concrete. They should be supported by and securely tied into a footing so that they will not be under- cut by scouring and the soil under these walls should be fairly impervious to control seepage.
 - Temporary measures. Where it is not possible to use the above measures to protect a building from flooding, it may be possible to use temporary measures to reduce flood damages. Examples include sand-bagging openings, installing temporary barriers or flood shields in openings, and evacuating building contents to floors above the flood level.

Project Champion

- Village Board

Potential Partners

- Village Fire Department
- Village Police Department

PP-4: Develop and Implement a Flood Proofing Technical Assistance Program

Project Description

To supplement the development of a *Homeowner's Resource Guide for Property Protection* (See PP-1), a technical assistance program should be developed that provides additional flood proofing education to residents, government leaders and business owners. A series of seminars, led by representatives from FEMA, the US Corp of Army Engineers, and the local code enforcement office could be tailored to the community's needs. Topics could include:

- Benefits of Flood Proofing
- Home Elevation
- Dry Flood Proofing vs. Wet-Flood Proof
- Building with Flood Damage Resistant Materials

Project Champion

- Resiliency Planning Committee

Potential Partners

- Code Enforcement Officer/Floodplain Manager
- Planning Board
- Town Board

Potential Resources

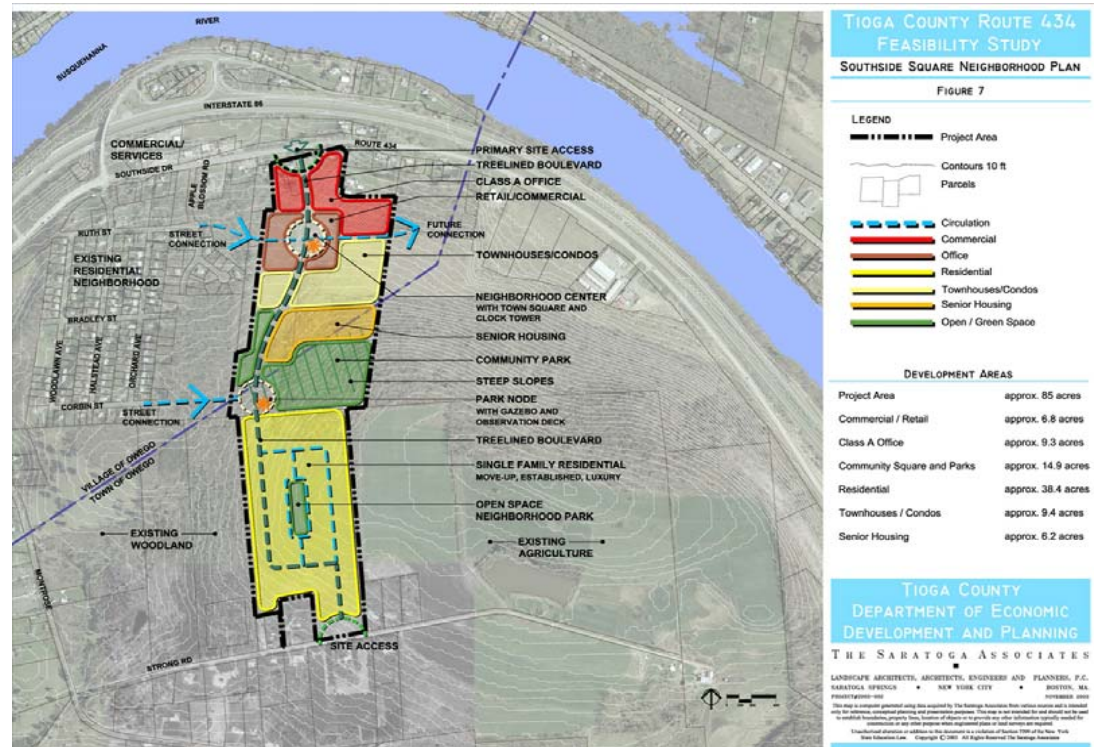
- FEMA Public Assistance (PA) Grant Program
- FEMA Hazard Mitigation Grant Program
- Small Business Administration Disaster Assistance Loans for Homes & Personal Property
- Community Development Block Grant (CDBG) Disaster Recovery Assistance
- USDA Rural Development Rural Repair and Rehabilitation Loans and Grants
- Farm Service Agency Emergency Conservation Program
- NYS Office of Emergency Management

PP-5: Promote Route 434 E=MT3 Site as a Relocation Option to Residents and Businesses

Project Description

One of the priority projects identified for future EDA funding consideration for the Southern Tier East Region is a mixed-use 87-acre development project to be located along NYS Route 434 in the Village and Town of Owego. The proposed Route 434 E=MT3 Mixed-Use Office Park project will consist of single family, two-family and multi-family townhouse residences, a recreation area, professional offices, light and high-tech manufacturing, and development-scale/servicing retail uses. The Tioga County Industrial Development Agency (IDA) currently owns the land which is located out of the flood plain, providing an option for new living outside of the floodplain.

As the site is developed, the Village should work with the County, State and Federal government and local banks to establish a preferred loan program for people looking to relocate out of the floodplain. A low interest home mortgage loan could be established for qualified buyers or a grant could be established to help with down payments and closing costs. Funding could come from the federal Community Development Block Group Program and/or capitalized through the State's Consolidated Funding Application process. A similar grant and loan program has been established by the Southern Tier East Regional Planning Board for economic development purposes.



Project Champion

- Tioga County Industrial Development Agency

Potential Partners

- Village Board
- Planning Board
- Southern Tier Regional Economic Development Council

Potential Resources

- Empire State Development, Excelsior Jobs Program
- NYS Office of Homes & Community Renewal, Rural Area Revitalization Projects
- New York Main Street Program
- NYS Office of Parks, Recreation, and Historic Preservation, EPF Municipal Grants
- NYS Department of State, Local Waterfront Revitalization Program
- Environmental Facilities Corporation, Green Innovation Grant Program

Emergency Services Measures (ESM)

Background

Emergency Services Measures describe those actions taken by Village officials and first responders during a flood event. For the purpose of this study, the Steering Committee also included after action review items that will hopefully improve emergency response during any future storms.

Goal

The goal of the Emergency Services Measures (ESM) recovery projects is to ensure that all residents and critical facilities personnel are alerted and kept informed before, during and after flood events.

ESM Recovery Projects

- ESM-1: Ensure an Integrated Emergency Management Plan.
- ESM-2: Ensure emergency services for vulnerable and underserved populations.
- ESM-3: Develop a Multi-Tiered Emergency Alert System.
- ESM-4: Conduct a Table Top Technical Analysis.

ESM-1: Ensure an Integrated Emergency Management Plan

Project Description

This recovery project seeks to develop a consolidated Emergency Plan for the Village of Owego. The Village currently participates in a number of formal and informal emergency management and hazard mitigation plans, including:

- The Tioga County Multi Jurisdictional Hazard Mitigation Plan
- The Tioga County Comprehensive Emergency Operations Plan
- The Village of Owego Emergency Response Plan (ERP)

Section 9.11 of the Tioga County Hazard Mitigation Plan presents the jurisdictional annex for the Village of Owego. The plan provides an overview of the community, the history of natural hazards and a prioritized list of proposed hazard mitigation initiatives. The Village's Emergency Response Plan is prepared by first responders and outlines what the community should do in the event of an emergency.

To ensure an integrated emergency management plan, the Steering Committee proposes the following action steps:

Action Steps

- Work with Tioga County to review and assess the Village's Emergency Response Plan (ERP) and County's Hazard Mitigation Plan for the Village of Owego annex.
- Identify existing gaps between the two plans.
- Consolidate into one comprehensive plan for the Village.
- Coordinate actions amongst all parties to implement (Village, Town, Tioga County, School, residents, TCEMO, and Fire Department).
- Periodically test and redefine corrective actions.

Project Champion

- Fire and Police Chiefs

Potential Partners

- Deputy Fire Chief

Potential Resources

- NY Rising Community Reconstruction Program

ESM-2: Ensure Emergency Services for Vulnerable and Underserved Populations

Project Description

The Steering Committee recognizes that certain members of the community are particularly vulnerable to the effects of a disaster. During an emergency, such as the recent 2011 flood event, the following populations may need evacuation assistance, attention to special dietary needs, and/or special medical care:

- Senior and elderly citizens
- The medically fragile or disabled
- Persons with limited English proficiency
- The homeless and indigent
- People who need assistance with daily activities, but are living alone
- Those without a reliable means of transportation
- Persons living with chronic mental, physical, or developmental disabilities
- Those suffering with Alzheimer's disease or dementia

It is recommended that the Village of Owego prepare an Emergency Preparedness Plan that focuses on the requirements of special needs, at-risk, and



vulnerable populations. The Plan should address such issues as:

- Self-registration of special populations
- Sheltering-in-place
- Evacuation to shelter or alternate housing
- Self-care in shelter or alternate housing

- Medication access & management
- Return to permanent, long-term recovery

Project Champion

- Resiliency Planning Committee

Potential Partners

- Deputy Fire Chief
- Tioga County Emergency Management Office (TCMO)
- Tioga County Department of Social Services
- Local hospitals

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Program

ESM-3: Develop a Multi-Tiered Emergency Alert System

Project Description

Despite the fact that the arrival of Tropical Storm Lee was well publicized on the national and local news, many of the Village's residents indicated during the LTCRS public participation process that they felt they were away from a television, radio or computer and were caught by surprise, that they had a hard time understanding emergency communications, or that they heard the emergency siren, but were unsure of where to go or what to do next.

Development of a multi-tiered emergency alert system would ensure that all residents and critical facilities personnel are aware of threats regardless of where they are or what they are doing. The system would include:

- Increased voluntary enrollment in the County's Hyper-reach and NYS Alerts programs
- Installation of a siren/alarm system
- Establishment of a Block Emergency Preparedness Program
- Emergency testing/flood drills

ESM-3A: Hyper-Reach Enrollment

Encourage 100% enrollment in Tioga County's computer-based emergency notification system known as Hyper-reach. Hyper-reach, a free service similar to a reverse 911 call, is a tool that public safety officials can use to send a recorded message to community residents in the event of an emergency situation. The system automatically contacts all land-line phone numbers which are listed in the phone company 911 databases. Residents can also sign up to receive alerts on their cell phone and/or e-mail address.

Project Champion

- Resiliency Planning Committee

Potential Partners

- Deputy Fire Chief
- Tioga County Emergency Management Office (TCEMO)
- Village and Town of Owego
- School District

Potential Resources

- NYS Office of Emergency Management
- Municipal budget

ESM-3B: Siren System

One of the biggest concerns identified by the community with respect to the emergency response associated with Tropical Storm Lee was communication problems. Participants reported:

- The recorded emergency message was confusing; it started with “If flooded in 2006...”
- The Fire Department Public Announcement (PA) system used to evacuate residents was unintelligible—“it was too loud and distorted”
- Notification was spotty.

This strategy proposes the purchase and installation of a siren/alarm system at the Fire Station that can be heard throughout

the Village, coupled with the development and distribution of an information packet designed to educate residents about the warnings and how to respond in the event of an emergency.



New siren installed in the Town of Tioga
(Photo: Rick Stilson)

Project Champion

- Village Board

Potential Partners

- Deputy Fire Chief
- Tioga County Emergency Management Office (TCEMO)

Potential Resources

- Mildred Faulkner Truman (MFT) Foundation
- NYS Office of Emergency Management
- NY Rising Community Reconstruction (NYRCR) Program

ESM-3C: Block Emergency Preparedness Program

Emergency warning to community members, giving ample time for families and individuals to respond effectively to threats, is an ongoing concern. Warnings, particularly for residents with access or functional needs, and the elderly, are a prime concern.

During the public participation process, a need was identified for development of a more systematic approach to warning notifications. The Steering Committee proposed establishing a neighborhood “block captain” program as an “informal” method to improve overall communication during emergency events. This program would involve utilizing community volunteers to augment the emergency services provided by the Village’s first responders. Each neighborhood would identify block captains who would be responsible for:

- Collecting contact information from residents on the block;
- Educating and asking residents to register for Tioga County emergency notification updates;
- Asking residents to self-identify as a vulnerable population or a medical professional;
- Going door-to-door notifying neighbors of a hazardous event, as well as serving the organization for emergency preparedness education; and

- Initiating block or neighborhood improvement projects (in order to maintain momentum for the block captain structure, even if no event occurs).

Project Champion

- Resiliency Planning Committee

Potential Partners

- Deputy Fire Chief
- Tioga County Emergency Management Office (TCEMO)

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Programs

ESM-3D: Emergency Testing/Flood Drills

It is recommended that the Village of Owego conduct annual emergency testing/flood drills. Local warning sirens and the Emergency Alert System (EAS) should be activated to signal the start of the drill. Residents should treat the drill as if it were an actual flood emergency. The purpose of the annual drill is to test everyone's readiness for life-threatening severe weather events including flash floods.



Project Champion

- Resiliency Planning Committee

Potential Partners

- Deputy Fire Chief
- Tioga County Emergency Management Office (TCEMO)
- NYS Office of Emergency Management

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Programs
- Department of Homeland Security

ESM-4: Conduct a Table Top Technical Analysis

Project Description

In May of 2012, Tioga County released *the Tioga County Tropical Storm Lee Flood Response After Action Report / Improvement Plan (AAR/IP)*. The study identified areas of emergency management planning that need improvement, made recommendations for such improvement, and captured key lessons learned from the event.

The Owego Steering Committee recommended that in addition to the county-wide AAR/IP, the Village of Owego should conduct a local Table Top Technical Assessment to identify what worked, and what didn't work well during the Village's flood response, how local agencies and first responders worked together, as well as areas for improvement. The analysis is intended to be a means to find ways to do things better within the Village during future flood events.

It is recommended that the analysis be moderated by an outside party, at a location that is convenient and comfortable. Outreach could be conducted in focus groups, or individual meetings could be set up. Once actions steps for improvement have been identified, the LTCRS Executive Committee, with the support of the Village Boards, would be responsible for implementation.

Project Champion

- Resiliency Planning Committee

Potential Partners

- Tioga County Fire and EMS Coordinator

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Programs

Public Information (PI)

Background

Research has shown that an important step to minimizing flood damage and loss is the implementation of public education activities that are initiated at the local level.

Goal

The goal of the Public Information recovery projects in the Village of Owego is to increase awareness among residents regarding home preparedness and emergency notifications.

Public Information Recovery Projects

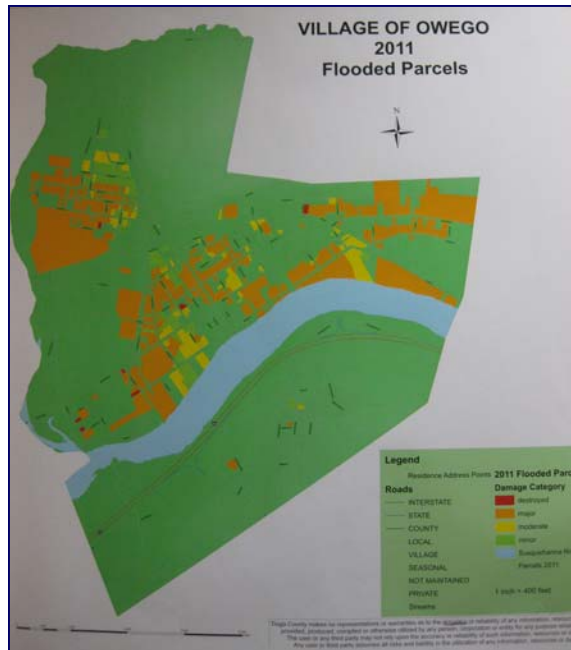
- PI-1: Create a Flood Safety Awareness brochure to be included as part of a welcome packet for new residents and business owners.
- PI-2: Develop a comprehensive information system to raise public awareness of flood hazards.
- PI-3: Develop a “real time” evacuation route mapping system.

PI-1: Create a Flood Safety Awareness Brochure

Project Description

When new homeowners, renters and businesses move to Owego, they should be provided with a welcome packet that includes a Flood Safety Awareness brochure. The brochure would inform residents of the location of flood zones within the Village and outline steps they can take to protect their property and reduce potential losses during a flood event. The brochure could include information regarding:

- The National Flood Insurance Program (NFIP)
- An Owego flood zone map
- Flood hazard information including important phone numbers (Fire Department, Police Department, Emergency Operation Center, Red Cross, utilities, etc.)



- Information about the Village's Flood Warning System (what does it sound like, what should be done when heard)
- Flood safety and preparedness tips
- Evacuation and emergency shelter information

- Steps to follow after the flood (contact insurance agent, take photos of water and damaged property, keep receipts).

Project Champion

- Resiliency Planning Committee

Potential Partners

- Tioga County Emergency Management Office (TCMO)
- Local Realtors

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Programs
- Municipal budgets

PI-2: Develop a Comprehensive Information System to Raise Public Awareness of Flood Hazards

Project Description

One of the best ways to mitigate flood damage and loss is to be prepared. The development of a comprehensive information system will focus on educating the public about the hazards associated with extreme weather events and flooding, as well as provide the public access to resources designed to reduce their own exposure to flood damage and property loss.

Instead of waiting for residents to find out about localized flooding and its remedies for themselves, the Village can implement a series of community outreach projects designed to increase awareness among residents, businesses, and property owners about what to do during flood events and how to protect themselves and their property. These outreach projects also let people know what the Village is currently proactively doing to protect residents and property. The program should build awareness among Village residents

regarding what to do during a flood emergency, flood insurance, and loss-reduction measures.

Outreach projects could include:

- Upgrade website to include flood prevention page that provides local flood map and insurance information, property protection measures, and educational materials.
- Provide emergency information (evacuation procedures, emergency contacts, flood map) on a weather-resistant door hanger.
- Go directly to churches, senior center, and schools to work directly with residents on the Reverse 911 enrollment process.
- Include informational message from Mayor in year-end State of the Village report.
- Hold community seminars at the library, churches, senior center and schools to educate residents about

what to do before, during and after a flood, and assist them in signing up to receive emergency alerts.

- Coordinate with NYSEG to educate residents what to do during a flood event.
- Establish a media campaign - consider TV, radio, backpack brigade, articles and ads in Penny Saver.

Project Champion

- Resiliency Planning Committee

Potential Partners

- Resiliency Planning Committee

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Programs

PI-3: Develop a “Real Time” Evacuation Route Mapping System

Project Description

The South Carolina Department of Transportation (SCDOT) recently developed a Hurricane Evacuation Decision Support Solution. The system is a Web-based presentation of smart maps that incorporate live information from SCDOT's Geographic Information Systems (GIS), remote traffic counters, evacuation route and detour maps, and real-time weather data. It was designed to put rapidly changing traffic and weather information at the fingertips of state officials who are tasked with managing evacuations.

For the Tioga Communities along the Susquehanna River, different roads were closed based on the path of the storm, making it difficult to simply post evacuation routes. Implementing a real-time mapping system and disseminating the information to people's smart phones and/or computers would help people find the most appropriate and fastest route to safety.

Project Champion

- Resiliency Planning Committee

Potential Partners

- Village Board
- Tioga County Emergency Management Office (TCMO)
- Tioga County Information Technology (IT) Department

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Programs
- NYS Department of Transportation (DOT)



Structural Projects (SP)

Background

Structural projects keep flood waters away from an area or help efficiently move water while minimizing negative impacts on the surrounding lands. Structural projects are typically ‘engineered’ projects designed and undertaken by civil engineers, hydrologic engineers, and structural engineers. Typically, engineers involved in this field specialize in water resource engineering services including dams, floodplain management and stormwater management.

While it is possible to mitigate and prevent impacts from future flood events using non-engineered (i.e., soft engineering) solutions (such as natural stream bank restoration or creating mitigation areas throughout the watershed), it is sometimes necessary to develop and install an ‘engineered solution’ (such as constructing berms or flood walls, or correctly sizing and replacing culverts). This LTCRS combines both the ‘soft engineering’ solutions to mitigation and prevention as well as the ‘hard engineering’ solutions focusing on berms, culverts, and stormwater system improvements.

The following recommendations relate to potential engineered solutions to prevent and mitigate impacts from future flooding.

Goal

To protect key areas and critical facilities in the Village of Owego.

Structural Projects Recovery Projects

To accomplish this goal, the Owego LTCRS Steering Committee identified the following Structural Projects:

- SP-1: Address water collecting at North Avenue Underpass.
- SP-2: Expand Upon Monkey Run to Owego Creek Hydrology Study.
- SP-3: Develop Comprehensive Stormwater Management Plan and integrate green infrastructure techniques.
- SP-4: Evaluate and undertake stormwater improvements on Mountain Road.
- SP-5: Continue to monitor Brick Pond for potential improvements to reduce flooding.

SP-1: Address Water Collecting at North Avenue Underpass

Project Description

During extreme flood events, the portion of North Avenue (NYS Rt. 96) that passes under the railroad bridge on the north side of the Village fills with water and the area is not passable. There is a pump installed but when Erie Street loses electricity the pump does not work. North Avenue is the only road in and out of the Village when the Susquehanna River floods, essentially leaving residents trapped in the Village. This is a very dangerous situation as people cannot evacuate on their own and if there is an emergency the first responders may not be able to reach people in need.

The Village should undertake an engineering feasibility study of the 'watershed' that feeds to the low point of the North Avenue Underpass. The study should locate potential stormwater interceptors that could be installed to reduce the amount of water collecting in this area. Additionally, the Village should install a pump system with a generator



North Avenue Underpass

backup powerful enough to keep this portion of the road passable during flood events.

In addition to ensuring that the water can be diverted or pumped out, the Village should work with the railroad to establish an emergency exit road at MacMaster Street. This would only be used when North Avenue becomes impassable but would ensure the ability for residents to evacuate.

Project Champion

- NYS Department of Transportation

Potential Partners

- Village Board

Potential Resources

- NYS Department of Transportation (DOT)

SP-2: Expand Upon Monkey Run to Owego Creek Hydrology Study

Project Description

A recent study of Monkey Run/Huntington Creek was completed to review the issue of sediment and debris accumulation near its outflow area specifically at the railroad and school bridges. The existing study only evaluated the portion of the creek as high as the stabilization project that was installed previously. To include a more detailed evaluation of the entire watershed, it is recommended that, as a part of the Tioga Communities NY Rising Community Reconstruction (NYRCR) Program, the Village of Owego include a project to evaluate upstream segments from Monkey Run to identify sediment and debris sources.

Project Champion

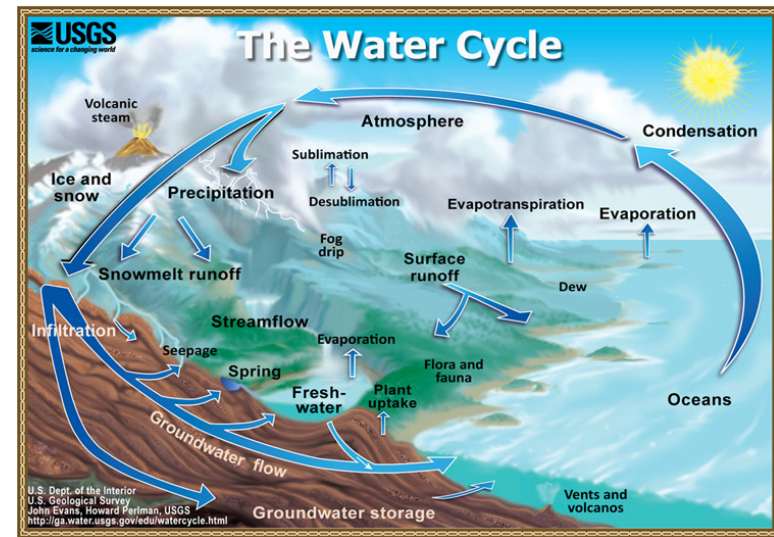
- Tioga County Soil and Water Conservation District

Potential Partners

- Village Board

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Programs



SP-3: Develop Comprehensive Stormwater Management Plan and Integrate Green Infrastructure Techniques

Project Description

During heavy rains the Village streets flood due to an aging and inadequate stormwater system. To address this issue, the Village must look comprehensively at the stormwater system to determine the necessary types and location of improvements. This can be accomplished by developing a Comprehensive Stormwater Management Plan.

Development of the plan begins with the mapping of the existing stormwater system, which will be used to analyze and model how the existing stormwater system is performing during different storm events. This model will highlight the areas of concern; subsequently a series of alternatives can be developed to help resolve some of these issues. The stormwater management plan should also look at the Village system as a whole, and determine if there are some ways to reduce the impervious cover, slow the rate of runoff, and promote infiltration using low impact development design techniques such as porous pavement, bioswales, and rain gardens, all of which are considered green infrastructure.

Recommendations from the analysis will likely include physical improvements such as replacing storm drains and piping, as well as zoning recommendations that will require that new developments comply with stormwater regulations and consider green infrastructure techniques to reduce the amount and rate of stormwater runoff.

Project Champion

- Village Board

Potential Partners

- Broome Tioga Stormwater Coalition
- NYS Department of Transportation (DOT)

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Programs
- NYS Environmental Facilities Corporation, Green Innovation Grant Program
- EPA Clean Water Act Nonpoint Source Grant
- DOT Transportation Enhancement Program

SP-4: Evaluate and Undertake Stormwater Improvements on Mountain Road

Project Description

During heavy rain events, water is coming off the hillside and down Mountain Road and flooding homes. It is recommended that the Village conduct a stormwater analysis of this area to determine if new stormwater infrastructure can be installed to reduce the rate and flow of stormwater. This could include physical improvements and/or green infrastructure techniques such as bioswales, stormwater detention ponds, among others.

Project Champion

- Village Board

Potential Partners

- Town of Owego
- Village Department of Public Works
- NYS Department of Transportation (relation to North Avenue)

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Programs
- NYS Department of Environmental Conservation (DEC)
- NYS Environmental Facilities Corporation, Green Innovation Grant Program
- EPA Clean Water Act Nonpoint Source Grant
- DOT Transportation Enhancement Program

SP-5: Continue to Monitor Brick Pond for Potential Improvements to Reduce Flooding

Project Description

The area known as Brick Pond has been studied by the Tioga County Soil and Water Conservation District for potential improvements to reduce flooding in this portion of the Village. While it is not believed that Brick Pond is causing the flooding in this area, the area should be continually monitored to determine if improvements could be made that would help mitigate flooding from the river during extreme rain events.



Project Champion

- Waterman Conservation Education Center

Potential Partners

- Resiliency Planning Committee
- Village Board
- Tioga County Soil and Water Conservation District

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Programs

Natural Resource Protection (NRP)

Background

The Natural Resource Protection recovery projects identified in this study include activities designed to restore natural areas or the natural function of floodplains, streams and watersheds within the Village of Owego. Activities include best practices, stormwater control, erosion and sediment control and public education.

Goal

The goal of the Natural Resource Protection projects is to preserve and restore the Village's natural areas including floodplains, streams and wetlands.

Natural Resource Protection Recovery Projects

To accomplish this goal, the Steering Committee identified the following four Natural Resource Protection recovery projects:

- NRP-1: Complete an Owego Creek watershed assessment and geomorphological analysis.
- NRP-2: Conduct an Owego Creek flood and hazard mitigation analysis.
- NRP-3: Develop and implement a plan for natural resource stabilization, restoration and long term sustainability.
- NRP-4: Focus efforts on public education and outreach.

NRP-1: Owego Creek Watershed Assessment and Geomorphological Analysis

Project Description

The first stage of understanding the health and behavior of streams and tributaries is to conduct a Geomorphological Assessment. Geomorphology is the scientific study of landforms and the processes that shape them. Geomorphologists seek to understand why landscapes look the way they do, to understand landform history and dynamics, and to predict changes through a combination of field observations, physical experiments and numerical modeling.

This recommendation is to complete a morphological and survey assessment of the Wappasening Creek. The process combines engineering survey information and with scientific data. The combined data set will be used to model how the streams will perform during certain rain events (i.e., 5, 10, 50, 100 and 500 year storms). This information will prove extremely useful in determining where and at what level of rain event (in inches) flooding will begin to occur. The Geomorphological Study should assess channel stability, sediment transport capabilities, the patterns and profiles of the streams, and other features that will be used to determine the overall condition of the streams.

The streams can then be classified using the Rosgen Classification System which will help predict how the Wappaseneing Creek will perform during high flow events. This information can be used as a

baseline against future surveying and assessment. Completing this assessment will help guide the Town in various ways including concentrating emergency warning systems and identifying potential mitigation measures higher up in the watershed to help alleviate rushes of water near the outflow to the Susquehanna during storm events. (See NRP-2)

Project Champion

- Town Board

Potential Partners

- Tioga County Soil and Water Conservation District

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Program
- Department of State Local Waterfront Revitalization Program (LWRP)
- NYS Department of Environmental Conservation (DEC)
- NYS Environmental Facilities Corporation, Green Innovation Grant Program

NRP-2: Owego Creek Flood and Hazard Mitigation Analysis

Project Description

This project may be combined with the Watershed Assessment and Geomorphological Analysis Project described in NRP-1.

Using the information gathered during the Watershed Assessment and Geomorphological Analysis, an engineer can complete an analysis and assessment of possible flood mitigation alternatives. These mitigation alternatives should be modeled to show how they will reduce the impact of the flood during different sized storms. As part of this project, a cost benefit analysis should be completed to understand the viability of the mitigation measures.

This analysis can provide series of recommendations to be implemented regarding appropriate uses that may be developed within the floodplain areas. These recommendations should be detailed about the 100 year flood plain, 500 year flood plain, as well as looking at development standards within 100 and 200 linear feet of a perennial stream, and 100 linear feet of an intermittent stream. This plan should set the standard of what the Village will expect with any new development and could be incorporated into the municipalities' by-laws or zoning.

Project Champion

- Village Board

Potential Partners

- Tioga County Soil and Water Conservation District
- Code Enforcement Officer/Floodplain Manager

Potential Resources

- NY Department of State
- NY Rising Community Reconstruction (NYRCR) Program
- NYS Environmental Facilities Corporation, Green Innovation Grant Program

NRP-3: Plan for Natural Resource Stabilization, Restoration and Long Term Sustainability

Project Description

Based on the fluvial geomorphic assessment completed in NRP-1, a plan will be developed that will guide the Village in the restoration of the natural resources throughout the town. This project will take the information in the assessment, and will provide restoration construction drawings that will be used to restore the rivers, streams and wetlands within the Village boundaries. The project will target the areas for immediate restoration, as well the areas that are beginning to show signs of failure. The plans will promote natural channel design that ensures that resource areas are restored with scientific backing that promotes sediment transport, stable vegetated banks, ecological diversity, and connection to the floodplain. A matrix will be developed identifying the project, its level of priority, permits needed and estimated cost.

Project Champion

- Village Board

Potential Partners

- Tioga County Soil and Water Conservation District
- Resiliency Planning Committee
- Upper Susquehanna Coalition
- NYS Department of Environmental Conservation (DEC)
- U.S. Army Corp of Engineers

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Program
- Department of State Local Waterfront Revitalization Program (LWRP)
- NYS Department of Environmental Conservation (DEC)



NRP-4: Public Education and Outreach

Project Description

This strategy involves developing a local pilot program to educate and engage the local population about the rivers, streams and wetlands around the Village and in their own backyards. These programs will not only benefit the community as a whole, but also help get them organized and working with large watershed groups. Getting the grass roots advocacy going will help keep this process moving forward, engaging the entire community from the youngest to the oldest. Below are lists of events and programs that may be implemented to garner support, while providing a sense of ownership of the beautiful natural resources within the Village.

- River Days – Rafting Race/Paddle/Fishing
- River Walks – Led by the local community experts
- Public School Class on River Gauges

(Sidney) – Install river gauges in locations throughout the watershed to teach the children about river flow patterns

- Environ-thon
- Adopt a River Program – Possibly using corporate sponsors and volunteers to help the communities walk the banks removing rubbish



(Source: Living Lands & Waters)

Project Champion

- Resiliency Planning Committee

Potential Partners

- Water Quality Conservation Commission (WQCC)
- Binghamton University, Cornell University and other local higher education institutions
- Waterman Conservation Education Center

Potential Resources

- NYS Department of State
- NY Rising Community Reconstruction (NYRCR) Program

Community Revitalization & Economic Development Projects

Background

This section of the report focuses on strategies and projects that will revitalize the community and grow economic development and tourism in the Village of Owego. Community Revitalization and Economic Development strategies address quality of life issues including housing and parks & recreation, as well as economic development attraction, retention, expansion and tourism.

Goals

1. Create a diversified economy supported by tourism, industry and small business.
2. Ensure that residents of the Village of Owego maintain a high quality of life.
3. Ensure a diversity of safe, affordable market rate housing options.



Community Revitalization & Economic Development Projects

- CRED-1: Recruit and retain the creative class/young people in their 20s and 30s.
- CRED-2: Reexamine and update the small business incubator feasibility study.
- CRED-3: Increase focus on the development of tourism to enhance revenue.
- CRED-4: Complete streetscape enhancements and tree planting program.
- CRED-5: Create a pet evacuation plan.
- CRED-6: Continue participation in the NYS DOS Brownfield Opportunity Areas (BOA) Program.
- CRED-7: Conduct a feasibility study for a Not-For-Profits Sustainability Support Center to help increase capacity post flood events.
- CRED-8: Build a new shared Town/Village DPW facility out of the floodplain with green elements.
- CRED-9: Encourage appropriate infill development at 202-204 Front Street.
- CRED-10: Conduct a housing needs assessment.
- CRED-11: Update plan for Marvin Park and undertake enhancements.

CRED-1: Recruit and Retain the Creative Class/Young People in their 20s and 30s

Project Description

During the public workshop, community residents identified the need to recruit and retain younger people ages 20-40 and members of the Creative Class to the Village. Specifically, the Village wants to reverse “brain drain” and be able to keep younger residents who were raised in the Village, to attract college graduates to relocate to Owego, and for younger outside-area residents to be drawn to live in the area as well. While the community wishes to retain the small-town size that already distinguishes it, current residents also wish to foster an environment that draws younger generations into the Village; preserving the “coolest small town” designation into the future.

Richard Florida coined the term “Creative Class” in the mid-2000s, to describe the types of professionals that he believes will be the leading force of growth for an area’s economy. When a Creative Class moves into a city, they bring a demand for certain types of goods, services, and living environments. Specifically, a community must possess “the three T’s” to support Creative Class workers: Talent (a highly talented/educated/skilled population), Tolerance (a diverse community), and Technology (the technological infrastructure necessary to fuel an entrepreneurial culture).

Action Steps

Marketing Strategies:

1. Emphasize the Village’s location, and ease of access to a variety of areas.

The Village of Owego is less than 25 miles from Binghamton; 36 miles from Elmira; and less than 30 miles from Ithaca. These represent potential employment centers with 30,000-50,000 residents, all within a reasonable commute. Binghamton, Elmira, and Ithaca all have regional airports that connect to national and international destinations. Extensive public and private bus transportation is also provided throughout the region. There are more than a dozen colleges and universities in the Southern Tier. These provide an employment base, and opportunity for younger residents to commute, as well as a draw for recent graduates to settle near their college.

2. Continue to market the Village’s 2009 designation as “The Coolest Small Town in America” by the readers of Budget Travel Magazine.

-
3. Given the Village's location, in a rural county of small towns, within commutable distance of several centers of employment, this is a distinction that the Village of Owego should continue to capitalize upon.

This distinction may encourage regional newcomers to focus initially upon the Village for potential working/living arrangements. Advertising this distinction also continues to inspire visitors to explore the area.

4. Accentuate the extensive existing recreational opportunities in the Village. Consider the Riverwalk over the Susquehanna, the trails/paths along the Owego Creek, as well as Marvin Park. Market their accessibility around the community (permanent signs, pamphlets, etc.). Consider creating a greenbelt or open space network connecting the recreation options.
5. Market the Owego-Apalachin Central School District's high performance. In 2013, the Owego Free Academy was ranked in the top 14% of schools in New York State, and in the top 9.3% of schools nationwide. Distinctions like this only encourage young families to settle in the Village area, encouraging them to enroll their children in a top-ranked school district from an early age.

6. Maintain a constant social media presence that encourages young visitors to think about how they could work, play and settle in the Village.

- Consider establishing a Village of Owego Facebook and/or Twitter account that posts updates on events in the Village or new housing opportunities.
- Post pictures of the Strawberry and Lights on the River Festivals.
- Advertise the 3rd Friday Art Walks; consider increasing frequency of walks.

Built Environment Strategies:

1. Consider developing varying levels of housing; build more Accessory Dwelling Units (ADUs), or build a mixed-use development downtown with housing on the upper levels. Investing in housing choice encourages younger residents, perhaps not yet ready to own a home, to be able to afford to experience all the Village has to offer.
2. Institute a year-round farmer's market or at least a consistent schedule for outdoor farmer's markets during the summer growing season. Pair this effort with extensive farm-to-table advertising efforts. Consider utilizing this space at other times as a public green or gathering area.
3. Develop a Village community center that offers adult education classroom space and early childhood development activities. This would appeal to both younger Creative Class workers, wishing to further their education, as well as younger families looking to increase their community connections.

Economic Development Strategies:

1. Encourage the establishment of small business start-ups in the area. Given the number of local colleges and universities, and the rapid changes in the nano-technology and hydraulic fracturing industries in New York State, a centrally-located,

lower-cost Village like Owego provides tremendous opportunities for small businesses.

2. Ensuring effective communication infrastructure and systems throughout the Village is essential. Today's businesses expect seamless technology.
3. Developing a mentorship program for new business owners and local experienced business owners would be a two-way street for new entrepreneurs to share their knowledge with established businesses.
4. Creating a business incubator would not only encourage small business start-ups to locate in Owego, but also create an atmosphere of shared experiences and knowledge for small business owners.
5. Establishing a small business association in the Village of Owego would also bring together both new and existing businesses.

Project Champion

- Resiliency Planning Committee (RPC)

Potential Partners

- Historic Owego Marketplace
- Lockheed Martin
- Tourism
- Binghamton University
- Cornell University

Potential Resources

Trail heads/ bike paths/ green belts/open space network

- U.S. Department of the Interior Land and Water Conservation Fund State Grant Program

Community facility funding

- USDA Community Facilities Grants

Downtown mixed-use facility funding

- Regional Economic Development Council for the Southern Tier Community Revitalization Program

Small business funding

- Southern Tier East Economic Development Revolving Loan Fund Program (STEED RFL Program)
- Regional Economic Development and Energy Corporation/ Relending Corporation (REDEC/RRC)
- Regional Economic Development Council for the Southern Tier Rural Initiative Program
- Statewide Zone Capital Corporation of New York (SZCC)

CRED-2: Reexamine and Update the Small Business Incubator Feasibility Study

Project Description

During the public participation process to formulate a vision for the future of the Village of Owego, many residents expressed the desire to increase the number of younger Owego residents. Drawing younger generations into the Village though requires the promise of viable employment options. Given Owego's location within the Southern Tier of New York State, there are several employment centers within commuting distance. However, increasing the economic viability of the Village itself would only increase the attractiveness of the area to younger generations of students, workers, and entrepreneurs. Creating a business incubator in the Village of Owego would encourage an increase in the number of local businesses. A strengthened local economic network is vital to the recovery of the Village community.

The operation of a business incubator in the Village of Owego would be modeled on the success of the University of Central Florida

Incubators (<http://www.incubator.ucf.edu/>), which notes that, "Business incubation is a critical element of any regional economic development strategy. Studies show that 95% of companies stay in the community where they are established. Incubators greatly reduce the risk of failure and 87-91% of companies that graduate from an incubator program are still in business 5 years later."

The purpose of the Owego incubator would be twofold: to help small businesses that have innovative ideas but lack resources to start operations on their own, and to entice small start-up businesses into the community. This kind of business incubator will be designed to promote economic growth by supporting entrepreneurship and the development of companies into successful business ventures. Businesses located in the incubator will be able to share costs and readily access available business assistance services throughout Tioga County and the State of New York.

Space in the incubator will be available to small businesses and start-ups that potentially operate within the arts, or as non-profit entities, or for high-tech or biotechnology businesses, ideally who all make a commitment to remain in the Village after "graduation". The incubator will have the capacity for approximately 6-10 companies, dependent on each client's business compatibility for the use of shared space. In certain instances, it may be practical to "condo" multiple companies into a single space, thereby increasing the number of tenants.

A range of support for businesses will be provided in the facility through a small business revolving loan fund, as well as advice and technical assistance through workshops, mentoring opportunities, and marketing campaigns.

The facility will also cooperate and coordinate with other business incubators in the county and the Southern Tier. The incubator will combine resources with those of Binghamton University, State and local governments, area businesses, and the community in order to “graduate” businesses that are financially viable and freestanding.

Action Steps

- Meet with the Binghamton University Small Business Development Center program staff and other allied agencies that are able to provide small business assistance. With their guidance, formalize an advisory group.
- Develop a business incubator feasibility study for the operation of an incubator that both fits the emerging trends in business development and the local job needs of the community.
- On determination of the viability of an incubator, and the development of an associated business plan, engage a not-for-profit organization to begin the process of determining exact space needs and available locations.
- Market the program through all available economic development programs and public media.

- Secure funding and formalize relationships with business service providers and potential tenants.
- Initiate the program to build or acquire a facility and lease space to initial tenants.
- Develop a “pipeline” of potential occupants by raising the visibility of the Center through a website or other social media outlets.

Project Champion

- Tioga County Economic Development and Planning (TCEDP)

Potential Partners

- Resiliency Planning Committee
- Village Board
- Historic Owego Market Place
- Higher Education Institutions
- Tioga County Industrial Development Agency
- Tioga County Chamber of Commerce
- NYS Empire State Development

Potential Resources

- Appalachian Regional Commission (ARC)
- Local Initiatives Support Corporation
- Community Facilities Direct and Guaranteed Loan and Grant Programs (USDA/RD)
- Intermediary Re-lending Program (USDA/RD)
- U.S. EDA Public Works Investment Program
- NYS Empire State Development: Minority and Women-Owned Business Development and Lending Program
- NYS Empire State Development: Urban Community Development Program
- New York State Legislative Commission on Rural Resources
- Cornell University Rural New York Initiative, Community and Rural Development Institute
- Greater Binghamton SCORE

CRED-3: Increase Focus on the Development of Tourism to Enhance Revenue

Project Description

The Village of Owego's location in the Southern Tier lies between Interstates 81 and 390, both of which flank the Finger Lakes region of New York State. Thus, the Village truly acts as a gateway to this area, for those traveling the back roads, as well as for those seeking to explore a charming village, only a slight detour from major roads. As a vibrant village, surrounded by tranquil natural resources, Village residents have accurately identified the potential that their community has for a more developed tourism industry. More visitors spending tourism dollars at the shops and restaurants of the Village may result in increased tax income and employment, only further indicators of post-Tropical Storm Lee community recovery.

While the "Coolest Small Town in America" designation continues to act as marketing for potential residents of Owego, a marketing campaign for tourism should also be implemented to focus on specific Village assets. For instance, Village residents identified the outdoor activities and cultural/heritage programs as aspects of life in the Village that may attract large tourism sectors. If Village tourism advertisements were strategically developed and placed where these market sectors frequent, they would only encourage and direct visitors toward Owego.

To begin this effort, Village residents could either volunteer or hire a consultant to determine which businesses and recreational assets should be focused on. Once the types of tourism are identified (such as recreation or heritage/cultural resources), they can be unified under common brands. Each brand could then be high-lighted in a specific brochure/pamphlet that includes short descriptions of the various activities, with a map leading visitors to the area. It is also imperative that the tourism efforts market the Village as a year-round destination, and expand awareness of outdoor activities that can be enjoyed in the winter as well.

These brochures could then be placed in local businesses throughout the Finger Lakes region, directing visitors the short distance to the charming Village of Owego. However, it is essential that they are marketed in similar venues. For instance, perhaps place the recreational brochures in a sporting goods store, or at a local park. Perhaps place the heritage/cultural resources brochure at farmers' markets, in the lobby of bed and breakfasts, local museums, heritage trails, or vintage movie houses. This ensures that the material reaches the target market, tourists already interested in the type of assets that the Village of Owego offers.

The tourism committee could also create strategies that draw a concentrated number of tourists to Owego at one time (planned for a weekend when there are not other large events in the area). For instance, consider partnering with local businesses and eateries to develop “Small Business Owego” Day or Weekend. Heavily advertise promotional parking and/or discounts, and the fact that visitors would be supporting locally-owned businesses. Also, consider visiting local festivals in the Finger Lakes Region—take notes on the types of vendors, how the festivals were marketed, and if tourists know how close the Village is. Then, plan a similar festival for Owego. While campaigns such as these enhance tax income on a concentrated basis, they also introduce a tourism base to the charm of the Village. If executed properly, the festival will keep tourists (and their dollars) returning to the Village.

Action Steps

- Establish a Tourism Strategy Committee, perhaps with members with some professional experience, or hire a consultant for guidance. Also consider partnering with the Tioga County Chamber of Commerce, for county-wide information and exposure.
- Identify natural resources, heritage/cultural areas, and local businesses that are willing to be advertised in the tourism scheme.

- Identify resources to fund marketing/branding materials, such as pamphlets, online marketing tools, and/or television/radio advertisements.
- Have pamphlets/advertisements developed and placed.
- When working with local resources and businesses, ask what other businesses may be willing to market tourism for the Village of Owego. For instance, if at a well-known outdoor store, inquire if there are other stores or outdoor/climbing clubs that would like to know more about Owego.
- Consider planning a festival or “Small Business Owego” day to draw a concentrated number of tourists to the region.
- Update and maintain Village tourism marketing materials. Plan multi-seasonal festivals and small business showcase events.

Project Champion

- Tioga County Local Development Corporation

Potential Partners

- Tioga County Chamber of Commerce
- Historic Owego Marketplace
- Resiliency Planning Committee
- Owego Historic Preservation Committee

Potential Resources

- New York State Division of Tourism
- New York State Empire State Development
- U.S. Department of Commerce Economic Development Administration
- US Department of Agriculture, Rural Development Program

CRED-4: Complete Streetscape Enhancements and Tree Planting Program

Project Description

The Village of Owego's Street Beautification Program should be rooted in the ideals of improving the attractiveness of the Village, in order to increase quality of life for residents, and profitability for local businesses. There are several other benefits for the Village community though, including improved pedestrian safety due to enhanced lighting, and increased shade provided by tree plantings over public property. The Program could choose to expand their efforts as well, in the future considering hiring a part-time certified municipal arborist to select trees for new plantings, preserve existing trees, and identify areas most in need of replanting and conservation. The Program might also offer workshops to educate residents on the benefits of shade trees, the appropriate species for their home landscapes, and proper tree care; expanding the coverage of street beautification efforts beyond the Downtown.



Action Steps

- Establish a Downtown Village Beautification Team. Consider partnering with the Historic Owego Marketplace, the downtown and surrounding area non-profit business organization.
- Develop a unified concept and design for the general Front Street area to utilize in cultivating a maintenance program. Intergrate the design with the existing Owego Riverwalk and Courthouse Monument landscaped spaces.
- Seek and secure funding.
- Promote consistent Downtown Village character through improved sidewalks and curbing, seasonal welcome banners, hanging baskets, signage standards, smaller-scale period street lighting, clean benches, and uniform garbage receptacles.
- Task the beautification team with maintaining the landscaped elements of the Village common space.
- Develop local sponsors for continued support and maintenance of finished areas.

Project Champion

- Village Board

Potential Partners

- Village DEP
- Tioga County Soil and Water Conservation District
- NYS Department of Environmental Conservation
- Cornell Cooperative Extension
- NYS Department of Transportation
- Owego Historic Preservation Committee
- Owego Historic Marketplace

Potential Resources

- *Department of State Local Waterfront Revitalization Program
- *New York Main Street Program
- *U.S. Department of Agriculture, Rural Development Program
- New York State Empire State Development
- U.S. Department of Commerce Economic Development Administration
- The American Institute of Architects Regional/Urban Design Assistance Team (R/UDAT) Program
- Binghamton University, SUNY, School of Public Administration
- SUNY ESF, College of Environmental Science and Forestry
- Cornell University Department of Landscape Architecture
- The National Garden Club
- Owego Rotary Club

*Indicates previous funding allocations.

CRED-5: Create a Pet Evacuation Plan

Project Description

Hurricane Irene, Tropical Storm Lee and Superstorm Sandy inflicted unprecedented damage in many areas of New York State. These storms also highlight how many local emergency preparedness operational plans do not sufficiently address the needs of individuals with household pets and service animals following a major disaster or emergency. Statistics have shown that a significant percentage of family pets and service animals were lost to these natural disasters. In some places, statistics indicate that as much as 50% of pets were lost due to lack of an adequate pet evacuation plan.

The tragedy of Hurricane Andrew, which hit South Florida in 1992, initiated a great deal of reform in how we address the needs of pet evacuation. While many people were able to bring their pets to safety, they were turned away from temporary shelters because pets were not permitted. This put many pet owners in a difficult position:

choose temporary housing or live without shelter in order to keep their pets. Because of the lack of preparation when Hurricane Andrew hit, it was estimated that approximately 1000 dogs and cats were euthanized merely for lack of space in which to house them.

In response to this event, the federal government created Veterinary Medical Assistance Teams. After Hurricane Katrina, it was realized that local emergency response plans still were not adequately addressing the needs of pet evacuation. In the fall of 2006, Congress passed H.R. 3858, the Pets Evacuation and Transportation Standards Act of 2006 (PETS Act). New York State followed suit and passed bill A.9292. This law provides for state and local governments to address the needs of animals during a disaster or emergency, especially with regard to shelter, evacuation and transportation.

Project Champion

- Resiliency Planning Committee

Potential Partners

- Village Board
- Deputy Fire Chief
- Local Animal Protective League
- Federal Emergency Management Administration

Potential Resources

- American Veterinary Medical Foundation
- Partners for Healthy Pets
- FEMA

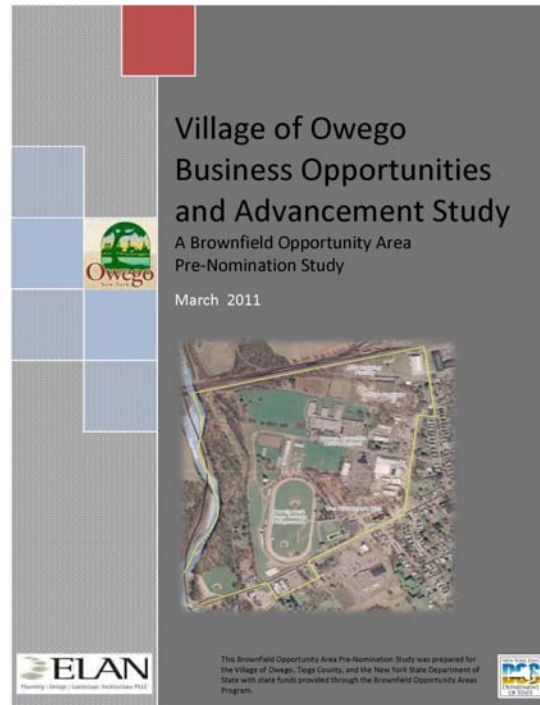
CRED-6: Continue Participation in the NYS DOS Brownfield Opportunity Areas (BOA) Program

Project Description

The Brownfield Opportunity Area (BOA) program was initiated in 2003 through the New York State Superfund/Brownfield Law. Administered by the New York State Department of State (DOS), this program provides financial assistance to complete area-wide brownfield redevelopment planning. The BOA program is a multi-disciplinary approach intended to assist communities foster redevelopment, return blighted land into productive areas, and restore environmental quality. This approach involves a comprehensive examination of the physical, environmental, economic, and community planning factors associated with any redevelopment effort.

The BOA program involves three distinct steps: Step 1: Pre-Nomination Study; Step 2: Nomination Study; and Step 3: Implementation Strategy and Site Assessments. A Step 1: Pre-Nomination Study, which provided a preliminary analysis of the study area was completed for the

Village of Owego in 2011.



It is recommended that the Village submit an application for a Step 2: Nomination Study, which would expand upon the Pre-Nomination Study, allowing the Village to gain a more in-depth comprehensive view of

the study area through an economic and market trends analysis, more thorough environmental analysis, and an evaluation of existing infrastructure, as well as development of site-specific recommendations.

Project Champion

- Village Board

Potential Partners

- Resiliency Planning Committee
- Local Business and Property Owners such as Weitsman, Industrial Paint Services, Stakmore, the Tioga Central School District, and Tioga County Fairgrounds Board

Potential Resources

- New York State Department of State

CRED-7: Conduct a Feasibility Study to Assess Sustainability Support Center

Project Description

A nonprofit incubator is an organization that helps to nurture and facilitate the development of young nonprofits through the provision of resources, services, and/or seed funding. The use of an incubator improves the chances that a new organization will be able to remain sustainable over time, and also provides strong opportunities to build relationships with other organizations in the sector. The Village of Owego Steering Committee identified the desire for a not-for-profit clearing house to be located in the Village.

If a not-for-profit clearing house were established in the Village of Owego, it would offer several benefits to local not-for-profit businesses. If available, any start-up funds offered to non-profit businesses would assist with the most difficult beginning stages of business. A clearing house could help alleviate this challenge by getting the business off the ground, starting some programs, and allowing owners to work full-time on the project.

In addition, incubators/clearing houses frequently are located in larger facilities, that lease smaller office areas to occupants. This encourages occupants with less revenue to be able to have a dedicated office space. Sharing a larger office space also may lead to shared supplies, and decreased costs of office services. Finally, different non-profits sharing space often leads to increased networking opportunities and shared management assistance.

By receiving this extra guidance and mentorship, new nonprofits may have an advantage over other organizations whose work may be stalled by common beginner's mistakes, and can make major strides toward becoming mature, independent organizations in the future. Establishing a clearing house in the Village of Owego encourages fledgling businesses that support the region, creating a connection for successful businesses to remain in the Village as long as possible. A strengthened local economic and non-profit network is vital to the recovery of the Village community.

Project Champion

- Tioga Opportunities, Inc.

Potential Partners

- Resiliency Planning Committee
- Higher Education Institutions

Potential Resources

- Appalachian Regional Commission (ARC)
- Community Facilities Direct and Guaranteed Loan and Grant Programs (USDA/RD)
- Intermediary Re-lending Program (USDA/RD)
- NYS Empire State Development: Minority and Women-Owned Business Development and Lending Program
- NYS Empire State Development: Urban Community Development Program

- New York State Legislative Commission on Rural Resources
- Cornell University Rural New York Initiative, Community and Rural Development Institute
- Local Initiatives Support Corporation (LISC)
- The Taproot Foundation
- The Foundation Center

CRED-8: Build a New Shared Town/Village DPW Facility

Project Description

As a result of Tropical Storm Lee, many of Owego's municipal buildings, including the Village DPW, were flooded. An opportunity exists for the Village to partner with the Town of Owego to construct a shared Town/Village campus that would be located outside of the floodplain.

The Town applied for a DOS Local Efficiency Grant to conduct a feasibility study to assess whether or not moving the Village DPW to the proposed shared campus.

It is recommended that the Village partner with the Town of Owego to further pursue this concept under the NY Rising Community Reconstruction (NYRCR) Program.

Project Champion

- Village Board

Potential Partners

- Town of Owego
- Village and Town Department of Public Works

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Program

CRED-9: Encourage Appropriate Infill Development at 202-204 Front Street

Project Description

In July of 2000, fire destroyed the building located at 202-204 Front Street in Downtown Owego. The site sat vacant for approximately 11 year, and was a constant reminder to the community of the great fire.

Today, the property is owned by the Historic Owego Marketplace (HOM). The organization has been proactive in bringing the property back to life, and has already raised over \$100K for site renovations. As part of HOM's efforts, a feasibility study was conducted to determine the highest and best use of the property. Several design options were provided.

The HOM, working with the community, chose to create the Gateway Community Park (pictured to the right). This space now provides residents and visitors alike with a place to enjoy Riverfront views, pack a picnic lunch, or purchase food from local businesses and dine waterside.



It is recommended that the HOM continue to work with the community to encourage historically-appropriate infill development of the site that will benefit downtown businesses, residents and the Village.

Project Champion

- Historic Owego Marketplace

Potential Partners

- STERB
- Village Board
- Owego Historic Preservation Committee
- Office of Parks, Recreation and Historic Preservation

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Program
- Local businesses

CRED-10: Conduct a Housing Needs Assessment

Project Description

The Steering Committee noted that there is a need for an increased diversity in market rate housing opportunities, as well as housing for seniors in the Village of Owego. It is recommended that a housing needs assessment be conducted to achieve local housing goals and ancillary activities.

The housing assessment should include a description of the impact to the housing stock caused by Tropical Storm Lee, current housing conditions in the area, a discussion of any socio-economic events that may affect Owego's housing stock over the next three to five years, homeownership and vacancy rates, building conditions, and a measurement of housing affordability. Finally, the study should address how Owego will address post-disaster housing needs, and how the community will encourage the provision of disaster-resistant housing for all income groups.

Project Champion

Village Board

Potential Partners

- Tioga Opportunities, Inc.

Potential Resources

- NY Rising Community Reconstruction (NYCR) Program



CRED-11: Update Plan for Marvin Park and Undertake Enhancements

Project Description

Marvin Park, located along 17C (Main Street) near the Tioga County Fairgrounds, includes picnic tables, covered pavilions, playgrounds, playing fields, a swimming pool, a kiddie pool, and tennis courts. The park also includes a walking track around the Fairgrounds, as well as a trail that leads from Livingston Park on Route 17C along Owego Creek, to Talcott Street to the north.

The flood event of 2011 left most of Park's amenities submerged underwater. As a result, the pavilions and pools had to be cleaned and disinfected, and the waterlines to the Fairgrounds had to be repaired. Other repairs include new fencing, grandstand and electrical work and repairs to the public restrooms.

In light of the damage incurred during Tropical Storm Lee, it is recommended the Village update the Master Plan for Marvin Park to assess flood resiliency, and continue to undertake recommended improvements

that will enhance recreation opportunities for residents and visitors to the Village of Owego.



Project Champion

- Village Board

Potential Partners

- Tioga County Fairgrounds
- Cornell Cooperative Extension
- NYS State Historic Preservation Office (SHPO)

Potential Resources

- New York State Office of Parks, Recreation, and Historic Preservation
- Parks & Trails New York
- Rails to Trails Conservancy, Northeast Region
- New York State Department of Environmental Conservation
- New York State Department of State, Office of Communities and Waterfronts
- Environmental Protection Agency: Smart Growth, Building Blocks for Sustainable Communities
- Environmental Protection Fund
- National Park Service, Conservation Activities by Youth Service Organizations
- Local Initiative Support Corporation (LISC)
- The National Garden Club
- Owego Rotary Club

Regional Recovery Projects



The majestic Susquehanna River is one of the longest rivers in the east coast. The river flows for 464 miles through three states, starting in Upstate New York (Cooperstown), and then proceeding west through the Southern Tier, across the rural heartland of southeastern Pennsylvania, and finally meeting its terminus in the Chesapeake Bay in Maryland. Since record keeping began nearly 200 years ago, flooding has been reported along the main stem of the Susquehanna River every 15 years, on average. This fact, coupled with the localized flash flooding that occurs annually on smaller tributaries, has led to the Susquehanna River Basin being identified as one of the most flood-prone watersheds in the country.

There are over 1,400 municipalities located within the tri-state Susquehanna River Basin. What one community does with respect to flood control directly impacts neighboring communities, as well as those communities located downriver. For the purpose of this study, the Region includes the flood impacted river communities located in Tioga County.

During the planning process, each of the Tioga County communities participating in the LTCRS program stated that when it came to flood mitigation and recovery, it was important to not only think of how these long term recovery strategies would impact their own community, but there needed to be a regional approach to flood control included as well.

The following section identifies six Regional Recovery Projects intended to benefit the flood-prone River communities located in Tioga County.

Goals

- Ensure long term sustainability of the flood recovery program.
- Ensure that flood-impacted communities have the necessary capacity to apply for/administer flood mitigation and community revitalization funds.

Regional Recovery Projects

The following section identifies six Regional Recovery Projects intended to benefit the flood-prone River communities located in Tioga County.

- RR-1: Maintain the LTCRS Executive Committee.
- RR-2: Establish a Regional Flood Recovery and Revitalization Office.
- RR-3: Conduct a regional study of the Susquehanna River Corridor.
- RR-4: Establish an environmentally sensitive maintenance of streams program for flood impacted river communities.
- RR-5: Create a shared engineer position.
- RR-6: Establish a micro enterprise loan Program.

RR-1: Maintain LTCRS Executive Committee

Project Description

As part of the Long Term Community Recovery Strategy (LTCRS) planning process, an Executive Committee comprised of representatives from the Village of Owego, the Towns of Tioga and Nichols, the Tioga County Department of Planning and Economic Development, and the NYS Department of State was established.

This Regional Recovery strategy proposes keeping the existing Executive Committee intact to oversee implementation of the recovery strategies identified in the LTCRS. This Committee will work in close partnership with the newly created Tioga Communities Reconstruction Committee.

Project Champion

- LTCRS Executive Committee



Potential Partners

- Municipal Officials from the Towns of Tioga and Nichols and the Village of Owego
- Tioga County Planning and Economic Development
- Tioga County Legislature
- Tioga County Emergency Management Office (TCEMO)

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Program
- NYS Department of State: Local Government Training Program
- NYS Department of Labor: NY Works—Neighborhood Rebuilding Corps
- US. HUD Community Development Block Grant (CDBG) Program
- Appalachian Regional Commission (ARC)

RR-2: Establish a Regional Flood Recovery and Revitalization Office

Project Description

At the project kick-off meeting, the LTCRS Executive Steering Committee identified the lack of staff/municipal capacity to obtain and administer flood-related grants as one of the highest concerns for the communities located in the Tioga County river region. The Village of Owego does not have a Planner or Grant Writer on staff, and relies on technical assistance provided by the Tioga County Department of Economic Development and Planning and the Soil and Water Conservation Department.

This project seeks to establish a Flood Recovery and Revitalization Office with one or more shared program administrator positions within Tioga County. These positions will provide the municipal capacity needed to administer long term recovery programs for communities like the Village of Owego, who would benefit from the increased community capacity that a Flood Recovery and Revitalization Office will provide. These program administrators should possess both technical and leadership skills, and will be responsible for:

- Working with the LTCRS Executive Committee and the NYRCR Committee to advance the Recovery Projects identified in this plan.

- Providing grant writing assistance to communities in Tioga County's River Region.

The office could be housed in Tioga County, Tioga Opportunities or the Upper Susquehanna Coalition.

Action Steps

- Apply for funding through available sources such as the NYS Consolidated Funding Application (CFA) process or NY Rising Community Reconstruction (NYRCR) Program
- Position(s) would be funded utilizing grant monies for years 1-3



Project Champion

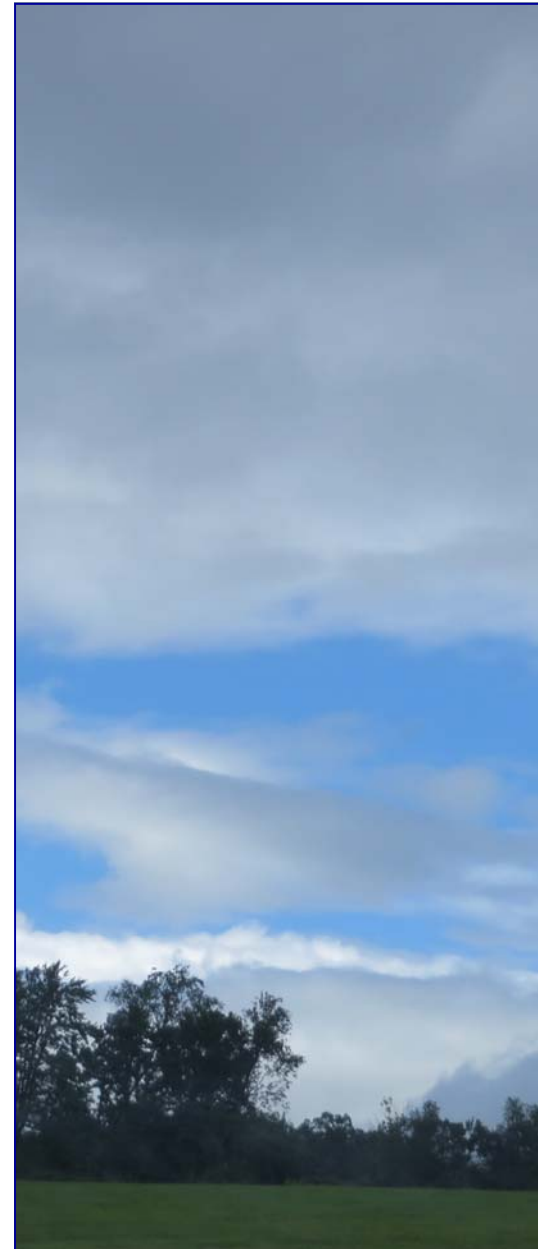
- Tioga County Legislature
- Tioga Opportunities, Inc.
- Upper Susquehanna Coalition

Potential Partners

- Tioga County Economic Development & Planning Agency
- Town and Village Boards
- LTCRS Executive Committee

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Program
- NYS Department of State: Local Government Training Program
- NYS Department of Labor: NY Works—Neighborhood Rebuilding Corps
- NYS Division of Housing & Community Renewal
- US HUD Community Development Block Grant (CDBG) Program
- Appalachian Regional Commission (ARC)



RR-3: Conduct a Regional Study of the Susquehanna River Corridor

Project Description

This study will look at the regional flooding issues and existing ecology related to the Susquehanna River. It is important to understand how the river reacts during different flooding events based on the amount of rain, where in the watershed the rain is deposited, the intensity of the given storm. All this information will be modeled to show the areas that will be flooded during a given storm event. At a minimum this model should be studied as the river enters Tioga County, but incorporating more counties upstream will help to better understand what impacts the upper watershed is having on the river as it enters Tioga County. This model will highlight where there may be existing pinch points (i.e. undersized culverts and bridges, elevated roads that may be creating a dam situation, etc.) within the watershed that are not draining properly as well as help understand how long the it will take for floodwaters to rise.

Understanding the ecology of the river will help with determine overall water quality issues related to Susquehanna River. Looking at vegetation patterns, sediment transport (erosion issues), habitat types be used by the animals in the region, and other ecological features will provide the base line information needed to understand the dynamics of this living system. The information gathered will be used to support possible mitigation measures related to flooding and water quality.

This model will then be used to locate what possible mitigation measures should explored and modeled to reduce the flooding and ecological impacts during a given storm event. These mitigation measure include creating wetlands, reducing impervious cover, reconnecting streams with floodplains, green infrastructure practices promoting infiltration and storage, and minimizing encroachment on the tributaries.

Project Champions

- LTCRS Executive Committee
- Tioga Communities NYRCR Committee

Potential Partners

- Town and Village Boards
- Broome County
- Tioga County and Broome County Soil and Water Conservation Districts
- U.S. Army Corps of Engineers
- NYS Department of Environmental Conservation
- Susquehanna River Basin Coalition (SRBC)
- Upper Susquehanna Coalition (USC)

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Program
- NYS Department of State: Brownfield Opportunity Areas Program
- NYS Department of State: Local Waterfront Revitalization (LWRP) Program
- NYS Division of Housing & Community Renewal
- US HUD Community Development Block Grant (CDBG) Program
- Appalachia Regional Commission (ARC)
- US Army Corps of Engineers
- National Parks Service: Land & Water Conservation Fund



RR-4: Establish an Environmentally Sensitive Maintenance of Streams Program for Flood Impacted River Communities

Project Description

One of the universal issues identified during the public participation process was the flood related damage caused by debris (sediment, gravel, trees, and branches) “clogging” the streams and creeks in the County.

The Tioga County Soil & Water Conservation District (SWCD) supports the development of an environmentally sensitive maintenance of streams program. This would entail the District working with municipalities, including municipal officials and highway department staff, to ensure scientifically sound maintenance approaches are taken in streams that will not cause further degradation of the existing streambed and worsen conditions. The program would include the following elements:

- Training by SWCD of municipal highway department staff in environmentally sensitive maintenance of stream techniques.
- Municipal officials identifying locations of maintenance and working with SWCD to identify the best approach.
- SWCD obtaining permits for the work to be conducted.

This approach would include identification of stream debris jams (ie. log jams and gravel deposits) that will cause impact to infrastructure during future flooding events or those causing significant changes in stream dynamics. Other areas to be focused on would be the

removal of gravel in order to open clogged channels and restore flow, channel realignment, and streambank stabilization to prevent future erosion. All of these sites will be evaluated by SWCD on a case-by-case basis.

Benefits of this program will include improved coordination and cooperation between municipal staff and the SWCD, as well as expediting the permitting process with regulating agencies as municipal departments show their growing knowledge of stream function and processes, while conducting environmentally sensitive maintenance on streams.

Project Champion

- Tioga County Soil and Water Conservation District

Potential Partners

- Town and Village Boards
- LTCRS Executive Committee
- Tioga County Department of Public Works

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Program
- NYS Department of State: Brownfield Opportunity Areas (BOA) Program
- NYS Department of State: Local Waterfront Revitalization Program (LWRP)
- NYS Department of Environmental Conservation: Water Quality Improvement Project Program
- NYS Office of Emergency Management: Hazard Mitigation Planning Grants (HMGP)
- Federal Emergency Management Administration (FEMA)
- US Army Corps of Engineers
- Natural Resources Conservation Service, Wildlife Habitat Incentive Program



RR-5: Create a Shared Engineer Position

Project Description

The LTCRS Steering Committee identified that there is a need for municipal engineering services within Tioga County. While the Tioga County Soil & Water Conservation District provides technical assistance regarding natural disaster concerns, there is still a need for an engineer or contract engineer to provide technical assistance to the flood impacted communities throughout the County.

This project seeks to establish either a part-time shared engineer or contract engineer position within Tioga County. While the position would be housed within the Tioga County Soil & Water Conservation District, it could be filled by a part-time employee, or an agreement with a consulting firm to provide a specified number of hours per week.

The Tioga County Shared Engineer would be responsible for:

- Conducting an inventory of existing infrastructure within specific communities, evaluating its effectiveness against current and future weather events, establishing requirements for infrastructure upgrades, and recommending upgrades to officials.
- Interfacing with state, regional, and federal agencies regarding required infrastructure upgrades pre- and post-weather events.
- Writing specifications and reviewing contractor proposals for infrastructure upgrades.
- Utilizing professional engineer (PE) stamp to review contractor shop drawings for infrastructure upgrades.
- As long-term community recovery projects are developed, analyzing any suggested infrastructure upgrades against potential weather events of the future.
- Examine county and regional engineering issues and trends; research and interpret laws, regulations, and general information; identify policy, procedural, and compliance issues, and recommend solutions.
- Should the County Soil & Water Conservation District require assistance, review land development proposals, and recommend infrastructure, and water and wastewater system requirements.
- Assure that activities are in compliance with all laws, policies, regulations, timelines and goals.

Action Steps

- Develop a specific job description for the shared engineer position.
- Determine the role of the engineer in terms of current and proposed recovery projects.
- Outline a work program and the expected percentage of time to be spent on each major project.
- Seek outside funding to support the position for a determined initial period.
- Once the necessary funding has been obtained, seek and hire part-time shared engineer.

Project Champion

- LTCRS Executive Committee

Potential Partners

- Tioga County Soil & Water Conservation District
- Tioga County Department of Planning and Economic Development

Potential Resources

- NY Rising Community Reconstruction (NYRCR) Program
- NYS Department of State: Local Government Services Program
- U.S. Department of Commerce Economic Development Administration (EDA)
- U.S. Department of Housing and Urban Development Community Development Block Grant (CDBG) program

RR-6: Establish a Micro Enterprise Loan Program

Project Description

In addition to damage to many homes and neighborhoods throughout Tioga County there was flood damage to private businesses. Whether in downtown Owego or in the Town of Nichols, many different types of businesses were affected. During recovery there were programs established to restore homes and/or buy-out homes using FEMA dollars as well as other funding sources such as the HMPG program. However, there is not a similar source of funding available to private businesses to rebuild. This recommendation seeks to establish a micro enterprise loan program to provide assistance to private businesses in the flood affected areas.

Working with NYS Empire State Development, a Micro Enterprise loan program could be established. The proposed Micro-Enterprise Loan Program would be available to assist small businesses and start-up companies in Tioga County to repair property damage including buildings and grounds that were severely affected by Hurricane Irene and Tropical Storm Lee. If the original loan pool is capitalized by New York State Small Cities Community Development Program, which is a typical approach, funding would be available to businesses that create new job opportunities for low and moderate income persons. Potentially administered by Tioga county Department of Planning and Economic Development or the Southern Tier East Regional Planning and Development Board, the program could be designed to

provide low interest loans and gap financing for small business start-ups with five or less employees. The loan administrator could work closely with the Binghamton University Small Business Development Center (SBDC), to help prospective applicants complete business plans and provide technical assistance that is needed to help small business.

Project Champion

- LTCRS Executive Committee

Potential Partners

- Flood Recovery and Revitalization Office (new staff person)
- Southern Tier East Regional Planning and Development Board
- Binghamton University SBDC

Potential Resources

- NYS Empire State Development: Minority & Women-Owned Business Development & Lending Program
- NYS Empire State Development: Small Business Revolving Loan Fund
- NYS Small Cities Community Development Program
- NY Rising Community Reconstruction Program
- US HUD Community Development Block Grant (CDBG) Program
- Appalachian Regional Commission (ARC)
- US Department of Agriculture: Community Facilities Direct & Guaranteed Loan & Grant Program
- US Department of Agriculture, Rural Business-Cooperative Service: Rural Micro Entrepreneur Assistance Program
- Home Depot Foundation
- Lowe's Charitable & Educational Foundation
- CITI Foundation



Implementation



The implementation plan outlined in the following table has been developed to support Tioga’s Long Term Community Recovery Strategy. The table organizes strategies by topic area. Each topic area is identified by the bold fill within the cells. Below the topic area heading are the strategies identified to advance each topic area, which are identified in the left hand column.

A Project Champion has been assigned to each action and potential partners and funding sources have also been identified.

Finally, the plan sets a level of priority for each strategy. These priorities include immediate, short-term, medium-term, long-term and ongoing.

This implementation plan will be amended and updated as new actions are introduced and as strategies are implemented.

At the most basic level, this LTCRS identifies critical steps that are needed to enhance the quality of life and improve the economic opportunities in the Town. The specific recommendations are provided as a guide to those who participate in the effort to implement the goals of the community. Achieving these goals will require the efforts of local government, federal and state funding, and the participation of volunteers throughout the community. No one single person or group will be able to achieve the goals independently. It will command the determination, strengths and diversity of many offices, agencies and volunteers working towards a common vision. This section of the LTCRS proposes an implementation strategy to coordinate these efforts incrementally for long-term success in Tioga and the region.

	Recommendation	Project Champion	Potential Partners/Funding	Immediate*	Medium-Term	Long-Term	Ongoing
Prevention Activities (PA)							
PA-1	Customize local law Chapter 117 to "flood proof" new or replacements homes.	Village Board	NY Rising Community Reconstruction (NYRC) Program, Code Enforcement Officer/Floodplain Manager, NYS Department of Environmental Conservation (DEC)		H		
PA-2	Update site plan review legislation	Village Board	Planning Board, Code Enforcement Officer/Floodplain Manager	H			
PA-3	Review and enforce special use language in zoning code	Village Board	Zoning Board of Appeals, Code Enforcement Officer/Floodplain Manager	H			
PA-4	Participate in the National Flood Insurance Program's (NFIP) Community Rating System (CRS)	Village Board	Tioga County Soil and Water Conservation District, Resiliency Planning Committee	H			
Property Protection (PP)							
PP-1	Develop and distribute a Homeowners Guide for Property Protection brochure for Historic and Contemporary Homes (separate brochure), including information on building with flood damage resistant materials	Resiliency Planning Committee	Code Enforcement Officer/Floodplain Manager	H			
PP-2	Continue participation in the NYS Hazard Mitigation Grant Program (HMGP)	Village Board	NYS Office of Emergency Management (OEM), Resiliency Planning Committee				H
PP-3	Protect Historic Publically Owned Buildings	Village Board	Village Fire Department, Police Department, Library	H			
PP-4	Flood proofing technical assistance program	Resiliency Planning Committee	Code Enforcement Officer/Floodplain Manager		M		
PP-4	Promote Route 434 E=MT3 site as a mixed-use relocation option to residents and businesses living in the floodplain	Tioga County Industrial Development Agency	Village Board, Planning Board, Southern Tier Regional Economic Development Council		M		

	Recommendation	Project Champion	Potential Partners/Funding	Immediate*	Medium-Term	Long-Term	Ongoing
Emergency Services Measures (ESM)							
ESM-1	Ensure an integrated Emergency Management Plan	Village Fire Chief, Village Police Chief	Village Deputy Fire Chief				H
ESM-2	Ensure emergency services for vulnerable populations	Resiliency Planning Committee	Deputy Fire Chief, TCEMO	H			
ESM-3	Develop a Multi-tiered Emergency Alert system						
ESM-3A	<i>Increase voluntary enrollment in the County's Hyper-reach and NYS Alerts programs</i>	Resiliency Planning Committee	Deputy Fire Chief, Tioga County Emergency Management Office (TCEMO), Village, Town, School	H			
ESM-3B	<i>Purchase and install a new siren/alarm system</i>	Village Board	Deputy Fire Chief, TCEMO	H			
ESM-3C	<i>Establish a Block Emergency Preparedness Program</i>	Resiliency Planning Committee	Deputy Fire Chief, TCEMO	H			
ESM-3D	<i>Conduct emergency testing/flood drills</i>	Resiliency Planning Committee	Deputy Fire Chief, TCEMO	H			
ESM-4	Conduct a Table Top Technical Analysis	Resiliency Planning Committee	Tioga County Fire and EMS Coordinator		M		
Public Information (PI)							
PI-1	Create a flood safety awareness brochure	Resiliency Planning Committee	Realtors, Tioga County Emergency Management Office	H			H
PI-2	Develop a Comprehensive Information System to raise awareness of flood hazards	Resiliency Planning Committee	Village Board, Tioga County Emergency Management Office, Seniors, IT (Village), Schools, Youth Organizations	H			H
PI-3	Develop a 'Real Time' Evacuation Route Mapping System	Resiliency Planning Committee	Village Board, Tioga County Emergency Management Office, Tioga County IT	H			

	Recommendation	Project Champion	Potential Partners/Funding	Immediate*	Medium-Term	Long-Term	Ongoing
Structural Projects (SP)							
SP-1	Address water collecting at North Avenue underpass	NYS Department of Transportation	Village Board	H			
SP-2	Expand upon Monkey Run to Owego Creek Hydrology Study	Tioga County Soil and Water Conservation District	Village Board				H
SP-3	Develop a Comprehensive Stormwater Management Plan and integrate green infrastructure techniques	Village Board	Broome Tioga Stormwater Coalition, NYS Department of Transportation	H			
SP-4	Evaluate and undertake stormwater improvements on Mountain Road	Village Board	Town of Owego, Village Department of Public Works, Department of Transportation (relating to North Ave.)		H		
SP-5	Continue to monitor Brick Pond for potential improvements to reduce flooding	Waterman Conservation Center	Resiliency Planning Committee, Village Board, Tioga County Soil and Water Conservation District		M		
Natural Resource Protection (NRP)							
NRP-1	Owego Creek Watershed Assessment and Geomorphological Analysis	Village Board	Tioga County Soil and Water Conservation District, Resiliency Planning Committee, Town of Owego, Town of Tioga	H			
NRP-2	Owego Creek Flood and Hazard Mitigation Analysis	Village Board	Tioga County Soil and Water Conservation District, Resiliency Planning Committee, Town of Owego, Town of Tioga	H			
NRP-3	Natural Resource Stabilization and Restoration and Long Term Sustainability	Village Board	Tioga County Soil and Water Conservation District, Resiliency Planning Committee, Upper Susquehanna Coalition, Department of Environmental Conservation, Army Corps of Engineers		H		

	Recommendation	Project Champion	Potential Partners/Funding	Immediate*	Medium-Term	Long-Term	Ongoing
NRP-4	Public Education and Outreach	Resiliency Planning Committee	Water Quality Conservation Center (WQCC), Binghamton University, Cornell University, Institutes of Higher Education, Waterman Conservation Center				M
Community Revitalization & Economic Development (CRED)							
CRED-1	Recruit and Retain the Creative Class/Young People in their 20s and 30s	Resiliency Planning Committee (RPC)	Historic Owego Marketplace, Lockheed Martin, Tourism, Binghamton University, Cornell		H		
CRED-2	Reexamine and Implement the Small Business Incubator Feasibility Study	Tioga County Economic Development and Planning (TCEDP)	Resiliency Planning Committee, Village Board, HOM, Higher Education Institutes, Tioga County IDA, Chamber of Commerce, ESD	H			
CRED-3	Increase Focus on the Development of Tourism to Enhance Revenue	Tioga County Local Development Committee	Chamber of Commerce, Historic Owego Marketplace, Resiliency Planning Committee, Owego Historic Preservation Committee				H
CRED-4	Complete Streetscape Enhancements and Tree Planting Program	Village Board	Village DEP, Tioga County Stormwater Conservation District, NYS Department of Environmental Conservation, Cornell Cooperative Extension, NYS Department of Transportation, Owego Historic Preservation Committee, Historic Owego Marketplace				H
CRED-5	Create a Pet Evacuation Plan	Resiliency Planning Committee (RPC)	Village Board, Deputy Fire Chief	H			
CRED-6	Continue Participation in the NYS DOS Brownfield Opportunity Areas (BOA) Program	Village Board	Resiliency Planning Committee, Tioga County Fair Board, Department of State, Local Business Owners		H		
CRED-7	Conduct a Feasibility Study for a Not-for-Profit Sustainability Support Center to Help Increase Capacity Post Flood Events	Tioga Opportunities, Inc.	Resiliency Planning Committee, Higher Education Institutions		H		
CRED-8	Build a New Shared Town/Village DPW Facility out of Floodplain with Green Elements	Village Board	Village and Town DPW	H			

	Recommendation	Project Champion	Potential Partners/Funding	Immediate*	Medium-Term	Long-Term	Ongoing
CRED - 9	Encourage Appropriate Infill Development at 202-204 Front Street	Historic Owego Marketplace	STERB, Village Board, OHPC, OPRHP	H			
CRED-10	Conduct a Housing Needs Assessment	Village Board	Tioga Opportunities, Inc.	H			
CRED-11	Update Plan and Undertake Enhancements to Marvin Park	Village Board	Tioga County Fair Board, Cornell Cooperative Extension, State Historic Preservation Office (SHPO), Resiliency Planning Committee		M		
Regional Recovery (RR)							
RR-1	Maintain LTCRS Executive Committee	LTCRS Executive Committee	Tioga County Economic Development and Planning (TCEDP), Towns, Villages, NYS Department of State, Tioga County Emergency Management Office, Tioga County Legislature	H			
RR-2	Establish a Regional Flood Recovery and Revitalization Office	Tioga County Legislature, Tioga Opportunities Inc., Upper Susquehanna Coalition (USC)	Town Boards, Village Boards, LTCRS Executive Committee, TCEDP	H			
RR-3	Conduct a Regional Study and Improvements	LTCRS Executive Committee, CRZ Committees	Towns/Village, Broome County, Tioga County/Broome County Soil and Water Conservation Districts, Army Corps of Engineers, Southern Tier, NYS Department of Environmental Conservation, SRBC, USC	H			
RR-4	Establish an Environmental Sensitive Maintenance of Streams Program for Flood Impacted River Communities	Tioga County Soil and Water Conservation District	Town Boards, Village Boards, Tioga County Department of Public Works	H			
RR-5	Create a Shared Engineer Position	Tioga County Soil and Water Conservation District	Town Boards, Village Boards, LTCRS Executive Committee, Tioga County Department of Public Works	H			
RR-6	Micro Enterprise Loan Program	LTCRS Executive Committee	Tioga County Economic Development and Planning (new staff person), CDBG-Disaster Recovery, USDA, NYS Homes and Community Renewal (HCR)		H		