

# **Village of Afton, NY**

## **Strategic Plan**



Prepared by

Stephanie M. Nick, MPS  
Richard Ross Shaker, MSc, PhD  
GeoEco Design

May 2018

\*\*This document was prepared for the New York State Department of State with funds provided under Title 11 of the Environmental Protection Fund.\*\*



## Table of Contents

<b>Table of Contents</b> .....	<b>2</b>
<b>1. Introduction</b> .....	<b>4</b>
<b>2. Purpose of the Strategic Plan</b> .....	<b>4</b>
2.1 Deployment Process.....	5
2.2 Long Range Planning.....	5
2.3 Strategic Planning Cycle.....	5
2.3.1 Annually .....	5
2.3.2 Semi-annually .....	5
<b>3. Basis for the Strategic Plan</b> .....	<b>6</b>
<b>4. Organizational Focus</b> .....	<b>6</b>
<b>5. Community Profile</b> .....	<b>6</b>
5.1 Local Business .....	6
5.2 Availability of business financing.....	6
5.3 Skills of the local workforce .....	7
5.4 Availability of technical assistance .....	8
5.5 Commercial development .....	8
5.6 Infrastructure Needs.....	8
5.7 Interest in renovating historic structures along Main St.....	9
5.8 Low-cost energy options.....	11
5.9 Public Transportation .....	12
<b>6. Vision</b> .....	<b>13</b>
<b>7. Waterfront Revitalization Plan</b> .....	<b>14</b>
<b>8. Future Actions</b> .....	<b>14</b>
8.1 Potential Options.....	14
8.2 Goals, Objective, and Metrics .....	17
8.2.1 Low-cost Energy Technology Goals .....	17
8.2.2 Public Transportation Development .....	17
8.2.3 Waterfront Park Development.....	18
8.2.4 Flood Mitigation.....	18
8.2.5 Water Quality .....	18
8.2.6 Wetland Restoration.....	19
8.2.7 Historic Restoration of Main St. ....	19
<b>9. Further Reading</b> .....	<b>20</b>
Low-cost energy technology.....	20
Public transportation development.....	20
Waterfront park development/Flood mitigation/Water quality/Wetland restoration	20
Historic restoration of Main St. ....	20
<b>10. Potential Funding Sources</b> .....	<b>20</b>
<b>11. Bibliography</b> .....	<b>22</b>



## 1. Introduction

The Village of Afton, with the guidance of GeoEco Design has created a strategic plan focusing on economic and sustainable redevelopment. The strategic plan is in response to the continued flooding, subsequent damage to property and threats to life and livelihood. In order for the Village to receive funding for a flood mitigation study, an economic revitalization study was requested by the New York State Department of State. In preparation for this plan, we sought to bring together business owners, stakeholders, residents and the governing system in the Village. The Project Advisory Committee headed by April Leggett, was an integral part of this process. They were a direct line to the community and gave thoughtful and connected feedback along the way.

As part of this plan, we created three surveys: a business survey, an organization or stakeholder survey, and a resident survey. These surveys were made available to Village businesses, organizations and residents over the period of a year. The surveys were designed to help us better understand the strengths, weaknesses, opportunities and threats (SWOT) in the Village, within the parameters of the Strategic Plan. The purpose of the Strategic Plan is to give the Village residents and governors a guide to improving the economic wellbeing of the Village. The goals of this plan are set up to advance the goals of the Southern Tier Regional Economic Development Council Strategic Plan: 2011-2016 and initiate local efforts to improve the economic position of the Village of Afton as well as revitalize its waterfront.

## 2. Purpose of the Strategic Plan

As with many rural US Towns and Villages, the Village of Afton has slowly been declining. The population in Afton has been shrinking while the remaining population is aging (US Census 2014). Numerous residents who we spoke with were looking to sell their homes or properties to move away from Afton. Young people are not moving to or staying in the Village. There are very few jobs within the Village and the local businesses seem to rely mostly on the local population. The local economy is struggling although the majority of businesses have been in operation for many years. During the course of this study, at least one anchor business closed, while a couple of smaller independent businesses have opened. Another specific problem in the Village of Afton is recurrent and worsening flooding. There have been two major floods in the past 10 years. This has caused a decline in the local economy, it has increased vacant housing and has depressed the spirit of the local residents.

A strategic plan for economic development has been established to address:

1. Low-cost energy technology

2. Public transportation development
3. Waterfront park development
4. Flood mitigation
5. Water quality
6. Wetland restoration
7. Historic restoration of Main St.

This plan will help the Village of Afton have a clear path to becoming a sustainable city that can be an example for other rural areas in the Southern Tier. This strategic plan also advances the goals of the Regional Economic Development Council Strategic Plan: 2011-2016 and initiates local efforts to improve the economic position of Afton and revitalize its waterfront.

## **2.1 Deployment Process**

The Village of Afton's Strategic Plan is presented to the community, employees and other interested parties first through a public meeting in April, 2018. It will also be made available through the posting of the document on the Village's Website and will be provided to any person requesting the same through written request to the Village Administrator's Office.

## **2.2 Long Range Planning**

The Village of Afton Strategic Plan is based on the consensus of the individuals that participated in community-based survey's, public meetings, and the project advisory committee, who all had a hand in the formulation of the plan. It reflects ownership by the Project Advisory Committee and those participants, and, is submitted to the Village for review and approval.

## **2.3 Strategic Planning Cycle**

### **2.3.1 Annually**

- Participate in Village Strategic Plan Update
- Review Vision
- Draft purpose and values
- Review customer and market knowledge
- Review resident satisfaction
- Review organizational (government) focus
- Review trends and current strategic environment

### **2.3.2 Semi-annually**

- Village will review their input to strategic plan (Strategies, Goals, and Measures)

- Draft update(s) to the strategic plan will be submitted to the Village Board or project Advisory Committee
- Review/approval of updated plan is conducted
- Updated plan is published/publicized

### 3. Basis for the Strategic Plan

The Village of Afton Strategic Plan is based on the Purpose, Vision, and Values of the Project Advisory Committee and members of the community. It is formulated based upon generally accepted business and public-sector responsibilities, and, to the needs and expressed concern of the community it serves.

### 4. Organizational Focus

- **People:** Elected and appointed officials who care for and support our citizens, the employees, customers, visitors and the environment by meeting professional and personal expectations. This will be further manifested in the provision of an environment that encourages maximum potential.
- **Readiness:** Ensuring that appropriate services and resources are available for Village residents. This includes proper organization of information of Village knowledge and resources.
- **Transformation:** Posturing the Village of Afton for future relevance and response to natural as well as manmade disasters. This shall include updated technology and services.

### 5. Community Profile

The full community profile is available from the Village of Acton clerk.

#### 5.1 Local Business

The local business climate in the Village is struggling. The top three business types in the Village are retail, hospitality and personal services. While these businesses are an important part of a thriving economy, they are not primary industries. Many businesses have few part-time employees and an even smaller number employ anyone full time. It is also important to note that at the time of writing this strategic plan, the local grocery store was permanently closed.

#### 5.2 Availability of business financing

There is only one local bank in the Village, which may limit financial options, however the local metropolitan areas such as the Triple Cities and Norwich may offer more options. Businesses in the Village, on average said that they find acquiring funding for their business to be moderate on a Likert scale ranging from 1-5 with 1 being the easiest and 5 being the most difficult. This was surprising at first but upon further questioning,



it seems that many businesses do not or have not applied for financing in a very traditional way. Close to 2/3rds of businesses said they relied on personal savings, family and friends, or a personal loan to start their businesses. Another 19% said they had a business loan to help them start their business. Half of businesses said they would rely on personal savings, family and friends, or a personal loan for future funding. 32% said they would rely on a business loan to expand their business. In other parts of the survey, businesses were very interested in government grants to help them expand or better run their businesses. While the actual availability of funding is unknown, businesses are looking to the future and hope to utilize multiple sources of funding to reach future goals

### **5.3 Skills of the local workforce**

The local workforce consists of anyone over the age of 16 living in the Village (US Census 2014). Education can be tied to skill levels so it is important to note the education levels within the Village here. 86% of Village residents have at least a high school diploma. 13.9% of those mentioned earlier have a bachelor's degree and another 8.9% have a graduate degree.

According to the US Census (2014), the total labor force within the Village is 459 people. Of those, 405 of them are currently employed. This leaves 54 people unemployed giving the Village an unemployment rate of 11.8%. Since there is limited full-time employment options within the Village, limited transportation options could be a factor in the high unemployment rate within the Village.

Over 1/3<sup>rd</sup> of Village residents are currently employed in management or other professional occupations. Retail, food and personal services are the top industries in the Village limiting opportunities for those with professional/managerial skills. 16% of residents work in the service industry. 16.8% work in sales and office positions while another 16.8% also work in production/transportation and material moving. 6.6% work in construction/extraction or maintenance.

The skillset in the Village is varied, however the local employment outlook is bleak. Prioritization of new business and industry types within the Village would help to create jobs and stimulate the local economy. For those who have limited education and job skills, a workforce jobs training program, or a satellite branch from Norwich could add needed value to job applicants from within and surrounding the Village of Afton. Village survey respondents felt uncertain about the need or effectiveness of such a program, however at a minimum, it helps people with low skills and experience gain confidence to get into the job market.

#### **5.4 Availability of technical assistance**

There is no real technical assistance that we have found being utilized within the Village. When stakeholders were asked about this, there seemed to be uncertainty about what technical assistance entailed or how it could be useful. One of the top business priorities for doing business in Afton was its rural identity. This rural idea could be a reason people aren't open to changes especially if they feel like they may lose some of the small town-charm. However, technical assistance can help businesses run more smoothly and help them upgrade to a more modern system. More than half of the businesses in the Village have been in business for over 15 years. While this longevity is a good thing, it can also mean that different types of technical assistance could create a more efficient and sustainable economic environment. This could tie into the section above with business technical assistance being offered as part of a job skills program. The top interests of business owners were technology services and specialized help. A business skills program or workshop where current and potential business owners could have questions answered, help with financial concerns, assistance updating or implementing new technologies would be beneficial to current and future business owners within the Village.

#### **5.5 Commercial development**

There is currently very limited area for commercial development within the Village. The Village Planning Board is in the process of creating a new commercial/industrial zone. The planning board would like to see new industry move into the area bringing jobs and helping to revitalize the local economy.

Survey respondents were very interested in commercial development. Residents felt it was very important to expand and promote industry and tourism. Business owners felt that limited land for commercial development is one of the largest challenges to growth and development in the Village. However as can be seen in the Waterfront Revitalization Plan, many of the open areas within the Village happen to be located in the flood zone.

The newly proposed commercial/industrial zone in the Village would expand space for commercial development and potentially attract new businesses and industries (Village Planning Board). Village residents were very specific about what they would not like to see in the Village, such as bars and other adult entertainment establishments. They would also like to keep the Village clean and family friendly. Healthcare and tourism were the top interests of business owners while residents would like to see healthcare, more retail, and agriculture.

#### **5.6 Infrastructure Needs**

Infrastructure needs in the Village were addressed through the three surveys. All three surveys showed high interest in a sanitary sewer. Currently there is no sanitary sewer



within the Village and all dwellings rely on individual septic systems. Development of a sanitary sewer could also be influential in impacting economic development.

The next infrastructure improvement wanted by residents was Main Street improvement, specifically streetlights and sidewalks. The current state of sidewalks is poor. Improving them would give the Village a much-needed facelift as well as make the Village more walkable.

Almost half of the Village's tax-base is at risk fro flooding, it is important to consider local flood laws when planning for any new development. The initial flood control laws were developed in the Village in 1987 with a revision being added in 1989. There have been no updated to the law since 1989, so it would be beneficial to look into updating this law again when planning for any future development. The current law states that the Village should manage all new construction in the flood plain.



Image Credit: Photos: <https://www.flickr.com/photos/drpep1024/albums/72157616992682524>

### **5.7 Interest in renovating historic structures along Main St.**

Main St. in the Village of Afton is designated as a Main Street Historic District on the National Register of Historic Places. Listing on the National Register also makes property owners eligible to be considered for Federal grants-in-aid for historic preservation. 53% of business owners were interested in preserving historic buildings in the Village.

Despite this, the majority of businesses in the Village did not feel that an historic restoration of Main St. would benefit their businesses.

Close to 60% of community Organizations thought an historic restoration of Main St. would benefit their organization. This was a very different result than what we received from business owners. However, preservation of historic buildings ranked as 4<sup>th</sup> in importance out of 6 options.

Village residents ranked preserving historic buildings as a top priority in the survey. This would help to beautify the Village, which was also of high value to Village residents.

The Main St. Historic District may have a bit of an upper hand in getting funding for building renovations. The New York State Office of Homes and Community Renewal offers various programs to revitalize Main St.'s in New York State. They also offer technical assistance to help communities figure out how best to proceed with a historic or economic renovation.

Economic revitalization ranked higher than renovating historic Main St. in all three surveys. Planning to renovate and renew Main St. in the Village should also prioritize economic revitalization. This could include options like interpretive signage and a multiuse trail that goes from the riverfront through Main St. and back toward the River. A trail could potentially connect Afton to other Susquehanna River Villages and Towns. This could attract tourists and visitors to the Main St. while also showcasing the Riverfront, which ties into the Village's vision for Afton.



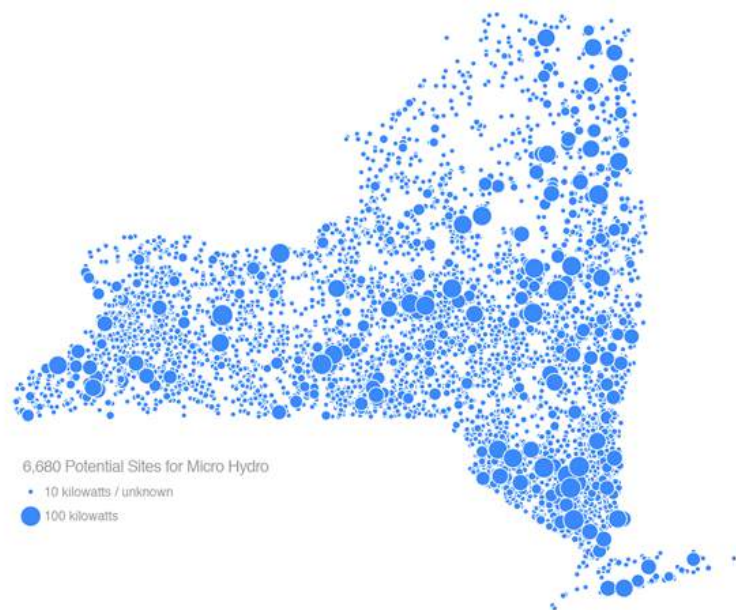
Image Source: Monolith Solar; Community Solar 081915

## 5.8 Low-cost energy options

Residents, Organizations, and Businesses within the Village are all very interested in low-cost energy options. This option is great for current villagers, and it helps people who are looking for a more sustainable way to live view the Village of Afton in a new and progressive light. New technology showcases progress and shows younger generations that Afton while rooted in the past is not stuck in the past. New York State Energy Research and Development (NYSERDA) offer information, options, and incentives for solar projects throughout New York State. Southern Tier Solar Works is currently working on community solar projects in Broome, Chenango, Delaware, Otsego, and Tioga Counties.

Solar power was the top option chosen by all three groups surveyed. There are different ways to promote and implement solar power on a Village scale. Community Solar is one option where members of the community and business owners and organizations all buy into the same infrastructure. Home or business installation is another option for implementing solar power in the Village. This option requires a larger investment at an individual level.

Wind power was chosen as the second option by all three surveys as well. Wind power is a good option, but the Village does lie in the Susquehanna River Valley, which could potentially block the wind necessary for efficiency on a wind farm. The average wind speed in the Village is between 6 and 9 miles per hour according to NYSERDA Small Wind Explorer. NYSERDA also offers financial incentives for installation of wind turbines. An eligible installer can inspect the proposed placement of a wind turbine and provide a quote.



Existing dams in New York by Hydropower potential. Source: Current Hydro



Hydroelectric power is also a very viable option within the Village. Microhydroelectric power could be harnessed along Kelsey Creek as well as possibly using Bumps Creek. Yale University’s School of Forestry and Environmental Studies has been conducting research on how small hydropower projects can actually decrease flood risk in an area because it is diverting water from smaller streams and creeks. This option should be thoroughly investigated by the Village. The map below shows the potential for hydropower within New York State.



Image credit: Rural Health Information Hub

### 5.9 Public Transportation

The current public transportation in the Village is not well known and used even less. This can lead to medical and nutritional needs in an aging population such as the Village of Afton going unmet. During the process of writing the initial strategic plan, the local grocery store has permanently closed. With limited transportation options the Village of Afton could become a rural food desert, defined as parts of the country vapid of fresh fruit, vegetables, and other healthful whole foods, usually found in impoverished areas. This is largely due to a lack of grocery stores, farm markets, and healthy food providers. According to the public survey, a large majority of Village residents leave the Village at least once a week to purchase goods and services. There is a seasonal (Spring, Summer, and Fall) farm with a market about 4 miles from the center of the Village. Bainbridge has a grocery store within seven miles of the center of the Village, but Afton residents

report this store as having a low quality produce selection. Residents have voiced their opinion that consistent access to a large to mid-sized grocery store is important.

Chenango First Transit offers two looped routes in the Village, the first leaving at 7:55AM and arriving in Norwich at 9:03AM. The second Loop which would take riders back to Afton leaves Norwich at 1:45PM and returns to Afton at 2:58PM. This route may work for medical appointments or short trips to Norwich but is not conducive to employment. Chenango First Transit also offers Medicaid transport in Chenango County.

Broome County Rural Transit offers Country Rural Transportation to Colesville, NY which is about nine miles from the Village. This option takes riders directly into Binghamton where they can connect with many other public transportation routes. Connecting to this service would be a positive step toward useable public transportation in the Village of Afton.

Birnie Bus Service, which is located in Central New York, was rumored to have a route in Chenango County but the closest it gets to Afton is a route from Oneonta to Cooperstown.

First Transit is a national bus service that may also offer options for the Village to look into. They offer services to partner with an already existing transportation system, or government to customize solutions that fit specific transportation needs. This could offer an option to create an energy efficient transportation system that connects rural areas to nearby metropolitan areas.

There are also personal run hail services such as UBER and LYFT. These options are usually less expensive than a taxi and could offer part-time work for Village residents. Car share services such as Zipcar can also be good options for those who do not want to be limited to public transportation

## 6. Vision

Afton is a lovely Susquehanna River Valley community seeking to remain a friendly, safe, and walkable community with plenty of green open spaces and fresh air. Afton will revitalize its economy by promoting and enhancing its rural character, small-town charm, and, in addition, develop sustainable economic growth such as:

1. Enhancing access and enjoyment of the Susquehanna River by creating a riverside recreational park.
2. Mitigation of flooding by working with NYS Department of Transportation and other available resources.
3. Enhancing the appearance of Main St. and preserving historical buildings.

4. Utilizing sustainable alternative technologies to supply low-cost energy to residents and businesses.
5. Develop low cost and convenient public transportation that will connect with the surrounding communities.

## 7. Waterfront Revitalization Plan

The Waterfront Revitalization Plan was created as a stand-alone document which will also compliment the Strategic Plan. The objectives of the waterfront revitalization study were to address waterfront park development, flood mitigation, water quality, and wetland restoration, by mitigating flooding in the areas that have historically and are predicted to be affected by flooding. Maps illustrating the Study Area and the core area of the Village of Afton are included in this document (**Figs. 1 & 2**). The scope of work included:

1. An analysis of the various past flood events
2. An analysis of the various flood mitigation options that would promote the goals of the study
3. Cost/benefit analysis associated with implementing the various mitigation options

For the full Waterfront Revitalization Plan please see the Village of Afton Clerk or refer to the document titled: Waterfront Revitalization Plan

## 8. Future Actions

There are three general paths to any development plan. They can be used in total or specific parts that best fit the values and ideals of the area can be selected from within any of the three options. The focus of this Strategic Plan is Economic and Waterfront Revitalization.

### 8.1 Potential Options

**Option 1:** Do nothing. The Village in its current state is in decline. Residents, specifically young adults are leaving the Village. There have not been any significant improvements to the Village in many years. Most of the planning documents from the Village are from 1969. While this option is the most cost-effective, it does not solve any of the current problems facing the Village today.

**Option 2:** Innovation and Sustainability. This option would potentially put the spotlight on the Village as a leader in rural environmental and economic sustainability. This option would include renovating and retrofitting historic Main St. and moving



residences out of the floodplain. Creating a sewer system and implementing alternative energies, green technologies, green infrastructure, and an inclusive public transportation system.

- a. Renovating and retrofitting Historic Main St. using best management practices.
  - a. Create a flood-water storage system under Main St. and the adjacent sidewalks.
    - i. Porous pavement
    - ii. Bioretention areas
    - iii. Infiltration trenches/tree trenches
    - iv. Vegetative swales
  - b. Community floodwater retention system
    - i. Rain barrels
    - ii. Private raingardens
    - iii. Green roofs
    - iv. Tree planting/tree trenches
- b. Recreate wetlands in the floodplain.
  - a. Buyout and relocation of homes within the floodplain
  - b. Buyout of farmland located within the floodplain
  - c. Create an interpretive wetland park that connects the Village of Afton with adjacent communities such as Sidney and Bainbridge.
- c. Develop a sewer system – this will increase expenses in the Village, including taxes and other water fees. The cost to build a wastewater treatment facility and the entire associated infrastructure including costs for an environmental assessment. Other associated costs to the Village would be maintenance of and staff to oversee the water treatment plant.
  - a. A more feasible option might be to create greywater systems or other potentially water-saving resources.
- d. Develop a transportation system that connects with nearby transportation systems
  - a. Utilize UBER/LYFT
  - b. Look into Zipcar
  - c. Look into purchasing a local bus or van to connect with higher use transportation systems.
- e. Create a pathway to attract and retain new business especially primary and secondary sector businesses. Primary sector businesses use raw materials to make basic (necessary) products such as farming, mineral extraction, and hunting/fishing. Secondary sector businesses are those such as manufacturing and industry. These types of businesses help to improve economic stability and create jobs.

**Option 3:** Mixed Methods – This option should still rely heavily on economic development, best management practices, and alleviating flooding in the Village.

- a. Promote economic development

- a. Work with Chenango County to increase job training for Village residents.
- b. Offer space and incentives for technical skills assistance programs in the Village.
- c. Offer incentives to new businesses such as creative and flexible options within the new commercial area.
- b. Promote new methods of transportation
  - a. Zipcar
  - b. UBER/LYFT
  - c. Bridge the gap between Afton and higher density locations
- c. Alternative energies
  - a. Community solar – vs – individual solar
  - b. Wind
  - c. Hydroelectric
- d. Retrofit historic Main St.
  - a. Clean up and maintain buildings
  - b. Green infrastructure
    - i. New permeable sidewalks
    - ii. Tree trenches
    - iii. Rain gardens
    - iv. Rain Barrels
    - v. Look into lightweight green roof
    - vi. Solar panel installations
  - c. Make buildings ADA accessible
- e. Infrastructure needs
  - a. Develop a sewer system – this will increase expenses in the Village, including taxes and other water fees. The cost to build a wastewater treatment facility and the entire associated infrastructure including costs for an environmental assessment. Other associated costs to the Village would be maintenance of and staff to oversee the water treatment plant.
  - b. Look into assistance for updating septic systems where possible
  - c. Fix Main Street
    - i. Update with permeable pavement
      - 1. Rain gardens
      - 2. Trench drains
      - 3. Water reservoir
    - ii. Solar powered street lights
  - d. Update Parking lot between Main Street and the Susquehanna River
    - i. Use permeable pavers
    - ii. Tree trenches
    - iii. Rain gardens
    - iv. Solar powered lights
    - v. Solar power installation

## 8.2 Goals, Objective, and Metrics

For each Strategic Plan Option, the Village of Afton formulates strategies that function as future-oriented bases for decision-making to achieve success. For each strategy, measures were selected which quantify performance and goals that specify targets for performance.

### 8.2.1 Low-cost Energy Technology Goals

#### *Priority 1*

Decrease the cost of energy for residents, businesses, and organizations within the Village of Afton

#### *Objectives*

- Assess cost benefit for community solar farm – vs. – individual solar installations
  - Invite quotes for solar projects within the Village
  - Work with NYSERDA for funding
- Have a wind assessment conducted
  - Invite quotes for wind projects within the Village
  - Work with NYSERDA for funding
- Assess the cost benefit for a micro-hydropower plant
  - Contact DEC for assessment of micro-hydropower projects in the Village

### 8.2.2 Public Transportation Development

#### *Priority 1*

Expand public transportation routes into and out of the Village of Afton

#### *Objectives*

- Create a reliable useable route to healthcare, grocery stores, and retail
  - Increase access to healthy foods
  - Increase access to healthcare
- Connect the Village of Afton to Binghamton with at least two circular routes daily
- Connect the Village of Afton to Norwich with at least two circular routes daily

### 8.2.3 Waterfront Park Development

#### *Priority 1*

Environmental sustainability, increased tourism, flood remediation

#### *Objectives*

- Locate, get approval for and zone a site
- Park planning: tourism, leisure, sport, wildlife management...
  - ADA accessibility
  - Playground, natural play space, picnic area...
  - Boardwalk
  - Interpretive (educational) signage
- Park development

### 8.2.4 Flood Mitigation

#### *Priority 1*

Reduce the damage from localized flooding within the Village of Afton

#### *Objectives*

- Increase wetlands surrounding the Susquehanna River, Kelsey Creek and Bumps Creek
- Resize the culvert under the I-88 connector
  - Work with NYDOT
- Move homes out of the flood zone
  - Possible funding through FEMA or HUD
- Best Management Practices (BMP's; keeping stormwater from leaving where it falls "running off")
  - Detention/retention ponds
  - Tree trenches
  - Raingardens

### 8.2.5 Water Quality

#### *Priority 1*

Increase access to and use of Susquehanna River

#### *Objectives*

- Restore riparian habitat

- Increase wetlands
- Control for mercury loading and runoff from point and nonpoint source pollution through phytoremediation.
- Best management practices.

### 8.2.6 Wetland Restoration

#### *Priority 1*

- Recreate wetlands along the Susquehanna River
- Restore riparian habitat

#### *Objectives*

- Move homes out of the flood zone
  - Possible funding through FEMA or HUD
- Access funding for wetland restoration through one of the many sources listed in the strategic plan

### 8.2.7 Historic Restoration of Main St.

#### *Priority 1*

Attract tourists to the Village to increase economic viability/stability

#### *Objectives*

- Update and beautify the streets, sidewalks and buildings along Main St.

#### *Priority 2*

Develop a brand for the Village

#### *Objectives*

Attract tourists, and new businesses to the Village to increase economic viability/stability.

## 9. Further Reading

### Low-cost energy technology

NY Power Authority <https://www.nypa.gov/>

Hydropower in New York: <https://www.dec.ny.gov/energy/43242.html>

Wind Power in New York: <https://www.nyserda.ny.gov/All-Programs/Programs/Small-Wind-Program>

Solar Power in New York: <https://www.nyserda.ny.gov/All-Programs/Programs/NY-Sun>

### Public transportation development

Rural public transportation systems:

<https://www.transportation.gov/mission/health/Rural-Public-Transportation-Systems>

<https://www.ruralhealthinfo.org/toolkits/transportation>

### Waterfront park development/Flood mitigation/Water quality/Wetland restoration

Floodplain construction requirements in New York State:

<https://www.dec.ny.gov/lands/40576.html>

Wetlands: <https://www.epa.gov/wetlands>

Chesapeake Bay: <https://www.epa.gov/restoration-chesapeake-bay>

Flood mitigation: <https://www.fema.gov/blog/2012-03-14/things-you-can-do-mitigate-against-flooding>

Stormwater management/water quality: <http://savetherain.us/>,  
<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#edu>

### Historic restoration of Main St.

<https://www.mainstreet.org/home>

## 10. Potential Funding Sources

Funding sources and considerations for building Naturally Resilient Communities

- <http://nrcsolutions.org/funding/>

NYS DOT culvert replacement program



- <https://www.dot.ny.gov/BRIDGENY>

Upper Susquehanna Coalition Buffer Funding Program

- <https://uppersusquehanna.wordpress.com/2017/06/20/usc-buffer-program-funding-opportunity/>

Funding opportunities through the Upper Susquehanna Coalition

- <http://www.u-s-c.org/html/Projects.htm>

EPA wetland restoration funding

- <https://www.epa.gov/wetlands/wetlands-funding>

FEMA Hazard Mitigation Grant Program

- <https://www.fema.gov/hazard-mitigation-grant-program>

BUILD Discretionary Grants through US DOT

- <https://www.transportation.gov/BUILDgrants>

Mobility Services for all Americans through US DOT

- [https://www.its.dot.gov/research\\_archives/msaa/index.htm](https://www.its.dot.gov/research_archives/msaa/index.htm)

## 11. Bibliography

- Cech, T. V. (2010). *Principles of water resources: history, development, management, and policy*. John Wiley & Sons.
- Dutton, A., Carlson, A. E., Long, A. J., Milne, G. A., Clark, P. U., DeConto, R., ... & Raymo, M.E. (2015). Sea-level rise due to polar ice-sheet mass loss during past warm periods. *Science*, 349(6244), aaa4019.
- Energypedia. (2017) Using Hydropower plants for flood prevention. [cited 8 Feb. 2017]. Available from:  
[https://energypedia.info/wiki/Using\\_Hydro\\_Power\\_Plants\\_for\\_Flood\\_Prevention#Further\\_Information](https://energypedia.info/wiki/Using_Hydro_Power_Plants_for_Flood_Prevention#Further_Information)
- FEMA - Federal Emergency Management Agency. (2007). *Village Locals Reflect Moving Was Best Flood Protection*. . [cited 8 Feb. 2018]. Available from:  
[https://dma.wi.gov/DMA/divisions/wem/mitigation/docs/stories/Soldiers\\_Grove\\_LTerm\\_Benefits\\_Relocation.pdf](https://dma.wi.gov/DMA/divisions/wem/mitigation/docs/stories/Soldiers_Grove_LTerm_Benefits_Relocation.pdf)
- Gleick, P. H. (2003). Global freshwater resources: soft-path solutions for the 21<sup>st</sup> century. *Science*, 302(5650), 1524-1528.
- Horton, R., D. Bader, C. Rosenzweig, A. DeGaetano, and W.Solecki. (2014). *Climate Change in New York State: Updating the 2011 ClimAID Climate Risk Information*. New York State Energy Research and Development Authority (NYSERDA), Albany, New York. Available from: <https://www.nysERDA.ny.gov/climaid>
- Hydro Map : NYSERDA [www.currenthydro.net](http://www.currenthydro.net) [cited May 1, 2018]. Available at:  
<http://www.bard.edu/cep/blog/?p=9271>
- IAIA – International Association for Impact Assessment. (1999). *Principles of Environmental Impact Assessment Best Practice*. [cited 1 Feb 2017]. Available from: [https://www.iaia.org/uploads/pdf/principlesEA\\_1.pdf](https://www.iaia.org/uploads/pdf/principlesEA_1.pdf)
- IPCC – Intergovernmental Panel on Climate Change. (2015). *Climate change 2014: mitigation of climate change* (Vol. 3). Cambridge University Press.
- Kates, William. (2006). "Waters slowly recede, residents begin cleaning up". *USA Today*. Print: June 29, 2006. Retrieved October 30,2007.
- Levitan, Dave. (2014). As small hydropower expands, so does caution on its impacts. [cited 8 Feb. 2017]. Available from:  
[https://e360.yale.edu/features/as\\_small\\_hydropower\\_expands\\_so\\_does\\_caution\\_on\\_its\\_impacts](https://e360.yale.edu/features/as_small_hydropower_expands_so_does_caution_on_its_impacts)

- Lizlovs, Sandy. (2009). *Historical look at the Susquehanna River watershed*. Clearwaters 1-13. [cited 10 Dec. 2017]. Available from:  
<https://www.nywea.org/clearwaters/09-1-spring/04-Historical.pdf>
- NYDEC – New York Department of Environmental Conservation. (2017) *Hydropower in NY*. [cited May 1, 2017]. Available at:  
<https://www.dec.ny.gov/energy/43242.html>
- NYDEC – New York Department of Environmental Conservation. (2016). *The FINAL New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy*. November, 2016. [cited 1 Feb 2017]. Available from:  
[https://www.dec.ny.gov/docs/water\\_pdf/303dListfinal2016.pdf](https://www.dec.ny.gov/docs/water_pdf/303dListfinal2016.pdf)
- Reddy, J.E. and Risen, A.J., (2012), *Groundwater Quality in the Upper Susquehanna River Basin, New York, 2009*: U.S. Geological Survey Open-File Report 2012-1045, 30p. Available from: <http://pubs.usgs.gov/of/2012/1045/>
- Seneviratne, S. I., Donat, M. G., Mueller, B., & Alexander, L. V. (2014). No pause in the increase of hot temperature extremes. *Nature Climate Change*, 4(3), 161.
- Shaker, R. R., Espinosa, G. J., & Chin, E. Y. (2012). Exploring Landscape Form and Upland Forest Fragmentation on Aquatic Condition in Susquehanna River Basin Headwaters. *Applied Geography Conferences* (Vol. 35, pp. 10-20).
- Shaker, R. R., A. D. Yakubov, S. M. Nick, E. Vennie-Vollrath, T. J. Ehlinger, and K. Wayne Forsythe. (2017). Predicting aquatic invasion in Adirondack lakes: a spatial analysis of lake and landscape characteristics. *Ecosphere* 8(3): e01723. 10.1002/esc2.1723
- Simonovic, S. P. (2012). *Managing water resources: methods and tools for a systems approach*. Routledge.
- SRBC – Susquehanna River Basin Commission. (2017). *The Flood-Prone Watershed*. [cited 1 Feb 2018] Available from:  
<https://www.srbc.net/pubinfo/floodbrochure.htm>
- The Daily Star. (2006) “Suits pending in I-88 Flood Deaths”. The Daily Star, Oneonta, NY October 19, 2006.
- U.S. Census – United States Census Bureau. (2015). 2015 Annual Population Estimates Program. *American Factfinder*. [cited 2017 May 1]. Available at: [https://factfinder.census.gov/faces/nav/jsf/pages/community\\_facts.xhtml#](https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml#)

- USDOH – United States Department of Health. (2017). *Leatherstocking Central Region Fish Advisories*. April 2018. [cited 8 Feb. 2018]. Available from: [https://www.health.ny.gov/environmental/outdoors/fish/health\\_advisories/regional/leatherstocking\\_and\\_central.htm#advisorymap](https://www.health.ny.gov/environmental/outdoors/fish/health_advisories/regional/leatherstocking_and_central.htm#advisorymap)
- USEPA – United States Environmental Protection Agency. (2018). *Why are wetlands important?* January 2018. [cited 8 Feb. 2018]. Available from: <https://www.epa.gov/wetlands/why-are-wetlands-important>
- USEPA – United States Environmental Protection Agency. (2016). Drinking water requirements for states and public water systems. November 2016. [cited 10 Feb. 2018]. Available from: <https://www.epa.gov/dwreginfo/radionuclides-rule>
- USNRC - United States Nuclear Regulatory Commission (2012): What is a Megawatt? <https://www.nrc.gov/docs/ML1209/ML120960701.pdf>
- Webster, P. J., Holland, G. J., Curry, J. A., & Chang, H. R. (2005). Changes in tropical cyclone number, duration, and intensity in a warming environment *Science*, 309(5742), 1844-1846.
- Wright, Jim. (2006). "Driver killed in I-88 bridge collapse identified". Press & Sun-Bulletin. Binghamton, NY. In Print: June 29, 2006. Archived from *the original* on January 31, 2013. Retrieved October 30, 2007.