



NYRCR MONTGOMERY COUNTY



NY RISING COUNTYWIDE RESILIENCY PLAN

July 2014

NY Rising Community
Reconstruction Program

This page intentionally left blank

Montgomery County NYRCR Planning Committee

Name	Position	Group/Organization
Dustin Swanger	Co-Chair	Fulton-Montgomery Community College
Denis Wilson	Co-Chair	Fulmont Community Action Agency
Ann Black	Member	Fulmont Community Action Agency
Paul Clayburn	Member	Montgomery County Department of Public Works
Angelika Klapputh	Member	American Red Cross, Northeastern New York Region, Albany, NY
Michael McMahon	Member	Montgomery County Department of Social Services
Corey Nellis	Member	Montgomery County Soil and Water Conservation District
Matt Ossenfort	Member	Montgomery County Executive Office
Frederick Quist	Member	United Way of Montgomery County
Nancy Ryan	Member	Fort Plain Reformed Church
Jeffery Smith	Member	Montgomery County Emergency Management Office

PREPARED BY



This document was developed by the NYRCR Montgomery County Planning Committee as part of the NY Rising Community Reconstruction (NYRCR) Program and is supported by the NYS Department of State. The document was prepared by the following Consultant Team: AKRF, Inc.; Nagle, Tatich, Cranston LLC d/b/a Elan.3.Consulting (E.3); MJ Engineering and Land Surveying, PC; and CDM Smith, Inc.

This page intentionally left blank

Foreword

Introduction

Flooding from severe summer storms in 2013 inflicted damages in five upstate counties, bringing home the reality that it no longer takes a hurricane or tropical storm for raging flood waters to wreak havoc in our communities. Those summer storms – as well as Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee – signal that we need to rebuild our communities in a way that will mitigate against future risks and build increased resilience.

To meet these pressing needs, Governor Andrew M. Cuomo led the charge to develop an innovative, community-driven program. The NY Rising Community Reconstruction (NYRCR) Program provides the State's most impacted communities with the technical expertise needed to develop reconstruction strategies to build more resilient communities.

Program Overview

The NYRCR Program is a planning and implementation process established to provide rebuilding and resiliency assistance to communities heavily damaged by Hurricane Irene, Tropical Storm Lee, Superstorm Sandy, and the severe summer storms of 2013. Drawing on lessons learned from past recovery efforts, the NYRCR Program is a unique combination of bottom-up community participation and State-provided technical expertise. This powerful combination recognizes that community members are best positioned to assess the needs and opportunities of the places where they live and work. Up to \$3 million was committed by the Governor for each of the five counties.

While part of the larger NYRCR effort involving over 100 communities in 20 other counties, the approach



taken in the five upstate counties of Niagara, Madison, Herkimer, Oneida and Montgomery was tailored to meet their particular circumstances. In each, a county-wide NYRCR Planning Committee was formed in consultation with local leaders that included members representing county planning, economic development, human service organizations, soil and water services, emergency services, highway services, local governments, educational institutions, business and other organizations.

The approach in these five counties was two-pronged, focusing first on identification of remaining recovery needs, and then on developing countywide long-term resiliency strategies and actions. Planning Committee meetings were held, during which Planning Committee members worked with the State's NYRCR Program team to identify storm damage, recognize recovery efforts in the immediate aftermath of the storms, and develop a list of projects still needed to recover from the storms. These reports, published in early April included descriptions of recovery projects and their estimated costs and project benefits.

The Planning Committees then looked more closely at where storm damages occurred; what assets are at risk; and how the risk to those assets can be reduced or eliminated. They describe in this plan the strategies they will use to avoid future damages a list of actions to implement those strategies.

In Herkimer, Oneida, and Montgomery Counties, consultants were retained by the NYS Department of Transportation in consultation with the NYS Department of Environmental Conservation to assess 13 watersheds that ultimately empty into the Mohawk River. The completed engineering assessment provided the Counties with a better understanding of the way water moves across the landscape, enabling the NYRCR Planning Committees to better understand critical areas subject to flood risk. The counties and communities along these creeks were provided recommendations on how to address problems incrementally and begin to mitigate severe flooding. Each NYRCR County Planning Committee has incorporated recommendations into their plan and proposed projects, making sure short term recovery actions are compatible with the actions needed to implement long-term resiliency recommendations.

All Planning Committee meetings were open to the public, and public engagement events attracted community members who provided feedback on proposals. Throughout the planning process, Planning Committees were supported by planners from New York State Department of State and consultants from planning firms that specialize in engineering, flood mitigation solutions, green infrastructure, and more.

To ensure tangible progress on the county's NYRCR Countywide Resiliency Plan, the plan includes an implementation schedule that identifies each strategy; actions to be taken to implement the strategy; potential funding sources; target dates; and responsible parties.

The program has leveraged the Regional Economic Development Council's State Agency Review Teams (SARTs), composed of representatives from State agencies and authorities, for feedback on projects proposed by NYRCR communities. The SARTs review projects with an eye toward regulatory and permitting needs, policy objectives, and preexisting agency funding sources. The NYRCR Program is continuing to work with the SARTs to streamline the permitting process and ensure shovels are in the ground as quickly as possible.

The NYRCR Countywide Resiliency Plan

Each NYRCR Planning Committee began the planning process by assessing storm damage and describing recovery needs. Next, the Planning Committee identified critical assets in the community and assessed the assets' exposure to risk. On the basis of this work, the Planning Committee described resiliency needs and opportunities. The Planning Committee then developed a series of reconstruction and resiliency strategies, and identified projects and implementation actions to help fulfill those strategies.

While developing projects for inclusion in this NYRCR Plan, Planning Committees took into account cost estimates, cost-benefit analyses, the effectiveness of each project in reducing risk to populations and critical assets, and potential funding sources. The list of projects presents a long-term approach to becoming more resilient that reflects a need for some actions to be staged before others can be taken, and recognizes that the availability of funds for implementing projects will change over time. Inclusion of a project or action in this NYRCR Plan does not guarantee that a particular project or action will be eligible for funding or that it will be implemented. In addition, implementation of the projects and actions found in this NYRCR Plan are subject to applicable Federal, State, and local laws and regulations.

On the pages that follow, you will see the results of months of thoughtful, diligent work by NYRCR Planning Committees, passionately committed to realizing brighter, more resilient futures for their communities. In the months and years to follow, many of the projects and actions outlined in this NYRCR Plan will become a reality helping New York not only to rebuild, but also to build back better. This NYRCR Countywide Resiliency Plan is an important step toward rebuilding a more resilient community.

This page intentionally left blank



Table of Contents

Section I.	Community Overview	I-1
	A. Planning Area	I-1
	B. Description of Summer 2013 Storm Damage and Locations Prone to Frequent Flooding	I-3
	C. Critical Issues.....	I-7
	D. Vision.....	I-11
	E. Relationship to Regional Plans	I-12
Section II:	Assessment of Risk and Needs.....	II-1
	A. Assessment of Needs and Opportunities	II-1
	B. Description of Community Assets	II-7
	C. Assessment of Risk to Assets and Systems	II-33
Section III:	Reconstruction and Resiliency Strategies.....	III-1
Section IV:	Project Profiles	IV-1
Section V:	Implementation Schedule	V-1

Section VI:	Additional Materials	VI-1
	A. Public Engagement Process	VI-1
	B. Community Asset Inventory and Risk Assessment	VI-5
	C. Storm Recovery Projects	VI-20
	D. End Notes	VI-33
	E. Glossary	VI-36

Executive Summary

I. Overview

Community Location and Allocation Amount

Montgomery County is located in central New York State, approximately 33 miles northwest of Albany. The County is bordered on the north by Fulton County, on the south by Schenectady, Schoharie and Otsego Counties, on the east by Saratoga and Schenectady Counties and on the west by Herkimer County. Montgomery County covers an area of approximately 409 square miles (6 mi² of water) and comprises 10 towns, 10 villages and the City of Amsterdam, its urban and economic center. The remainder of the County is predominantly rural and agricultural.

As of the 2010 Census, Montgomery County's population was 50,219, an increase of one percent since 2000. The County lies entirely within the Mohawk River Watershed. The waterways, coupled with the rich landscapes, cultures and history of the Mohawk Valley, have allowed Montgomery County to develop its economy and remain a popular tourist destination. However, the balance between the natural and man-made environment is delicate. The Mohawk River has a long history of overflowing its banks and flooding surrounding areas seasonally when snow melt and ice jams impede flow as well as during large storm events.

This Montgomery County NY Rising Community Reconstruction Plan presents proposed programs, policies and construction initiatives developed throughout the planning process.

Montgomery County is eligible for up to \$3 million through the NYRCR program.

Scope of Planning Area

The plan considers flood risk throughout the entire County with a focus on the nine municipalities most impacted by repeated destructive flooding. These communities are: the Towns of Minden and St. Johnsville; and the Villages of Fort Plain, Canajoharie, St. Johnsville, Fonda, Fort Johnson, and Fultonville, and the Hamlet of Burtonsville. The City and Town of Amsterdam and Town of Florida finalized a NY Rising Community Reconstruction Plan in March 2014. This Countywide Plan includes several projects, which were not specifically identified in the earlier resiliency/reconstruction planning efforts, but are nonetheless applicable throughout the County and compliment earlier planning efforts.



Governor Andrew M. Cuomo delivers a briefing on flooding in the Mohawk Valley at the Village of Fort Plain Department of Public Works in July 2013. (Flickr/N.Y. Governor's Office)

Summary of Storm Impacts

This phase of the NYRCR Program provides rebuilding and resiliency assistance to five localities (Niagara, Herkimer, Oneida, Madison and Montgomery Counties) that sustained significant damage from the June 2013 flooding. Between June 26, 2013 and July 3,

2013, the persistent summer rains caused the Mohawk River, and many of its tributaries (including the Otsquago Creek and Canajoharie Creek) to overflow, inundating the surrounding communities. Residences and business closest to the Mohawk River suffered most, with power outages, loss of utilities, flooded properties, and failing drainage systems. Damaged and eroded roadways and closed bridges led to traffic gridlock, preventing through travel for residents, access by emergency service workers. Prolonged road closures prevented residents from returning to work and resuming their normal routines.

The rising waters of the Mohawk River completely flooded Lock 14 of the Erie Canal in Canajoharie, and as debris piled high, the surrounding river banks were inundated resulting in widespread damage. Such flooding led to stream bank failures along sections of the Otsquago and Canajoharie Creeks as well as along other tributaries. Storm drainage issues in many communities were exacerbated by culverts that were laden with debris. Businesses in the Village of Fort Plain and the Town of Minden along the Otsquago Creek were hit particularly hard with floodwaters, which undermined building foundations, destroyed belongings, and in some cases washed out entire structures, causing major business interruptions.

Unfortunately, these floods were not an isolated incident. Conversely, they were just the latest in a persistent pattern of destructive flooding. Significant flood events that impacted Montgomery County in recent years include: flooding caused by Hurricane Irene and Tropical Storm Lee in 2011 and summer flooding in 2006. Every time Montgomery County's communities are hit by extreme flooding, the result is immediate, physical damage to essential infrastructure, bridges and homes as well as more persistent long term economic impacts. Recovery is an ongoing effort that often is set back by yet another event.

Summary of Critical Issues

Following the summer 2013 storms, vulnerabilities within the County were exposed. Many critical issues facing the community and region were immediately evident, while others were subsequently fully realized. The key issues facing the Montgomery County municipalities affect both their ability to withstand the impact of various storms and their ability to recover from the storms. Identifying these issues helped inform the development of strategies and projects in the NYRCR Plan.

The key critical issues facing Montgomery County include:

- ▶ Lack of Seamless Emergency Communication Infrastructure and Emergency Preparedness
- ▶ Inundation of Critical County Infrastructure
- ▶ Flooding of Businesses
- ▶ Inundation of Farms and Farmland
- ▶ Flooding of Residential Neighborhoods
- ▶ Stream Bank Erosion and Debris Build-Up
- ▶ Vulnerable, Aging, and Deteriorating Infrastructure
- ▶ Access to Critical Healthcare During and After Storm Events
- ▶ Lack of Secure Storage for Historic and Cultural Resources

II. Community-Driven Process

Committee Vision

The NYRCR Montgomery County Vision Statement:

Our vision is to work as a region to protect our residents, commercial centers and other economic drivers, historic resources, infrastructure assets, and natural systems by identifying and implementing sound recommendations aimed at increasing resiliency.

To achieve this vision, Montgomery County will design and implement County-wide infrastructure that will minimize the impact of disasters on our residents, protect our assets from storm damage and facilitate rapid recovery.

Summary of Public Outreach

The NY Rising Community Reconstruction Program is fundamentally a grass-roots initiative. Community participation, and in depth collaboration, were essential to successful recovery and resiliency efforts. The Montgomery County NYRCR Planning Committee was comprised of residents, business owners and municipal representatives, meeting bi-weekly between March and July 2014 to develop the elements of the NYRCR Plan, which serves as a guide for making flood-related decisions to ensure a more sustainable and resilient future for the County. Planning Committee meeting materials were circulated before and after each meeting and also posted to the NYRCR website.

Three public engagement events were held throughout the five month planning process. These meetings provided the opportunity for Montgomery County residents to learn about the NYRCR planning process and provide input to help shape a community-driven plan for a more resilient future. The format and venue of the Public Engagement Meetings varied, but

generally included power point presentations, display boards and mapping, workgroups with maps and markers, survey sheets and comment boxes.

A broad-based outreach strategy was developed to ensure that community residents that were not on the Planning Committee were involved in the planning process. Relevant materials were posted to the Montgomery County NYRCR webpage, and public engagement events were advertised via media alerts, e-mail blasts, distribution of printed materials, and postings on County and municipal websites and County Twitter feeds. An online survey was also created to provide an opportunity for those unable to attend community meetings to participate in the NYRCR planning process and provide their valuable input.

III. Resilience Orientation

The immediate response following the summer 2013 floods was strong as emotional, physical and financial assistance supported communities throughout Montgomery County. The regional Chamber of Commerce provided financial assistance for reconstruction efforts to businesses in need. The Fulton-Montgomery Long Term Recovery group coordinated community assistance and volunteer support and continues to implement measures to help communities better prepare for future disasters. The NYSDOT completed restoration work along the Otsquago Creek removing debris and securing the river banks. New York State allocated funds to communities within the Mohawk sub-basins to undertake comprehensive watershed assessments and designated Montgomery County as part of the NY Rising Community Reconstruction Program.

Through the NYRCR Program, Storm Recovery Projects for Montgomery County were identified in March 2014. This initial component of the NYRCR Planning Process focused on developing projects that would address concrete, short-term needs, such as fixing damaged bridges, replacing undersized culverts, stream bank restoration, and business and housing assistance. These projects helped address immediate



Damaged Home along Abbott Street in Fort Plain (Jaclyn Hakes)

and more obvious needs key to community recovery and helped serve as a foundation for the Montgomery County NYRCR Countywide Resiliency Plan.

Following the development of the recovery projects, the planning process focused on a more comprehensive analysis and long-term approach to community resiliency. The analysis focused on identifying needs and opportunities to strengthen the County's ability to prepare for, respond to and recover from flooding events and the development of strategies to address those needs.

IV. Final Plan as Blueprint for Implementation Needs

The risks to, and vulnerability of, Montgomery County exposed by the Summer 2013 floods forced the community to change its focus from repair to resiliency. The emphasis on resilience revealed significant opportunities to help the County build back better.

To address their specific vulnerabilities, a comprehensive needs and opportunities analysis was prepared through a combination of research, analysis, NYRCR Committee and community feedback. This exploration of community vulnerabilities covered community planning and capacity building, economic development, housing, health and social services, infrastructure services, and natural and cultural resources.

The strategies proposed in the NYRCR Plan consider emergency, disaster recovery, and long-term resiliency and economic development needs that remain unmet by existing planning and rebuilding initiatives. The strategies represent statements of action that address how to best fortify community assets, capitalize on opportunities, resolve critical issues and meet short, medium, and long-term goals identified during the planning process. The projects developed throughout the planning process are the path to executing the strategies.

Each strategy and the corresponding projects presented below specifically address a stated need and transform an opportunity into an action item. The projects listed below are grouped by strategy, and are not ranked or prioritized.

Develop plans, strengthen zoning codes and continue to coordinate with involved stakeholders

- ▶ Access to Health Care During Storm Events
- ▶ Consolidation and Relocation of Montgomery County Services
- ▶ Emergency Evacuation Program and Safe Haven Plan for Large Livestock Animals
- ▶ Expansion of St. Johnsville Department Dive Rescue and Recovery Unit
- ▶ Stream Gage Installation and Monitoring
- ▶ VHF – High Band Frequency Simulcast Dispatch/ Transmitting System
- ▶ Zoning Code Revisions

Implement measures to fortify and increase the resiliency of commercial centers and economic drivers

- ▶ Arkell Museum Artwork Protection
- ▶ Montgomery County Fairground Improvements
- ▶ Protect Businesses from Flooding

Upgrade, strengthen, and coordinate County-wide emergency management, communications and early warning systems to mitigate flooding, plan for future disasters, and protect communities.

- ▶ Access to Health Care During Storm Events
- ▶ Expansion of St. Johnsville Department Dive Rescue and Recovery Unit
- ▶ Stream Gage Installation and Monitoring
- ▶ VHF – High Band Frequency Simulcast Dispatch/ Transmitting System

Provide assistance to homeowners and renters to protect themselves from future flooding through mitigation measures, elevation, acquisition, relocation and general flood proofing.

- ▶ Residential Relocation and Assistance Program

Repair, upgrade and protect existing infrastructure assets and critical facilities from flood damage to reduce their vulnerability

- ▶ Capital Bridge Program
- ▶ Consolidation and Relocation of Montgomery County Services
- ▶ Stormwater Management System Projects
- ▶ Stream Gage Installation
- ▶ Town of Canajoharie Highway Department Garage Relocation or Replacement

Preserve and restore natural areas including floodplains, streams and wetlands to help mitigate flooding via watershed and stream restoration projects

- ▶ Bulkhead Restoration
- ▶ Canajoharie Creek Wall Restoration
- ▶ Otsquago Creek Bank and Channel Engineering Analysis and Design
- ▶ Stream Gage Installation and Monitoring
- ▶ Zimmerman Creek Channel Restoration

This page intentionally left blank

2014 NY RISING COUNTYWIDE RESILIENCY PLAN NYRCR MONTGOMERY COUNTY

Section I County Overview





I

County Overview

A. Planning Area

Montgomery County is located approximately 33 miles northwest of Albany in the Central “Leatherstocking” Region of New York State. The County is bordered on the north by Fulton County, on the south by Schenectady, Schoharie and Otsego Counties, on the east by Saratoga and Schenectady Counties and on the west by Herkimer County. The County covers an area of approximately 409 square miles (6 mi² of water) and comprises 10 towns, 10 villages and the City of Amsterdam, its urban and economic center. The remainder of the County is predominantly rural and agricultural.

The County is well served by a network of Federal, State and County highways (Routes 5, 5S, 10, 30, 30A, 67 and NYS Thruway I-90) connecting Montgomery County communities to each other and to the rest of the region. As shown in Figure I-1, the New York State Thruway (I-90) runs through the northern part of the County, almost parallel to the Mohawk River on its southern side. I-90 connects Montgomery County to Albany where it intersects with Interstate 87 (I-87) a primary transportation route north to the Adirondacks and south to New York City. Within Montgomery County, State Route 30 provides a transportation corridor from the Adirondack Mountains to the Catskill Mountains, major outdoor tourism destinations in the region.

Montgomery County’s location as the western gateway to New York State’s Tech Valley, with three New York State Thruway interchanges, Amtrak, CSX, Albany and New York City ports, and in close proximity to the Albany International Airport, renders it well positioned from an economic standpoint. Table I-1 presents a sample of the major employers and tourism revenue generators, which are scattered throughout



Brookman’s Corners Road Bridge – Town of Minden (Jeff Smith)

the County, including three primary business parks, Fulton Montgomery Community College in Fonda, St. Mary’s Hospital in the City of Amsterdam and the Arkell Museum in Canajoharie. These larger employers are supported by local business districts, and livestock and commodity farms throughout the towns and villages. The availability of affordable land, the low cost of living and the abundance of outdoor recreational and tourism activities within and around Montgomery County, render the region attractive to potential residents and visitors. Despite these advantages, however, the County continues to struggle with high unemployment (11.2 percent in 2011).

As of the 2010 Census, Montgomery County’s population was 50,219, an increase of one percent since 2000. The largest population center in Montgomery County is the City of Amsterdam (2010 population 18,620) accounting for 37.1 percent of the County total. The remainder of the County is comprised of smaller towns with populations ranging from 1,373 (Town of Charleston) to 5,566 (Town of Amsterdam).

**Table I-1
Major Employers in Montgomery County**

St. Mary’s Hospital
Keymark Corp.
Liberty Enterprises
Target Distribution Center
Amsterdam Printing Lithograph Corp.
Beechnut Corporation
Power Pallet
Business Parks:
Florida Business Park
Glen Canal View
Mahasco Technology Campus
Midwest Canvas Corporation
Fiber Glass Industries
Ward Products
Sentinel Products Company
JOYCO
Helmont Hills
Montgomery County
Greater Amsterdam School District
Amsterdam School District
Cranesville Block Company Incorporated
Fulton Montgomery Community College
<i>Source: Kenneth Rose, Montgomery County Department of Economic Development and Planning</i>
<i>DMA 2000 Hazard Mitigation Plan – Montgomery County, New York. October 2008, Tetra Tech</i>

According to the American Community Survey (a component of the Census) in 2011 approximately 50.1 percent of households in Montgomery County were considered low and moderate income households (i.e., households with income less than 80 percent of the Montgomery median) as defined by the U.S. Department of Housing and Urban Development (HUD). Within Montgomery County, more than 50 percent of the population in the City of Amsterdam

and the Towns of Minden, St. Johnsville, Canajoharie, and Palatine were low/moderate income. Approximately 19.2 percent of the Montgomery County population lives under the poverty level compared to the State level rate of 16.3 percent. The last decade has seen an increase in the Hispanic population in the County, particularly in the City of Amsterdam. Such cultural diversity brings exciting opportunities but the subsequent need for translation services adds complexity to emergency planning.

Montgomery County lies entirely within the Mohawk River Watershed, which represents one-quarter of the larger Hudson River Watershed. The Mohawk River flows from the western Adirondacks and the Tug Hill Plateau to the east for 140 miles, where it joins the Hudson River at Waterford/Cohoes, north of Albany. The Mohawk River flows east through Montgomery County and is co-terminus with the New York State Canal System, which serves primarily as a recreational travel corridor, but is seeing a return of commercial shipping. Numerous tributaries feed the Mohawk River, including the Schoharie Creek, Canajoharie Creek and the Otsquago Creek, which runs through the Town of Minden joining the Mohawk River after flowing beside Route 80 through the heart of the Village of Fort Plain.

These waterways, coupled with the rich landscapes, cultures and history of the Mohawk Valley, have allowed Montgomery County to develop its economy and remain a popular tourist destination. However, the balance between the natural and man-made environment is delicate. The Mohawk River has a long history of overflowing its banks and flooding surrounding areas seasonally when snow melt and ice jams impede flow as well as during large storm events.

Figure 1-I presents the geographic scope for the Montgomery County NY Rising Countywide Resiliency Plan (NYRCR Plan). The NYRCR Plan considers flood risk throughout the entire County and presents

countywide needs, opportunities, strategies and projects. The asset inventory and risk assessment focus on the nine municipalities most impacted by destructive flooding. These communities are: the Towns of Minden and St. Johnsville; and the Villages of Fort Plain, Canajoharie, St. Johnsville, Fonda, Fort Johnson, and Fultonville, and the Hamlet of Burtonsville. The City and Town of Amsterdam and Town of Florida finalized a NY Rising Community Reconstruction Plan in March 2014. This Countywide Plan includes several projects, which were not specifically identified in the earlier resiliency/reconstruction planning efforts, but are nonetheless applicable throughout the County and complement earlier planning efforts.

B. Description of Summer 2013 Storm Damage and Locations Prone to Frequent Flooding

Between June 26, 2013 and July 3, 2013, the persistent summer rains caused the Mohawk River, and many of its tributaries (including the Otsquago Creek and Canajoharie Creek) to overflow, inundating the surrounding communities. The flooding was of such a magnitude that on June 28, 2013, New York Governor Andrew M. Cuomo issued a Disaster Declaration for communities throughout the Mohawk River Valley. Shortly thereafter, on July 1, 2013, in a letter to President Barack Obama, Governor Cuomo requested a Major Disaster Declaration for the damaged areas in New York State. In response to that request, on July 12, 2013 – Federal Emergency Management Agency (FEMA) issued Major Disaster Declaration 4129 – New York Severe Storms and Flooding. Damage to infrastructure throughout 12 counties resulted in the allocation of more than \$32.7 million in public assistance. Within Montgomery County, the most significant damage was concentrated in the Towns of Minden and St. Johnsville; and the Villages of Fort Plain, Canajoharie, St. Johnsville, Fonda, Fort Johnson, and Fultonville; and the Hamlet of Burtonsville.

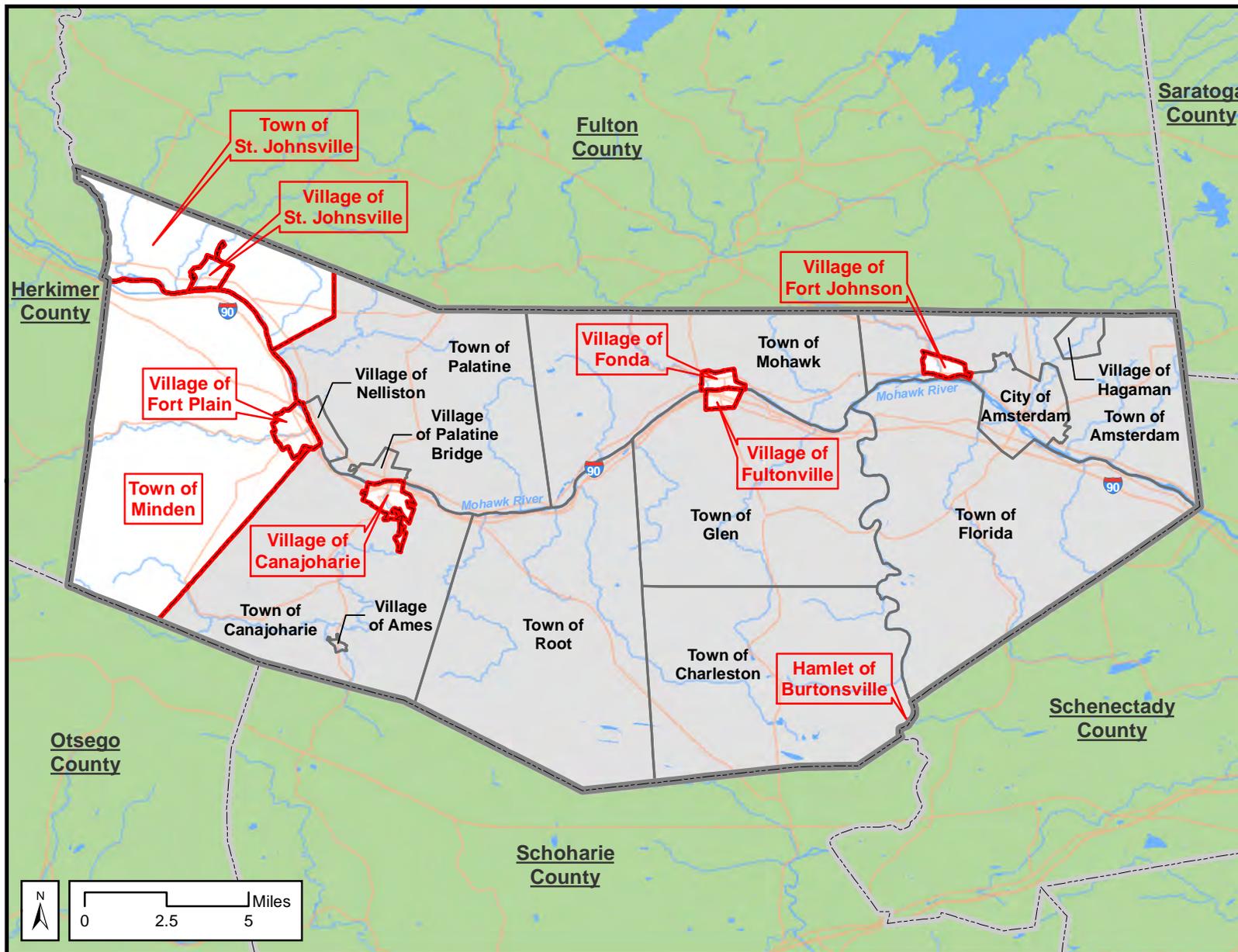


Flooding in Fort Plain, June 2013 Storm (Jeff Smith)

The rising waters of the Mohawk River during and after the June 2013 storms, completely flooded Lock 14 of the Erie Canal in Canajoharie, and as debris piled high, the surrounding river banks were inundated resulting in widespread damage. A U.S. Geological Survey official concluded that “the height of the Otsquago Creek in Fort Plain in the 2013 flood was seven feet higher than its previously recorded high mark” (Cudmore 2013). Such flooding led to stream bank failures along sections of the Otsquago and Canajoharie Creeks, as well as along Lassellville Road in St. Johnsville. Storm drainage issues in many communities were exacerbated by culverts that were laden with debris.

The Village of Fort Plain and the Town of Minden were particularly ravaged in the June 2013 storms. Over 100 homes and numerous businesses in the Village of Fort Plain along the Otsquago Creek were inundated by floodwaters, which undermined building foundations, destroyed belongings, and in some cases washed entire structures away. When the Town Barn flooded, the Town of Minden lost all of its irreplaceable historic records. Press reports showed conditions that were daunting: “Dozens of people stuck in their homes.” (Breaking News, CBS 6 Albany, June 28, 2013); “Every bridge that passes over the creek was at worst destroyed, or, at best, left severely damaged. Acres of earth and stone were swept away by the

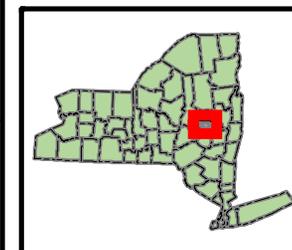
Figure I-1 Montgomery County NYRCR Planning Area



- Montgomery County (Geographic Scope)
- Communities Subject to Repetitive Flooding
- Other NYS Counties
- Major Roads
- Rivers & Streams
- Water Bodies

Data Sources:
Montgomery County
NYSDHSES
NYSITS

May 2014



torrents. Land that props up hillside roads was left weakened and unsecured. The water, which surged 20 to 30 feet over its normal levels in some places, eviscerated entire lanes of creekside roads.” (Times Union, August 18, 2013).

Throughout the County, residences and business areas closest to the Mohawk River suffered most, with loss of utilities, flooded properties, and failing drainage systems. Many roads eroded due to the flooding. Damaged roads and closed bridges led to traffic gridlock, preventing through travel for residents, emergency service workers and ultimately preventing residents from getting to work. The St. Johnsville Dive and Rescue Team was in Herkimer rescuing stranded motorists and were not able to get to Fort Plain to immediately respond to a call for rescue of an elderly woman swept away in flood waters. By the time they arrived in Fort Plain, it was too dangerous to be on the river.

Floodwaters inundated farmland, resulting in damage to agricultural crops that in many cases represent the livelihood of residents. One Fultonville resident explained: “Our entire village has been severely impacted during the recent floods. Better river management is paramount to preventing such damage” (Online survey, 2014). Residents in many municipalities also listed power outages, the loss of utilities and subsequent business interruptions as major challenges experienced during the June 2013 storm events.

Many businesses in the Village of Fort Plain were entirely destroyed – some of which remain closed today and will likely remain closed due to significant irreparable damage and lack of funding for rehabilitation or restoration. Village of Fort Plain personnel estimated that portions of downtown Fort Plain were submerged in over eight feet of water. Key businesses such as the Save-a-Lot and the Family Dollar were severely damaged. Save-A-Lot, the Village of Fort Plain’s only grocery store was closed for three months; all inventory was lost. Because the next closest grocery store is located approximately two miles



Library Archives Destroyed in Basement Flood (Diane Fornberg)

away, the closure of the Save-A-Lot resulted in a considerable hardship for residents without access to cars. Similarly, the Family Dollar, which is the only department store in Fort Plain, and critical to the population, was entirely destroyed and currently remains closed. Initially, the damage was so complete that despite being the most profitable Family Dollar store in New York State, representatives of the company indicated that they were not going to reopen. Town and County officials convinced the store ownership to reopen because of the need.

Immediately following the 2013 flood, approximately 90 percent of business owners in the Village of Fort Plain and Town of Minden said they were not going to reopen, however, assistance from various sources have enabled many businesses to rebuild and more continue to emerge as additional resources are made available.

Recovery initiatives were swift and widespread following these storm events. Emergency service providers throughout the County were supported by countless volunteers within the various communities. The St. Johnsville Fire Department operates a Dive Rescue and Recovery Unit that participated in the rescue effort throughout Montgomery County and neighboring Herkimer County. The Fort Plain Reformed Church provided a central location for residents and

volunteers to come for information and be assigned to work sites, and facilitated a volunteer center for provision of ongoing services. The Church also provided daily meals for “the initial crisis time”, spanning three weeks immediately following the storm events.

It is important to note that following the 2013 storm events, New York State stepped in to provide assistance to these communities filling a gap left by lack of FEMA assistance. On July 17, 2013, in response to the widespread flood damage, Governor Cuomo created the Mohawk Valley, Niagara County, and 2013 Upstate Flood Recovery Program (Program). The Program provides immediate recovery funds to address storm damages; address gaps in disaster related coverage; and assist the communities to recover from storm impacts. Communities in this Program were designated NY Rising Community Reconstruction Communities, making them eligible for additional funding to assist in long-term recovery planning. As part of this initiative, Governor Cuomo announced \$500,000 would be allocated to undertake comprehensive watershed assessments of nine sub-basins that are tributary to the Mohawk River - including the Otsquago Creek. The NYSDOT, in cooperation with New York State Department of Environmental Conservation (NYSDEC), and a private engineering firm completed detailed reports for each of the high flood risk sub-basins to identify the cause(s) of flooding and provide specific recommended projects for reducing flood water elevations in the communities most affected by flooding. Some of the recommended recovery projects resulting from this analysis along the Otsquago Creek in the Village of Fort Plain and the Town of Minden were presented in the NYRCR Storm Recovery Projects for Montgomery County prepared in March 2014.

Unfortunately, these floods were not an isolated incident. Conversely, they were just the latest in a persistent pattern of destructive flooding. Significant flood events that impacted Montgomery County in recent years included flooding caused by Hurricane Irene and Tropical Storm Lee in 2011, and summer flooding

on June 28, 2006, seven years prior – to the day of the June 2013 storm. Flooding from the Mohawk River was exacerbated by flooding from the tributaries, causing widespread, significant damage. The Montgomery County Office Building was flooded and inaccessible for seven days resulting in the closure of the County Government; St. Mary’s Hospital in Amsterdam was evacuated and the flooding was so intense that the New York State Thruway (Interstate 90) was closed for two days. Many bridges were closed isolating whole communities and making emergency access extremely difficult. The New York State Canal system was out of operation for several months due to damaged locks. Following some temporary repairs, the Canal reopened briefly in the fall of 2006 to release boat traffic before it closed again for the winter. In St. Johnsville, a large mudslide on Town property dumped directly into the Creek backing up water, completely taking out the foundation and destroying a residence. Once the water finally broke through the mud, the force of the flow inundated everything in its path. According to the Fire Chief in St. Johnsville, there was more than six inches of water in the baseball fields. Subsequently, FEMA sheet-piled, stabilized the slope and the entire creek bank and it has been functioning well since then.



Aerial Photo of Village through Trees (Jacklyn Hakes)

In 2011, Hurricane Irene (August 28, 2011) followed almost immediately by Tropical Storm Lee (September 7, 2011) brought heavy rains to the Mohawk Valley, displacing over 150 people and causing widespread damage. President Obama issued a major disaster declaration for both storms. Power outages at the Montgomery County office buildings in the Village of Fonda led to slowdowns in the delivery of critical services to individual communities. Communities that rely on County services, such as the County Office of Emergency Management, were isolated and inaccessible due to power failures and washed out bridges and roads. Ambulance service providers were not able to transport patients to hospitals due to road closures. In addition, one of the County's few cellular towers was damaged, compromising the ability of emergency service personnel to communicate efficiently.

The Town Highway Garage along Brimstone Creek in Canajoharie flooded during Hurricane Irene and Tropical Storm Lee compromising the ability for Town personnel to access necessary equipment stored in that facility. Similarly, the Montgomery County Public Health Department was flooded making it more difficult for the Department to coordinate and manage shelters.

Storm sewers in the Village of St. Johnsville were overwhelmed, when they were clogged with debris causing flooding in and around East Main Street. Similarly the old stone storm sewers in the Village of Canajoharie became clogged with debris causing flooding in adjacent neighborhoods. St. Mary's Hospital in the City of Amsterdam was forced to evacuate due to major flooding in the adjacent residential neighborhoods.

The permanent collection of the Arkell Museum in Canajoharie includes paintings that have served as ambassadors to museums across the world, as well as local history archives and sculptures, attracting thousands of visitors annually to Montgomery County. This critical historic and cultural resource has four exhibition spaces--but like most museums, the majority of the collection at any given time is in collections

storage, which is located in the basement level of the museum. The storage area – and some of the collection – suffered major water issues during Hurricane Irene and Tropical Storm Lee damaging many of the Museum's valuable paintings and archives.

Every time Montgomery County's communities are hit by extreme flooding, the result is immediate, physical damage to essential infrastructure, bridges and homes as well as more persistent long term economic impacts. Recovery is an ongoing effort that often is set back by yet another event.

C. Critical Issues

Residents and businesses throughout Montgomery County not only suffered personal and material loss from the impacts of Hurricane Irene, Tropical Storm Lee and in particular, the summer 2013 storms, but also witnessed tremendous support and kindness in the storms' aftermath. Some of the critical issues facing the community and region were immediately evident, while others were subsequently fully realized. The degree to which the communities rely on each other for basic services and needs is not fully realized until access is cut off – an issue that was so widespread during extreme storm events that it crippled some municipalities for days and even weeks.



*Flooded Residential Properties, Reid Street, Village of Fort Plain
– June 2013 Storm (Jeff Smith)*

The key issues facing the Montgomery County municipalities affect both their ability to withstand the impact of various storms and also their ability to recover from the storms. The following is a list of critical issues identified by the NYRCR Montgomery County Communities:

1. Lack of Seamless Emergency Communication Infrastructure and Emergency Preparedness

One of the issues that repeatedly came up through the planning process was the lack of coordinated communication infrastructure. At present, police and EMS service providers operate on a high band radio frequency, while the fire departments, and the Town and County Departments of Public Works have not yet converted to this same band. Emergency service providers were forced to communicate by their own cell phones, where service was available. Inter-municipal and mutual aid emergency service coordination is critical during and after storm events to identify road closures and detour routes and was hampered by the lack of a coordinated regional system.

The Montgomery County Office of the Aging, while not an emergency service provider, assists residents with information, referrals and case management services. Due to sporadic communication issues amongst all providers, it was difficult for the Office of the Aging to identify what needs were being met by other providers and where they should focus their attention.

The County has made significant investment in regional communication infrastructure, installing new microwave technology, but additional resources are required. Improvements to regional communication infrastructure are critical to ensure seamless assistance to people in need and communication between the emergency service providers for efficient emergency response.



Office of Emergency Management Recovery Efforts in the Village of Fort Plain – June 2013 Storms (Jeff Smith)

Provision of better warning systems along the region's waterways, including additional and upgraded stream and precipitation gages would allow the County's emergency management personnel to have the necessary forewarning for major storm events and anticipate and prepare for these events. Currently emergency teams have a limited number of essential dive rescue suits and equipment. Additional equipment for dive and rescue teams would allow for more widespread rescue initiatives.

2. Inundation of Critical County Infrastructure

There is a current and pressing need to relocate key municipal and emergency service infrastructure out of the floodplain, in particular the Montgomery County Annex and other County facilities in Fonda, which were inundated during the 2006 and 2013 Storms, forcing the prolonged relocation of vital county emergency services. The Town of Canajoharie Highway Department garage located on West Ames Road in Canajoharie along the Brimstone Creek flooded during Hurricane Irene, Tropical Storm Lee and the June 2013 storms. The displacement of these facilities results in further complications for provision of these key services.

3. Flooding of Businesses

Many of the rural Montgomery County towns and villages rely on one or two grocery stores, one pharmacy, one bank, and one gas station for their food and fuel needs. Following Hurricane Irene, Tropical Storm Lee and the summer 2013 storms, many municipalities' only businesses were inundated by floodwaters resulting in a loss of basic goods and services including food, pharmaceuticals, gas for generators, and banking. Because major through-roads were impassable for extended periods due to bridge flooding, roadway collapse, and downed trees and power lines, residents were not only unable to access basic needs within their own municipalities, but also could not travel to neighboring municipalities.

There is a clear need to better protect Montgomery County business centers from future flood events. Critical additional recovery needs include: infrastructure for flood protection during and immediately following storm events, business assistance in the form of loans and grants, equipment needs, facility relocation, and secondary/back-up power sources.



Museum Basement Collections Flooded (Diane Fornberg)

4. Inundation of Farms and Farmland

Crop and livestock farms are frequently located in the floodplain and these uses are generally suitable for that environment. Likewise, farms not located in the floodplain often border major tributaries to the Mohawk River. During storm events, floodwaters overtopping the banks of the River and its tributaries erode away valuable farmland, rendering farmland particularly vulnerable to loss. In rural Montgomery County, much of the economy is supported by commodity and livestock farming. Farms throughout the County were inundated by floodwaters. Crops not lost to the flood waters or land not lost to erosion outright, were, in many cases, un-marketable due to the extent of inundation and exposure to harmful bacteria.

During and after major storm events, when roads and bridges are closed, and through travel is impossible, there is a need for an uninterrupted supply chain for food, and supplies for livestock farms. Provision of these goods helps sustain large animals thereby supporting the resiliency of the farm and agricultural community.

5. Flooding of Residential Neighborhoods

Throughout Montgomery County, homes and in some cases entire neighborhoods are subject to repetitive flooding, not only during extreme storm events, but also during typical storm events and the spring thaw. Residences located within the floodplain are particularly vulnerable highlighting a need for housing rehabilitation programs, and homeowner assistance to rehabilitate structures and protect their residences from future flooding. Another issue is the ability to relocate neighborhoods outside the floodplain, but within the same community to retain the tax base. Other critical issues include educating residents about available financing to elevate their homes, acquisition, relocation, and flood proofing programs.

There is a need to protect neighborhoods and homes from future flooding, and restrict future development of homes to areas outside the flood plain and flood

prone areas. Critical issues identified include a need to re-examine zoning and building codes to eliminate development in the floodplain, or where development may be allowed, to ensure proper elevation and usage of flood resistant materials; requiring additional protective measures for structures currently located in the floodplain or flood prone areas; and requiring green infrastructure for treatment of stormwater during and after construction.

6. Stream Bank Erosion and Debris Build-Up

During and after Hurricane Irene and Tropical Storm Lee flooding along the Mohawk River and its tributaries crippled many communities throughout Montgomery County. Flooding of the Otsquago Creek following the 2013 storms destroyed many residences and businesses in the Town of Minden and the Village of Fort Plain. Natural and man-made debris was deposited throughout the rivers and streams and to date, most of it remains, blocking culverts, lodging against bridge abutments, and inhibiting the flow of water. The resulting damage and compromised infrastructure remains not only in these municipalities, but also the municipalities in adjacent Counties. The regional implications of not addressing these flow issues are substantial.

The furious rate of water flow caused massive stream bank erosion throughout the watershed, further



Debris along River Bank (Flickr/N.Y. Governor's Office)

exacerbated by the clogged waterways, pushing water up beyond the floodplain areas, and causing extensive flooding. Much of the resulting damage throughout the municipalities remains today, creating precarious situations during all storm events, and the springtime thaw.

7. Vulnerable, Aging and Deteriorating Infrastructure

Infrastructure vulnerability is a critical issue throughout Montgomery County. Infrastructure repairs and enhancements require significant capital investment and frequently comprise the largest financial allocation a community will make after a disaster. Rebuilding infrastructure in a way that is more resilient is a key to ensuring community-wide resiliency to future storms. Throughout the County, bridges, culverts, roadways, and stormwater management infrastructure are frequently overwhelmed by flood water during major storm events, resulting in failure, and severe damage.

Roadway damage and the inability for residents or emergency service providers to travel unimpeded throughout their towns, villages and the region was a huge obstacle to the recovery effort. The prolonged inability for people to get around, not only severely compromised emergency service personnel, ambulance providers and residents, but also prevented people accessing critical resources and from returning to work after the storms, impacting the local and regional economy. Downed power lines not only cut off electricity, but also cut off roadway access. In addition, power to communication towers was interrupted, further isolating residents revealing a pressing need to better protect communication towers from interruptions of service. The NYRCR Montgomery County NYRCR Planning Committee (NYRCR Committee) identified immediate needs including roadway, bridge and culvert repair and resizing. Improving the stormwater management infrastructure, to mitigate and prevent local roadway flooding is critical to the overall resiliency of the community.

8. Access to Critical Healthcare During and After Storm Events

Access to St. Mary's Hospital in the City of Amsterdam during and after the storm events was severely compromised due to road closures, revealing a need to evaluate access to health and social services. Road closures prevented ambulances from getting where they needed to go, and inhibited emergency personnel from reaching those in need. The ability to provide expedited medical services throughout the County is critical. Increasing the number of trained medical volunteers and ensuring the availability of fully equipped temporary medical shelters on the south side of the Mohawk River is critical to overall emergency preparedness. Ensuring that public health, health care facilities and essential social services needs are restored straightaway is critical to community recovery.

Following the storm events, the Montgomery County Emergency Management Department identified a pressing need to identify and equip regional shelters to accommodate small animals and they took action to fulfill this need. When residents are forced to evacuate their homes, they should be assured of safe haven that is equipped not only for them, but also for their pets. The Emergency Management Department secured a trailer for storage of pet-related equipment, including fencing, leashes, bowls, etc. and contacted the emergency shelter locations (generally schools) to ensure that sufficient space is set aside in garage bays to accommodate pets.

9. Lack of Secure Storage for Historic and Cultural Resources

Valuable historic records archives for both the Town of Minden and at the Arkell Museum were damaged revealing a pressing need to provide secure, climate controlled storage areas for these critical documents and extraordinary legacies of American history.

D. Vision

NYRCR Montgomery County's Vision Statement was developed during the initial stages of the planning process. The NYRCR Committee discussed their communities' current resources, both tangible and intangible, and discussed how they imagined a future safe from extreme weather events.

Creating a unified vision for Montgomery County was critical. Many communities are represented in this NYRCR planning process and a key to the long term County-wide resiliency effort is a shared vision for the future to guide community recovery and serve as a foundation for reconstruction efforts. Most importantly, this Vision Statement is a testimony to Montgomery County's commitment to creating a resilient future.

The NYRCR Montgomery County Vision Statement:

Our vision is to work as a region to protect our residents, commercial centers and other economic drivers, historic resources, infrastructure assets, and natural systems by identifying and implementing sound recommendations aimed at increasing resiliency.

To achieve this vision, Montgomery County will design and implement County-wide infrastructure that will minimize the impact of disasters on our residents, protect our assets from storm damage and facilitate rapid recovery.

E. Relationship to Regional Plans

Many regional planning efforts have been undertaken throughout Montgomery County and the larger Mohawk Valley, both before and after the storms. Because this is a Countywide Plan, Montgomery County is in a unique position to develop coordinated regional planning initiatives. Many key systems that support community functioning, including infrastructure, watershed ecosystems, critical facilities and health and social services are interconnected and reach beyond municipal boundaries. As such, efficient planning must be done at both the local and regional level, to recognize the common issues, challenges, goals and opportunities of the region.

The goal of the regional document review was to highlight previously identified needs and initiatives but also to identify gaps. In addition, it was important to build on existing planning efforts and identify groups that were working towards similar flood mitigation initiatives to allow for opportunities for collaborative work. Early regional collaboration is also critical to improve general cooperation and reduce barriers to project implementation moving forward.



Aerial Photo of Canajoharie, (Diane Fornsberg)

To this end, the Consultant Team performed a comprehensive review of existing planning documents that would help inform the NYRCR planning process. Key intelligence gathered during the plan review included:

- ▶ Collective action within the Mohawk River Watershed is necessary for regional watershed planning that focuses on flood hazard risk reduction to increase the region’s long-term resiliency;
- ▶ A better understanding of the hydrology of the watershed is needed to address flood hazard risk reduction;
- ▶ Additional coordination and cooperation between entities at the municipal, county, regional and watershed level are needed to decrease vulnerability of and increase resiliency throughout Montgomery County;
- ▶ The conservation, protection and replenishment of the region’s critical natural resources are key to flood mitigation, climate adaptation and a more sustainable Mohawk Valley;
- ▶ The Erie Canal Corridor is a significant regional asset relevant to historic preservation, conservation, recreation, tourism, economic and community development planning and is relevant to all aspects flood mitigation and of resiliency planning; and
- ▶ Regional communication infrastructure must be improved so that emergency service providers can better serve people in need.

Table I-2 presents an abridged list of local and regional planning documents and resources that were reviewed by the Consultant Team.

Table I-2 Regional Plans

Plan Name	Description	Key Lessons and Input for NYRCR Plan
Montgomery County Plan		
Western Montgomery County Local Waterfront Revitalization Program	Characterization of existing land use of the watershed. A strategy to provide long term uses and projects to protect and improve the waterfront.	Assessment of how transportation, utilities, and local infrastructure interact with the watershed; environmentally sensitive features and zoning along the waterfront; proposed projects in Western Montgomery County with estimated costs, with techniques for funding and implementation
Montgomery County Multi-Jurisdictional All-Hazard Mitigation Plan (2008)	Extensive analysis of hazards that threaten the County and ways to reduce future damages associated with these hazards	County profile (demographics, land use trends, inventory of critical facilities); inventory of hazards risks and vulnerability assessment of flooding/severe storms; mitigation strategies
Montgomery County All-Hazard Mitigation Plan Update	Update to the 2008 All-Hazard Mitigation Plan. Will include county-wide risk assessment and identification of strategies and projects to mitigate future damage from natural hazards	In Progress
Mohawk Valley Coordinated Transportation Plan (2009)	Inventory of existing transportation programs and identification of target areas for improvement	No direct discussion of issues related to flooding and natural hazards. Montgomery needs to improve access to essential services for youth and elderly populations as well as expand public transit.
Mid-Montgomery County Local Waterfront Revitalization Plan (2009)	Funded by the NYS DOS LWRP Program through the Environmental Protection Fund. Towns of Mohawk and Glen, Villages of Fonda and Fultonville developed goals and promote waterfront revitalization projects at an inter-municipal level, including enhancing public waterfront access opportunities, revitalizing downtown areas, protecting community character and improving opportunities canal-related tourism	Inventory of planning efforts and community resources, land use; community and economic profiles; recommendations for waterfront-related projects; description of flood plains and flood of 2006
UC Tomorrow - Sustainable Economic Development Plan	Economic development trends, best practices and strategies for Ulster County as a whole	Minimal discussion of issues with flooding/natural hazards
A Three-County Regional Housing Needs Assessment: Orange, Dutchess and Ulster Counties from 2006-2020	Regional study identifying housing stock, economic and demographic forecasts, condition and affordability issues, housing needs and gap analysis, municipal allocations, targets and strategies	Comprehensive needs and gap analysis for Ulster County
Watershed Plans		
Mohawk River Basin Action Agenda (2012-2016)	Summary of challenges and Action Plan for the Mohawk River Basin regarding Fish, Wildlife and Habitats; Water Quality; Flood Hazard Risk Reduction; Community Planning and Revitalization; Working Landscapes, Land Use and Open Space.	Description of Flood Hazard Risk throughout the watershed, identification of specific actions and targets for flood mitigation at the river basin level
Mohawk Watershed Comprehensive Management Plan	Funded by the NYS DOS LWRP through the Environmental Protection Fund. Plan will address agricultural runoff, nonpoint source pollution and habitat protection and develop a comprehensive approach to watershed management planning.	In Progress

Table I-2 Regional Plans

Plan Name	Description	Key Lessons and Input for NYRCR Plan
Floodplain Assessment for the Mohawk River (2012)	Floodplain assessment for a portion of the Mohawk River to estimate the extent of potential damage to structures at risk from various future flooding scenarios	Inventory of critical facilities and flood hazards along the Mohawk River; recommendations for mitigation and actions to help protect critical facilities
Upper Esopus Creek Management Plan (Jan. 2007)	Primary goals of the plan include managing flooding/erosion and improving water quality	Detailed inventory of assets, opportunities, threats to flooding, erosion and water quality, ecosystems and recreation. Detailed stream management recommendations
Walkkill River Watershed Conservation and Management Plan (Jan. 2007)	Summary of general recommendations for Walkkill watershed	Includes recent riparian and water quality projects in New Paltz
Regional Plans		
Mohawk Valley Cleaner, Greener, Communities Sustainability Plan (2013)	Establishes sustainability goals and actions for the Mohawk Valley relating to economic development, transportation, land use and livable communities, water management, materials management, energy, agriculture and forestry.	Assessment of available natural resources and economic assets, liabilities and opportunities; outline of short- and long-term actions the region can undertake to meet its sustainability goals; discussion of the relationship between flood events, water and waste management and climate adaptation; overlapping goals with NYRCR Plan
Mohawk Valley Regional Economic Development Council 2013 Action Plan (2013)	Analytical reporting document that discusses current and past CFA projects, the status of regional initiatives and economic development strategies outlined in the 5-Year Strategic Plan, and introduction of the 2014 priority projects	Provides overview of CFA funded priority projects and action items moving forward to grow business, build workforce, create pathways to innovation, revive infrastructure, and forge partnerships; information on the Mighty Waters Working Group; overlapping goals with NYRCR Plan
Regional Business Plan for Fulton and Montgomery Counties (2011)	Regional background and impact analysis; regional business plan presents goals and objectives for furthering economic development	Overlapping goals with NYRCR Plan; Regional SWOT economic analysis; Goal to extend utilities and services throughout the region, specifically water, sewage, and electric
Erie Canalway National Heritage Corridor 2011-2016 Strategic Plan (2011)	Strategic Plan that includes goals and actions to preserve, promote, inform, sustain and manage the varying aspects of the Erie Canalway National Heritage Corridor	Importance of historical asset to region; recommends expansion of waterfront recreational areas and opportunities along corridor
Erie Canalway National Heritage Corridor Preservation and Management Plan (2008)	Outlines primary goals and guiding principles for management and development along the corridor.	Description of management and regional coordination of water resources; not directly relevant to disaster resiliency but important in highlighting importance of various aspects of corridor as an asset to region; waterfront revitalization project example in Amsterdam
DRAFT Hudson River Estuary Habitat Restoration Plan (July 2013)	General strategies for restoring habitat in the lower Hudson River with description of habitat types along the river	Specific projects or locations are not identified

2014 NY RISING COUNTYWIDE RESILIENCY PLAN NYRCR MONTGOMERY COUNTY

Section II Assessment of Risk and Needs





A. Assessment of Needs and Opportunities

After establishing a Community Vision, the Montgomery County NYRCR Planning Committee assessed their County's needs in relation to emergency preparedness, response and recovery and identified opportunities to strengthening these systems. The needs and opportunities provide a basis for the strategies, projects, programs and actions in the Montgomery County NYRCR Resiliency Plan.

Gaps in current protective measures and elements that need to be addressed to make the community safer were identified. Recurring themes such as the need for "real time" communication among emergency service personnel, DPW employees, fire and police, access to health care during storm events, and protecting homes, neighborhoods, and businesses were key considerations. Additional needs as they relate to infrastructure (specifically bridges and old, antiquated storm drainage systems), and natural stream management and debris removal were also of primary concern.

After identifying the critical needs, opportunities to improve long-term resiliency in the County were developed. The NYRCR Committee recognized the importance of better utilizing existing resources by building on existing initiatives such as the "Montgomery County Emergency Management APP", which is intended to provide real time communication between emergency personnel and with residents to alert them of impending storms, identify the safest evacuation routes, access to hospitals and health clinics, and other information. The Office of Emergency Management has received a grant to develop this APP, and intends to roll it out within the next year. The NYRCR Committee suggested an opportunity to capitalize on



Reid Street (left) and Abbott Street (right) Flooding – June 2013 Storm, Village of Fort Plain (Jeff Smith)

this current initiative, by also including locations of pet friendly shelters to the APP design.

The Montgomery County Office of the Aging noted that, following the 2013 storms, it was extremely helpful to have one central location (in this case it was in Fort Plain) where a number of agencies gathered to help serve the people in need. Information was readily available and people could gather all the necessary materials and resources in one location. There is an opportunity to capitalize on these emergency operations systems.

Opportunities to relocate homes and neighborhoods outside of the flood plain but within the same community were identified to address the pressing resiliency need to protect neighborhoods that have been repeatedly impacted by storms. Such programs would provide safe protection of residents and maintain the tax base of the municipality.

An opportunity to address flooding along the entire length of the Mohawk River by integrating with the

NYS Canal Corporation's operations, monitoring and response program was also presented. As this program is being developed by the NYS Canal Corporation, there is an opportunity to expand the monitoring of adjacent tributaries thereby providing additional input data to the Canal Corporation's model.

Although the Montgomery County NYRCR Planning Committee and the community developed the needs and opportunities with their own experience and

circumstances, there remains a common thread in community recovery. The following section provides an overview of the identified needs and opportunities organized by the six key Recovery Support Functions (RSF) that were established by President Obama in 2011 through the National Disaster Recovery Framework. The core recovery capability of each RSF and their relevance to Montgomery County are described below.

The RSF's were designed to "support local governments by facilitating problem solving, improving access to resources and by fostering coordination among State and Federal agencies, nongovernmental partners and stakeholders."

(<http://www.fema.gov/recovery-support-functions>).

Community Planning and Capacity Building: addresses the ability of a municipality to respond to and implement short and long term recovery measures. It encompasses laws, regulations, and planning activities, as well as civic engagement and public education.

Economic Development: identifies actions to fortify the current local and regional economy to make businesses more resilient during acute storm events and help them employ measures to recover quickly and efficiently after the storms have subsided.

Health and Social Services: addresses the community's ability to rebuild and improve vital health and social services, particularly those serving vulnerable populations, to promote the resilience and well-being of residents and overall independence of the community.

Housing: determines the sufficiency, condition and affordability of existing housing stock, evaluates economic conditions to identify where stock and affordability gaps exist and identifies strategies to address those gaps.

Infrastructure: identifies infrastructure that was damaged during the storms, components and facilities that have been patched up until permanent repair or replacement can occur, facilities that have been replaced, and infrastructure that remains untouched since the storm events still requiring significant attention.

Natural and Cultural Resources: focuses on conserving and restoring the health of natural systems and cultural resources so that they may continue to help reduce vulnerability during storm events and promote economic development which will ultimately provide lasting benefits to the well-being and vitality of the community.

Community Planning and Capacity Building

Montgomery County Community Planning and Capacity Building Needs:

- ▶ Improve communication and coordination with state, Federal and municipal governments;
- ▶ Expand public education/outreach initiatives to better increase awareness of the potential impacts of natural disasters;
- ▶ Maintain critical government facilities outside of the floodplain;
- ▶ Maintain storage areas for Town and Village documents that are safe and secure;
- ▶ Stabilize emergency communications throughout Montgomery County;
- ▶ Review existing Town and Village stormwater management regulations and ordinances; and
- ▶ Expand provision of dive rescue and recovery services.

Montgomery County Community Planning and Capacity Building Opportunities:

- ▶ Continue Montgomery Communities NYRCR Program to address regional planning and capacity building needs;
- ▶ Develop a public education campaign(s) to address a wide variety of educational needs including;
 - Build with flood proof materials, retrofit homes and offices, implement methods for elevating, and identify financial resources available for rebuilding;
 - Augment emergency preparedness: what to do when a siren or other early warning systems are activated;
- ▶ Examine Montgomery County government buildings to identify and evaluate opportunities for consolidation of services located outside of the floodplain;



Recovery Efforts on Main Street, Town of Minden – June 2013 Storms (Jeff Smith)

- ▶ Improve safety throughout the County by converting from low band frequency to a VHF high band frequency for 18 Fire Companies, Town and County Departments of Public Work, Police, EMS and other first responders;
- ▶ Expand Dive Rescue and Recovery services currently provided by the St. Johnsville Fire Department; and
- ▶ Ensure communities have adequate stormwater ordinances.

Economic Development

Montgomery County Economic Development Needs:

- ▶ Protect business centers and critical tourism destinations, including the Arkell Museum and the Montgomery County Fairgrounds from future flood damage;
- ▶ Promote tourism as a key economic engine;
- ▶ Protect agricultural land from future flood damage so that it continues to be a prominent economic sector;
- ▶ Provide business assistance to ensure healthy and vibrant downtown areas; and
- ▶ Promote public/private partnerships.

Montgomery County Economic Development Opportunities:

- ▶ Identify and evaluate mitigation options to protect business centers and key tourism destinations;
- ▶ Provide assistance to businesses to protect from future flooding including individual mitigation measures, relocation assistance, and flood proofing;
- ▶ Distribute information on the Small Business Storm Recovery Program (grants and loans) available from NYS Office of Storm Recovery;
- ▶ Develop a regional tourism development strategy;
- ▶ Coordinate with the Fulton Montgomery Regional Chamber of Commerce, existing Industrial Development Agencies and Local Development Corporations to facilitate collaboration between the public and private sector; and
- ▶ Evaluate agriculture as an economic sector and identify opportunities to protect agricultural lands from future flood events.

Health and Social Services

Montgomery County Health and Social Service Needs:

- ▶ Protect health and social service facilities from future flooding; and
- ▶ Trained additional medical volunteers;
- ▶ Provision of medical supplies and medical treatment facilities on the south side of the Mohawk River;
- ▶ Improved emergency preparedness and operations planning to facilitate the evacuation of critical health facilities; and
- ▶ Maintain access to and communication between critical health and social service facilities and providers during storm events.

Montgomery County Health and Social Service Opportunities:

- ▶ Protect key emergency service, health care and social services providers via mitigation measures, elevation, relocation, flood proofing;
- ▶ Encourage mutual aid agreements with adjacent Counties for Public Health/Medical Staff and ensure that the Department of Health will approve State Aid reimbursement for these mutual aid agreements;
- ▶ Investigate the potential to set up a field hospital on the south side of the Mohawk River, potentially in the City of Amsterdam;
- ▶ Secure and install generators in vulnerable facilities; and
- ▶ Coordinate health and social services on a regional basis to ensure adequate access to emergency care during storm events.

Housing

Montgomery County Housing Needs:

- ▶ Protect neighborhoods and individual homes from flooding;
- ▶ Diversify resilient housing choice to ensure that young families and seniors can access suitable and affordable homes including starter homes and senior apartments and cottages;
- ▶ Provide homeowners assistance to rebuild, relocate, and/or flood proof;
- ▶ Relocate neighborhoods that have been impacted by multiple storm events; and
- ▶ Evaluate land management tools to create safe ‘redevelopment zones’ that allow for denser housing and mixed use areas.

Montgomery County Housing Opportunities:

- ▶ Provide assistance to homeowners and renters to protect from future flooding including mitigation measures, elevation, acquisition and relocation, and flood proofing;
- ▶ Assess neighborhoods that have been impacted by multiple storm events to determine if a relocation strategy is a viable option;
- ▶ Examine zoning ordinances and maps to determine if promoting higher density neighborhoods and/or mixed use development is a viable redevelopment option; and
- ▶ Explore relationships with local and regional agencies and not-for-profit organizations to secure and implement state and Federal housing grants.

Infrastructure

Montgomery County Infrastructure Needs:

- ▶ Repair and protect identified infrastructure assets (roads, bridges, culverts, etc.);
- ▶ Improve stormwater management in selected locations; and
- ▶ Maintain an integrated county-wide early warning system that is linked with NYS Canal Corporation.

Montgomery County Infrastructure Opportunities:

- ▶ Protect identified infrastructure assets through mitigation measures such as elevation, relocation and flood proofing;
- ▶ Identify and replace damaged or undersized infrastructure;
- ▶ Work with the NYS Canal Corporation to create an integrated approach to early warning systems; and
- ▶ Continue county-wide inventory and structural assessment of existing bridges and culverts, and prioritize for rehabilitation and replacement.



Governor Cuomo points to damage during a site tour in the Village of Fort Plain (Flickr/N.Y. Governor's Office)

Natural and Cultural Resources

Montgomery County Natural and Cultural Resource Needs:

- ▶ Understand the hydrologic function of the watersheds of major tributaries to the Mohawk River;
- ▶ Protect Town and Village document storage areas from flood damage;
- ▶ Protect key cultural and historic resources, and destinations from flood damage;
- ▶ Clean up stream debris and complete natural stream restoration;
- ▶ Increase infiltration areas to reduce stormwater impacts; and
- ▶ Coordinate with state and local agencies such as NYS Canal Corporation and Montgomery County Soil and Water Conservation Districts on water-related issues.

Montgomery County Natural and Cultural Resource Opportunities:

- ▶ Undertake a comprehensive evaluation of watersheds of major tributaries to the Mohawk River;

- ▶ Implement best practices for stream management;
- ▶ Create secure document storage sites out of the floodplain;
- ▶ Protect cultural and historic destinations by floodproofing or creating off-site, climate controlled structures for storage of irreplaceable collections;
- ▶ Determine gravel removal sites after consideration of stream hydrology;
- ▶ Explore alternative stormwater measures such as green infrastructure to improve stormwater management; and
- ▶ Establish a framework for continued coordination between state, local and Federal agencies on riverine analysis and implementation initiatives.

B. Description of Community Assets

An important step in the NYRCR process is to assess the risk posed to community assets and systems that have been affected by past flood events or may be impacted by future storms. This evaluation assists in the development of projects and strategies that mitigate risk and make the community more resilient.

The assessment of risk to assets and systems in Montgomery County was focused on the nine communities identified as having a historic pattern of repetitive flooding impacts, not only during the extreme storm events, but also during typical storm events and the spring thaw. These communities include: The Towns of Minden and St. Johnsville, the Villages of St. Johnsville, Fort Plain, Canajoharie, Fort Johnson, Fonda, and Fultonville; and the Hamlet of Burtonsville.

The first step in the risk assessment process is to inventory and map assets and system components that provide essential community functions and are proximate to known flood risk areas. Community assets and systems may consist of places, services, groups, or infrastructure networks, and can be categorized into five Asset Classes related to their role in the community, which are as follows:

- Economic
- Health and Social Services
- Housing
- Infrastructure Systems
- Natural and Cultural Resources

The Montgomery County NYRCR Communities' asset inventory was developed by compiling existing digital datasets from multiple municipal, state, and Federal agencies. These asset datasets were cross-referenced and supplemented with aerial imagery and address locators, and collated into an asset inventory listing.



Brookman's Corners Road Bridge – Town of Minden (Jeff Smith)

To streamline the inventory, assets were grouped together if they served the same community function, were located close to one another, or had similar site characteristics. For example, small businesses could be grouped into a downtown center, or single-family homes into a neighborhood. Asset systems were inventoried by enumerating the principal points and components of those systems, such as treatment plants in the wastewater conveyance system and substations in the electric transmission system.

Information was added for each asset, including address, geographic coordinates, risk area, asset class and subcategory, community value, critical facility designation, and whether the asset served socially vulnerable populations. Addresses and geographic coordinates pinpoint the location of assets for mapping, and once mapped allow for risk area identification. Asset classes and subcategories characterize each asset for grouping; community values rank the overall importance of each asset to the community, and FEMA critical facility designations identify assets considered essential to recovery following a storm event. Identifying assets that provide services for socially vulnerable populations, such as children, the elderly, or low-income community members, can help to further enumerate assets that are particularly important both before and following a storm. Additionally, spatial analysis was used to capture

landscape attributes, or features of the landscape that could either mitigate or exacerbate the impacts of flooding and erosion to an asset.

The preliminary asset inventory was presented to the NYRCR Committee and to community residents at Public Engagement Meetings to gain their input and capitalize on their intrinsic understanding of their community. A two-tiered asset inventory methodology was developed and utilized to ensure a comprehensive inventory was collected. The first tier included culling existing digital datasets and the second tier used local knowledge to refine the list of assets. The dataset analysis supplemented the work of the NYRCR Committee by identifying assets that may have been hidden in plain sight—i.e., assets vital to the Community’s health and resilience that go unnoticed on a day-to-day basis because they only become obvious when they fail, such as small roadway bridges and smaller government service offices. Alternatively, assets that may have not been captured in the existing digital datasets or for which digital data did not exist could be enumerated by the community.

As part of their review of the asset inventory, the NYRCR Committee and the community identified the importance of various assets by determining community value rankings. In the Montgomery County NYRCR Communities, assets related to the downtown businesses districts, emergency response, health-care, public works, government facilities, residential housing, and major transportation and sanitary sewer infrastructure received the highest community value ratings.

Community value was expressed as follows:

A **High Value** Community Asset is determined by the Community to be so significant in the support of that Community’s day to day function that the loss of that asset or extended lack of functioning would create severe impacts to the Community’s long-term health and well-being or result in the loss of life or injury to residents, employees, or visitors. High Value Community Assets will also generally be limited in number within a community and be difficult to replace in the short- to mid-term.

A **Medium Value** Community Asset is determined by the Community to be important to the functioning of the Community’s day-to-day life and that the loss of that asset or extended lack of functioning would cause hardship to the Community’s well-being but who’s function could be replaced or duplicated in a mid-term time frame without significant burden to a Community’s long-term health. Median Value Community Assets are generally more common than High Value Assets.

A **Low Value** Community Asset is determined by the Community to play a role in the functioning of a community’s day to day life, but whose loss could be managed and overcome within a community without substantial impact to that community’s functioning. Can be started, replaced, or temporarily duplicated in a short-term time frame with limited burden to a community’s long-term health.

While the asset inventory was developed, maps were also produced to illustrate the geographic distribution of risk areas across the Montgomery County. These maps focused the asset inventory on those areas at risk. Risk areas in riverine inland communities such as those in Montgomery County are synonymous with the floodplains delineated by the Federal Emergency Management Agency, or FEMA. Preliminary FEMA data was utilized for this study because it represented the most-current and best-available floodzone modeling for the planning area. The Risk Areas are defined as follows:

- ▶ **Extreme Risk Area:** The most frequently flooded areas are typically found in the 10-year floodplains, which encompass the Extreme Risk Area. In Montgomery County, the 10-year floodplain had not been digitally modeled by FEMA. Input from members of the Committee as to which places have been frequently inundated and damaged by flooding was used to approximately identify the Extreme Risk Areas within the County. These areas include portions of the floodplain repeatedly impacted by past storms in each of the hardest-hit Communities.
- ▶ **High Risk Area:** The 100-year floodplains encompass the High Risk Area, and are subject to a 1.0% chance of flooding on any given year. These floodzones had been digitally mapped by FEMA in Montgomery County, and can be found throughout the communities along major rivers, streams, and water bodies. High Risk Areas are the most prevalent of the risk zones in the Montgomery planning area.
- ▶ **Moderate Risk Area:** The 500-year floodplains encompass the Moderate Risk Area, and are subject to a 0.2% chance of flooding on any given year. These floodzones had also been digitally mapped by FEMA in Montgomery County, and are typically found on the fringes of High Risk Areas.

The community assets were analyzed to identify the risk areas they may be exposed to, and are summarized by recovery support function as follows.



Governor Cuomo points to damage during a site tour in the Village of Fort Plain (Flickr/N.Y. Governor's Office)

Economic

Assets in the Economic category include downtown centers, business clusters, major employers, industrial and manufacturing centers, and tourism destinations. The cities, towns and villages throughout the County are the primary economic centers. The County also has a significant agricultural base that is an economic driver. Protecting and enhancing the agricultural lands as well as the downtown centers and commercial areas from flood impacts is important to the economic health of the County. There are no Economic assets considered FEMA Critical Facilities. Of particular local significance, however, are small businesses such as the Nice-N-Easy in Fort Plain that have been impacted by past storms and provide basic necessities to nearby low-income community members who lack transportation.

Health and Social Services

Health and Social Services assets include fire protection, police services, hospitals, and emergency operations facilities. Other community assets include administrative and education amenities, which serve a variety of public functions, from health treatment facilities to general purpose shelters in public schools, post offices, and County, Town and Village Office Buildings. During a storm event, these facilities may

potentially serve as critical disaster response and recovery centers, the identification of which is essential to future disaster management and preparedness. Assets key to the emergency response efforts in Montgomery County impacted by past storms include: the Fort Plain Police and Fire Departments and multiple public works facilities such as the Minden and Canajoharie Highway Garages, and the Montgomery County DPW in Fonda. Almost all of the Health and Social Services assets inventoried are classified as FEMA Critical Facilities with the exception of post offices and some administrative services offices.

Housing

A significant number of residential assets within the County are at risk of future flooding. These assets include mostly single-family residential neighborhoods. The County follows a traditional settlement pattern with housing primarily located in towns, villages and hamlets. Many of these residential areas are located near the Mohawk River and its tributaries that have a history of flooding, including the Fort Plain downtown, which was significantly damaged by flooding during the 2013 storm and other smaller neighborhoods and clusters of homes across the County. No housing assets are considered FEMA Critical Facilities.

Infrastructure Systems

Assets in this category include transportation infrastructure, transportation-related facilities and utilities. Utilities include public water supply, stormwater and wastewater systems, power supply, and telecommunications; the distribution and operational networks of which are dispersed throughout the County. The distributed nature of these systems throughout the extreme, high, and moderate risk areas makes the assessment of risk to the overall systems difficult to categorize. In general, if a principal component of a system is located in a risk area, the entire system is vulnerable. As such, it is more straightforward to

assess the risk to specific plants, pump stations, substations, and other key facilities that are critical to the functioning of these networks. Past storms have impacted infrastructure systems across Montgomery County, causing power outages, road washouts, and flooding that hindered emergency responders. Principal points of the wastewater, water supply, and power supply networks inventoried are considered FEMA Critical Facilities; such as sewage treatment plants and electric substations.

Natural and Cultural Resources

Natural and Cultural Resources include natural habitats, wetlands and marshes, recreation facilities, parks, open space, religious establishments, libraries, museums, historic landmarks, and performing arts venues. Storms in Montgomery County have impacted multiple recreational, cultural, and historic assets in the built environment, such as the Soldiers and Sailors Park in St. Johnsville and Old Fort Johnson historic site in Fort Johnson. Natural resources across the County were impacted, including: multiple stream banks that were destabilized by floodwaters and channels that were choked with flood debris, particularly in the Village of Fort Plain, and the Towns of Minden, and St. Johnsville.



Town of Minden Garage (Jacklyn Hakes)

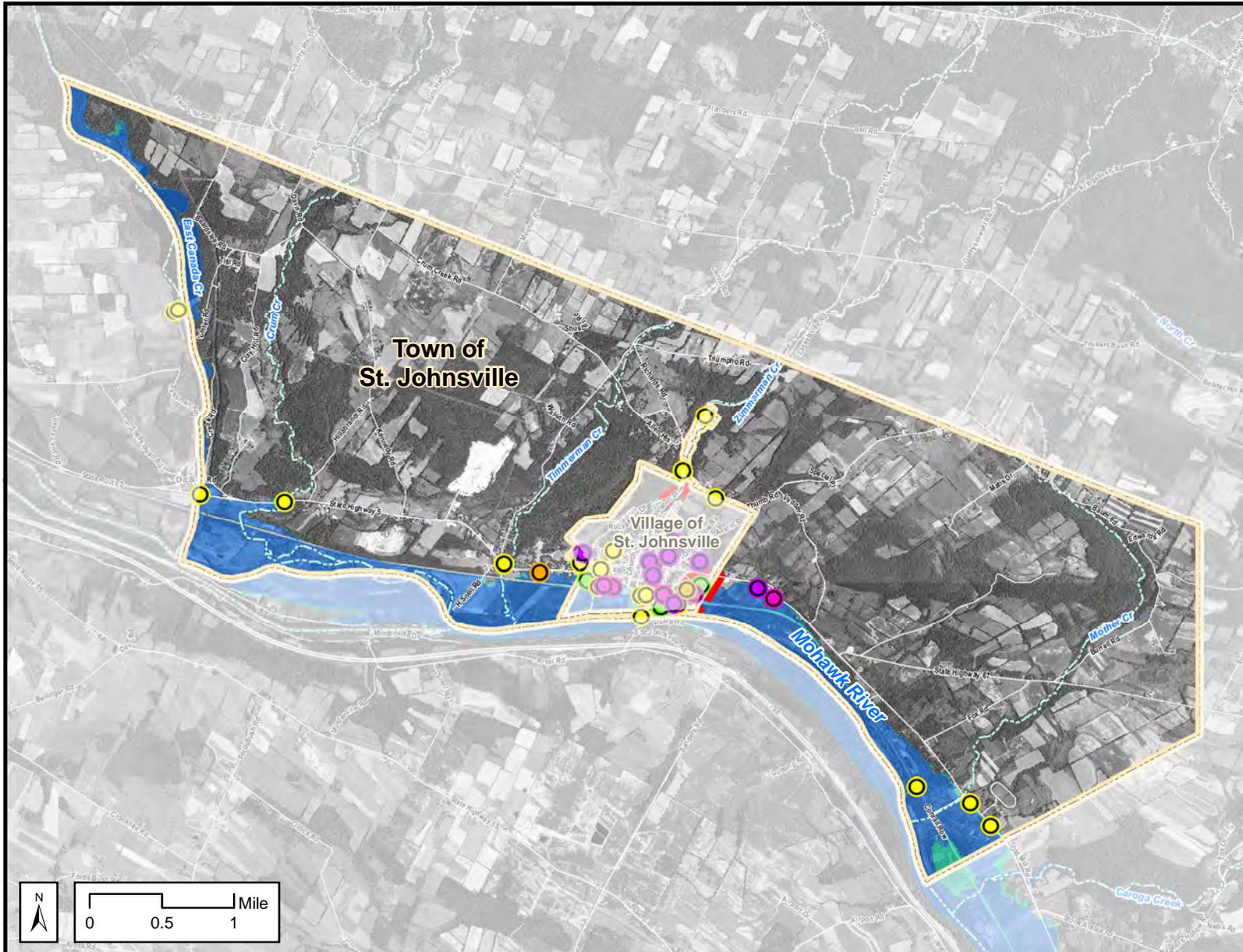
The rivers and creeks of Montgomery County have historically been, and continue to be, a natural and recreational resource. However, these same waterbodies are most likely to cause flooding damage to infrastructure, businesses and residences. These resources are therefore not themselves at risk by virtue of their location in a risk area—however, protecting their health may be critical to the protection of other nearby assets. Montgomery County residents understand the value of letting the rivers return to their natural course and floodplain as a means to improve overall water quality and reduce risk to nearby structures. None of the Natural and Cultural Resource Assets inventoried are FEMA Critical Facilities.

Figures II-1 to II-9 illustrate the risk areas and assets, in detail, found within the Montgomery County Planning Area. Tables II-1 to II-9 list the assets, organized by Recovery Support Function, in each community identified as subject to repetitive flooding. The complete community asset inventory can be found in Section VI.

**Table II-1
Town of St. Johnsville Community Assets**

Recovery Support Function	Asset Name	Community Value	Risk Area
Economic Development	Schuurman Auto Dealer	Medium	High
Health and Social Services	St. Johnsville Rehabilitation & Nursing Center	High	N/A
Health and Social Services	Town of St. Johnsville DPW	High	Moderate
Housing	Town of St. Johnsville Residences at Risk	High	High
Infrastructure	Beardslee Hydroelectric Facility	Medium	High
Infrastructure	Bridge - 5 Crum Creek	Low	N/A
Infrastructure	Bridge - 5 over E Canada Creek	Low	High
Infrastructure	Bridge - 5 over Timmerman Creek	Low	N/A
Infrastructure	Bridge - CR 61 (Bridge St over Erie Canal)	Low	High
Infrastructure	East Canada Lake Dam	Low	High
Infrastructure	NYSDOT Critical Large Culvert	Low	Moderate
Infrastructure	Railroad - Vulnerable Area in T. St. Johnsville	Medium	High
Infrastructure	State Highway 5 - Vulnerable Area in T. St. Johnsville	High	High
Infrastructure	Thumb Rd / Crumb Creek Rd Vulnerable Area	High	Extreme

Figure II-1 Asset Inventory - Town of St. Johnsville



- Town of St. Johnsville
- Roads
- Rivers & Streams

Assets

- Economic
- Health and Social Services
- Housing
- Infrastructure Systems
- Natural and Cultural Resources

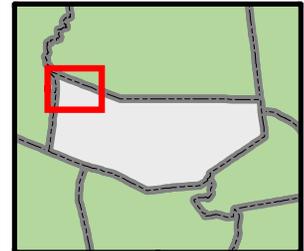
- *Approximate Extreme Risk Zone

FEMA Preliminary Floodzones

- High Risk Zone
- Moderate Risk Zone

*Extreme risk zones identified by Planning Committee

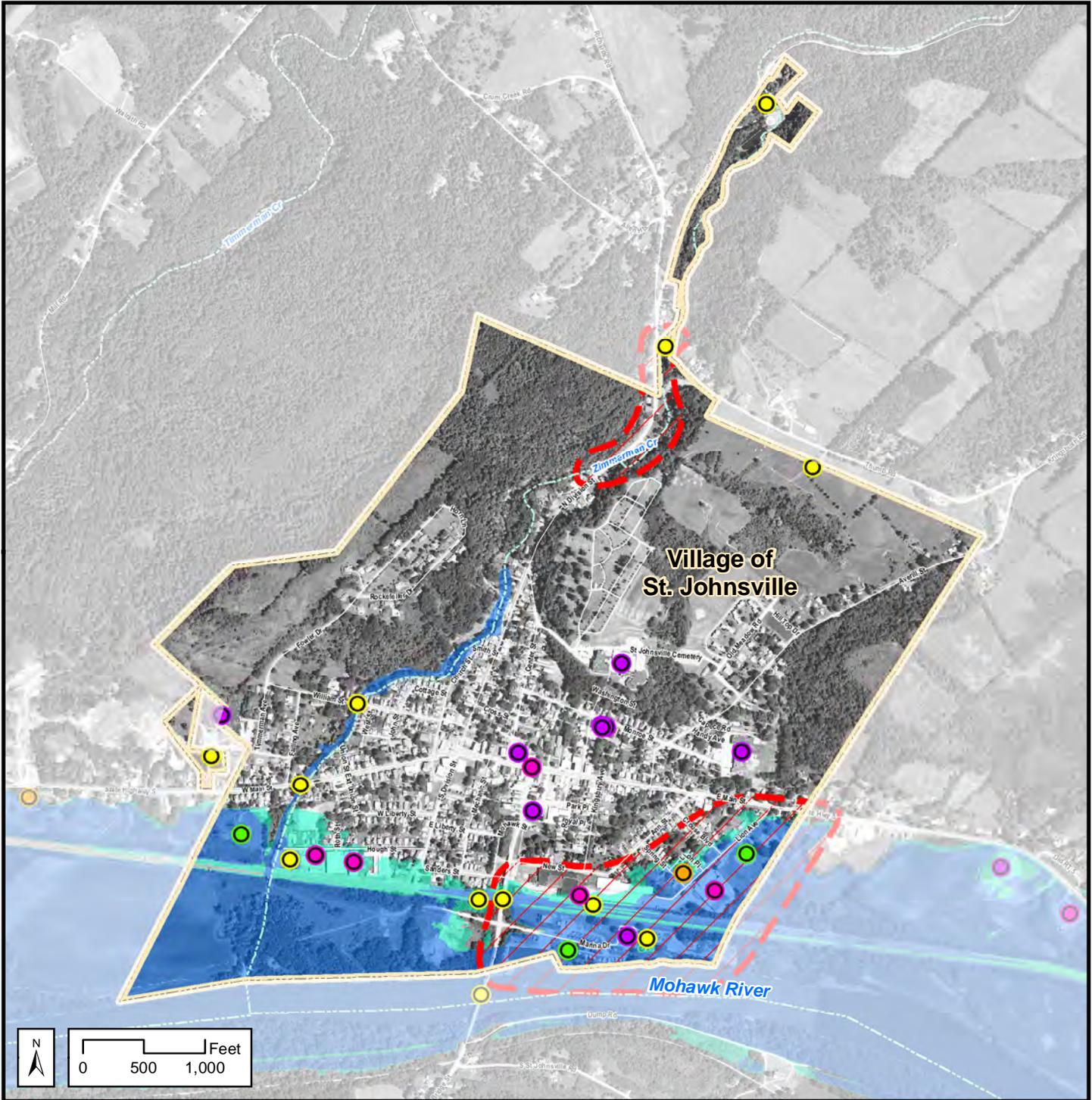
Data Sources:
FEMA
Montgomery County
NAIP
NYS DHSES
June 2014



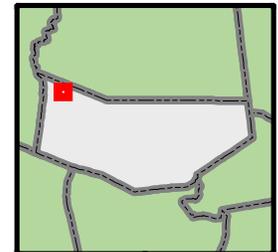
**Table II-2
Village of St. Johnsville Community Assets**

Recovery Support Function	Asset Name	Community Value	Risk Area
Economic Development	Collect Plastics	Medium	Extreme
Economic Development	CH Burkdorf & Son Lumber	Medium	Moderate
Economic Development	Gehring Tricot Corp at Hough St	Medium	Moderate
Economic Development	Gehring Tricot Corp at Lion Ave	Medium	Extreme
Economic Development	Village of St. Johnsville Downtown Businesses	High	N/A
Health and Social Services	Basset Healthcare of St. Johnsville	High	N/A
Health and Social Services	St. Johnsville Central School	High	N/A
Health and Social Services	St. Johnsville Fire Station	High	N/A
Health and Social Services	St. Johnsville High School	High	N/A
Health and Social Services	St. Johnsville Police Department	High	N/A
Health and Social Services	St. Johnsville Volunteer Ambulance Corps.	High	N/A
Health and Social Services	Village of St. Johnsville DPW	High	Extreme
Health and Social Services	Village of St. Johnsville Municipal Hall	High	N/A
Housing	Village of St. Johnsville Residences at Risk	High	Extreme
Infrastructure	Bridge - 5 over Zimmerman Creek	Low	N/A
Infrastructure	Bridge - William St over Zimmerman Creek	Low	N/A
Infrastructure	Bridge St Bridge over Railroad	Low	Extreme
Infrastructure	CSX Transportation St. Johnsville Freight Station	Medium	Extreme
Infrastructure	Niagara Mohawk Substation - St. Johnsville	Medium	High
Infrastructure	Railroad - Vulnerable Area in V. St. Johnsville	Medium	High
Infrastructure	St. Johnsville Village Water Works Drinking Water Treatment Plant	High	N/A
Infrastructure	St. Johnsville Village Water Works Drinking Water Treatment Plant/Well	High	N/A
Infrastructure	Village of St. Johnsville Sewer Treatment Plant	High	Extreme
Infrastructure	Walrath Cell Tower	Medium	N/A
Natural and Cultural Resources	St. Johnsville Little League Park	Low	High
Natural and Cultural Resources	Veteran's Park	Low	Extreme
Natural and Cultural Resources	Village of St. Johnsville Marina / RV Park	Low	Extreme

Figure II-2 Asset Inventory - Village of St. Johnsville



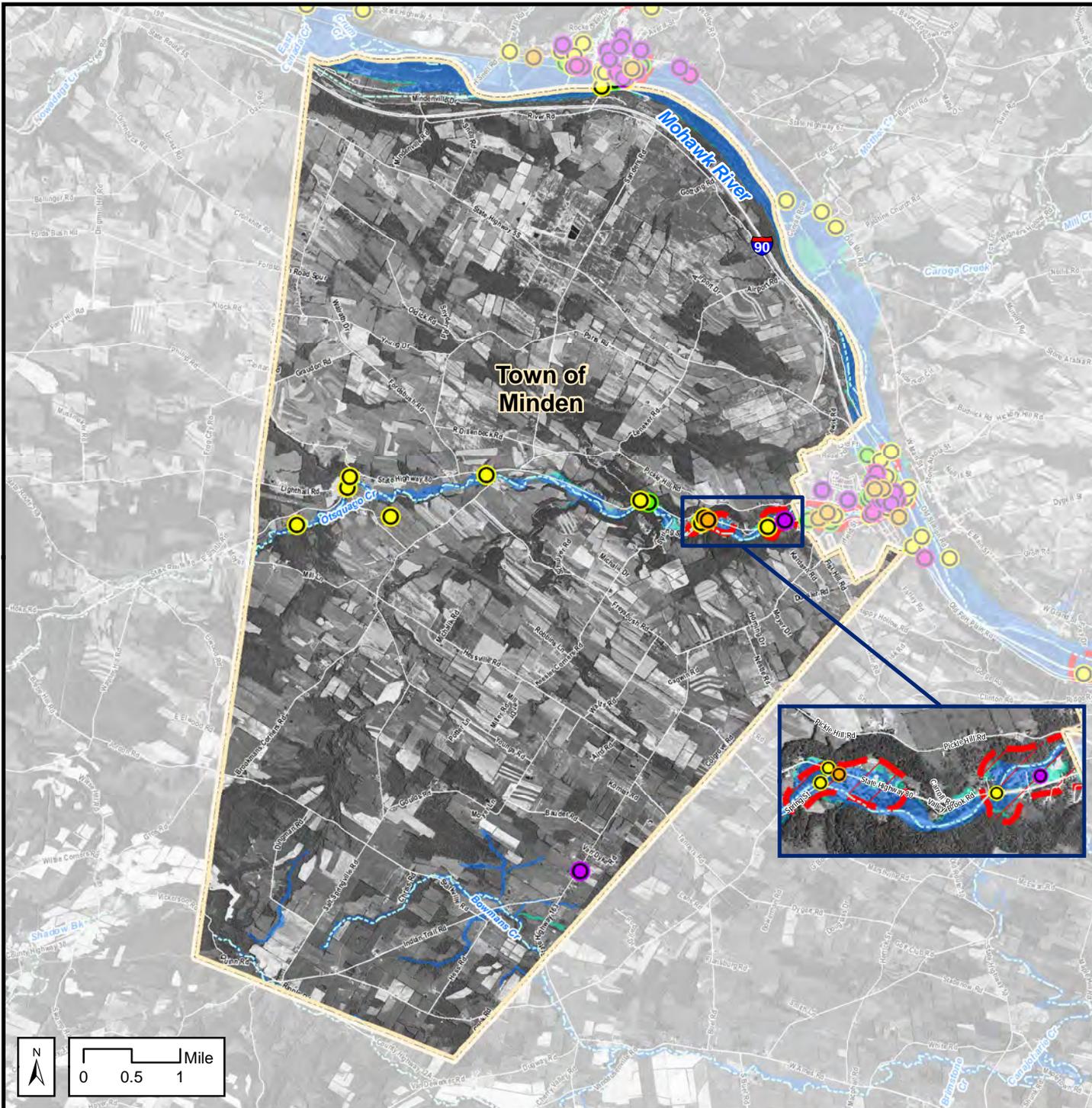
Assets	*Approximate Extreme Risk Zone	Village of St. Johnsville
Economic	FEMA Preliminary Floodzones	Roads
Health and Social Services	High Risk Zone	Rivers & Streams
Housing	Moderate Risk Zone	Data Sources:
Infrastructure Systems	*Extreme risk zones identified by Planning Committee	FEMA
Natural and Cultural Resources		Montgomery County NAIP
		NYSDHSES
		June 2014



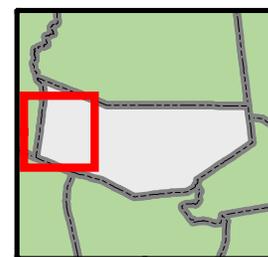
**Table II-3
Town of Minden Community Assets**

Recovery Support Function	Asset Name	Community Value	Risk Area
Health and Social Services	South Minden Fire Station	High	N/A
Health and Social Services	Town of Minden DPW	High	Extreme
Housing	Town of Minden Residences at Risk	High	Extreme
Infrastructure	Bridge - 80 over Otsquago Creek	Low	Extreme
Infrastructure	Bridge - 80 over Otsquene Creek	Low	High
Infrastructure	Bridge - 80 over Slate Creek	Low	N/A
Infrastructure	Bridge - Brookmans Corners Rd over Otsquago Creek	Low	High
Infrastructure	Bridge - Casler Rd over Otsquago Creek	Low	High
Infrastructure	Bridge - CR 61 (Bridge St over Erie Canal)	Low	High
Infrastructure	Bridge - H Moyer Rd over Otsquago Creek	Low	High
Infrastructure	Bridge - Spring St over Otsquago Creek	Low	Extreme
Infrastructure	Montgomery County IDA Elec-Gas Facility	Medium	N/A
Infrastructure	State Highway 80 - Vulnerable Area in T. Minden	High	Extreme
Natural and Cultural Resources	Revelation Ministry	Low	High

Figure II-3 Asset Inventory - Town of Minden



Assets	*Approximate Extreme Risk Zone	Town of Minden
Economic	FEMA Preliminary Floodzones	Roads
Health and Social Services	High Risk Zone	Rivers & Streams
Housing	Moderate Risk Zone	Data Sources:
Infrastructure Systems	*Extreme risk zones identified by Planning Committee	FEMA
Natural and Cultural Resources		Montgomery County NAIP
		NYSDHSES
		June 2014



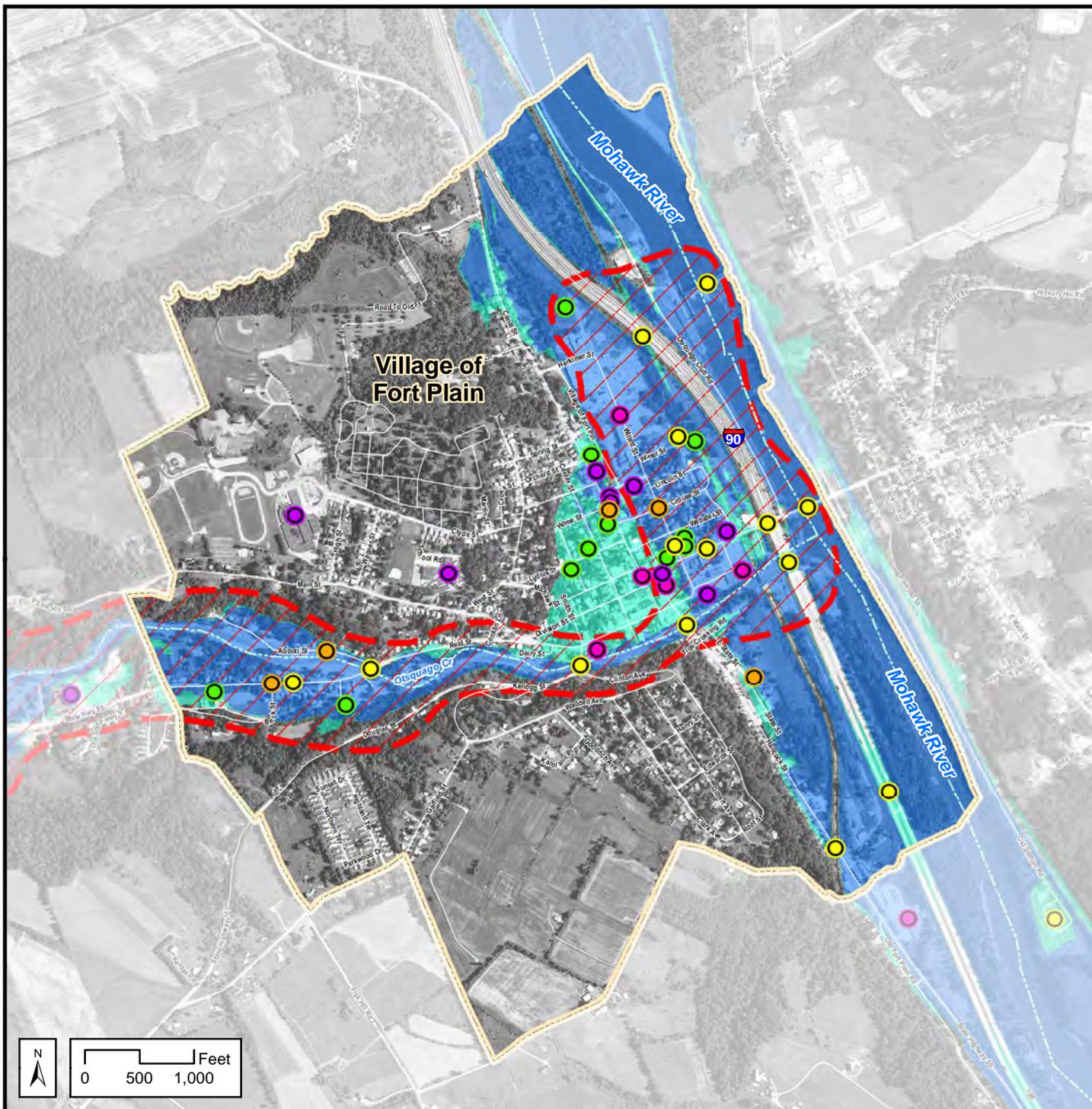
**Table II-4
Village of Fort Plain Community Assets**

Recovery Support Function	Asset Name	Community Value	Risk Area
Economic Development	Dominion Transmission Inc.	Medium	Extreme
Economic Development	Nice N Easy	Medium	Extreme
Economic Development	Save-A-Lot	Medium	Extreme
Economic Development	Village of Fort Plain Commercial Corridor	Medium	Extreme
Economic Development	Village of Fort Plain Downtown Businesses	High	Moderate
Health and Social Services	Access Transportation	Medium	Extreme
Health and Social Services	Fort Plain Central School	High	N/A
Health and Social Services	Fort Plain Elementary School	High	N/A
Health and Social Services	Fort Plain Fire Station	High	High
Health and Social Services	Fort Plain Medical Foundation Offices	High	Extreme
Health and Social Services	Fort Plain Police Department	High	Extreme
Health and Social Services	Fort Plain Post Office	Low	Extreme
Health and Social Services	Fulmont Community Action Agency Food Pantry	Medium	High
Health and Social Services	Village of Fort Plain Municipal Hall	High	High
Housing	Village of Fort Plain Residences at Risk Near Abbott St	High	Extreme
Housing	Village of Fort Plain Residences at Risk Near Canal St	High	High
Housing	Village of Fort Plain Residences at Risk Near Hancock St	High	High
Housing	Village of Fort Plain Residences at Risk Near Reid St	High	Extreme
Housing	Village of Fort Plain Residences at Risk Near Willett St	High	Extreme
Infrastructure	Bridge - 80 over Erie Canal	Low	Extreme
Infrastructure	Bridge - 80 over Otsquago Creek	Low	Extreme
Infrastructure	Bridge - I90 over Canalway Trail	Low	Extreme
Infrastructure	Bridge - 163 over Otsquago Creek	Low	Extreme
Infrastructure	Bridge - 5S over Otsquago Creek	Low	Extreme
Infrastructure	Bridge - Canalway Trail over 5S	Low	High
Infrastructure	Bridge - I90 over 80	Low	Extreme
Infrastructure	Bridge - I90 over Otsquago Creek	Low	Extreme
Infrastructure	Fort Plain Water Works Drinking Water Treatment Plant/Well	High	Extreme

Table II-4
Village of Fort Plain Community Assets

Recovery Support Function	Asset Name	Community Value	Risk Area
Infrastructure	I90 - Vulnerable Area in V. Fort Plain	High	Moderate
Infrastructure	Lock E-15 Dam at Fort Plain	Low	Extreme
Infrastructure	Montgomery County Sewer Treatment Plant	High	Moderate
Infrastructure	State Highway 80 - Vulnerable Area in V. Fort Plain	High	Extreme
Infrastructure	State Highway 80 - Vulnerable Area in V. Fort Plain	High	Extreme
Infrastructure	Willett St Storm Sewer	High	Extreme
Natural and Cultural Resources	Canalway Trail - Vulnerable Area in V. Fort Plain	Low	Extreme
Natural and Cultural Resources	Community Bible Church	Low	Extreme
Natural and Cultural Resources	Fort Plain Reformed Church	Low	High
Natural and Cultural Resources	Fort Plain Senior Center	Low	Moderate
Natural and Cultural Resources	Fort Plain United Methodist Church	Low	Moderate
Natural and Cultural Resources	Fort Plain VFW	Low	Extreme
Natural and Cultural Resources	Grandview Baptist Church	Low	Moderate
Natural and Cultural Resources	St James Catholic Church	Low	Extreme
Natural and Cultural Resources	The Church of Jesus Christ of Latter-Day Saints	Low	Extreme
Natural and Cultural Resources	Veteran Memorial Park	Low	Extreme
Natural and Cultural Resources	Williams Memorial Library	Low	Extreme

Figure II-4 Asset Inventory - Village of Fort Plain



Assets	*Approximate Extreme Risk Zone	Village of Fort Plain
Economic	FEMA Preliminary Floodzones	Roads
Health and Social Services	High Risk Zone	Rivers & Streams
Housing	Moderate Risk Zone	
Infrastructure Systems		Data Sources:
Natural and Cultural Resources	*Extreme risk zones identified by Planning Committee	FEMA
		Montgomery County NAIP
		NYSDHSES
		June 2014



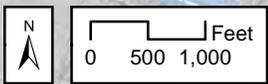
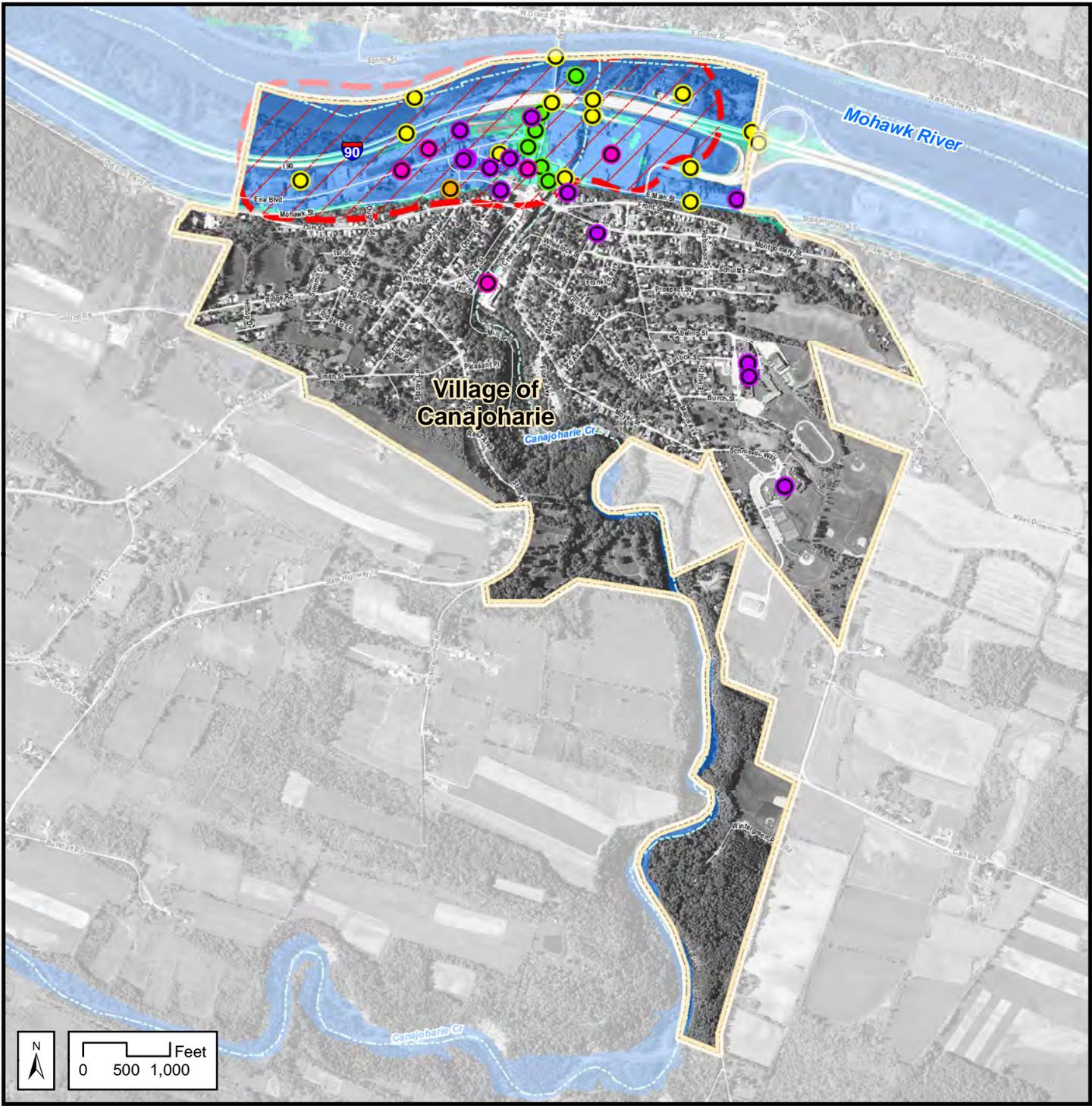
Table II-5
Village of Canajoharie Community Assets

Recovery Support Function	Asset Name	Community Value	Risk Area
Economic Development	Curtis Lumber	Medium	High
Economic Development	Former Beech-Nut Factory	Medium	Extreme
Economic Development	Manufacturers Along Canajoharie Creek	Medium	High
Economic Development	Richardson Brands Co.	Medium	Extreme
Economic Development	Village of Canajoharie Commercial Corridor	Medium	Extreme
Economic Development	Village of Canajoharie Downtown Businesses	High	Extreme
Health and Social Services	Arkell Hall	High	N/A
Health and Social Services	Bassett Healthcare Center of Canajoharie	High	N/A
Health and Social Services	Canajoharie Fire Station	High	Extreme
Health and Social Services	Canajoharie High School	High	N/A
Health and Social Services	Canajoharie Middle School	High	N/A
Health and Social Services	Canajoharie Municipal Hall	High	N/A
Health and Social Services	Canajoharie Police Department	High	Extreme
Health and Social Services	Canajoharie Post Office	Low	Extreme
Health and Social Services	East Hill Elementary School	High	N/A
Health and Social Services	NYSARC Professional Building	Medium	Extreme
Health and Social Services	NYS DOT Canajoharie Facility	High	High
Health and Social Services	St. Mary's Family Health Center of Canajoharie	High	Extreme
Health and Social Services	Village of Canajoharie Offices	High	Extreme
Health and Social Services	Village of Canajoharie Volunteer Firefighters	High	Extreme
Housing	Village of Canajoharie Residences at Risk	High	Extreme
Infrastructure	Bridge - 10 over Mohawk River	Low	Extreme
Infrastructure	Bridge - 5S over Canajoharie Creek	Low	Extreme
Infrastructure	Bridge - Exit Ramp over I90	Low	Moderate
Infrastructure	Bridge - I90 over 10	Low	Extreme
Infrastructure	Bridge - I90 over Incinerator Road	Low	Extreme
Infrastructure	Bridge - Incinerator Rd over Canajoharie Creek	Low	Extreme
Infrastructure	Frontier Communications Building	Low	Extreme
Infrastructure	I90 - Vulnerable Area in V. Canajoharie	High	Extreme
Infrastructure	Lock E-14 Dam at Canajoharie	Low	Extreme

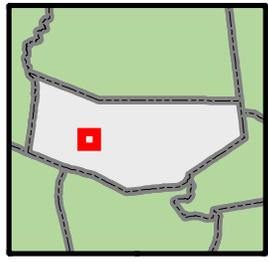
**Table II-5
Village of Canajoharie Community Assets**

Recovery Support Function	Asset Name	Community Value	Risk Area
Infrastructure	Niagara Mohawk Substation - Canajoharie	Medium	Extreme
Infrastructure	State Highway 5S - Vulnerable Area in V. Canajoharie	High	High
Infrastructure	Thruway Exit 29 - I90 & NY5S	High	High
Infrastructure	Thruway Exit 29 Toll Building	Low	Moderate
Infrastructure	Thruway I-90 Bridge (Mile Point 194.1)	Low	Moderate
Infrastructure	Village of Canajoharie Sewage Treatment Plant	High	Extreme
Natural and Cultural Resources	Arkell Museum	Low	Extreme
Natural and Cultural Resources	Canajoharie Community Youth Center	Low	Extreme
Natural and Cultural Resources	Canajoharie Public Library	Low	Extreme
Natural and Cultural Resources	Canajoharie United Methodist Church	Low	Extreme
Natural and Cultural Resources	Fraternal Order of Eagles	Low	Extreme
Natural and Cultural Resources	NYS Canal Corp Park	Low	Extreme
Natural and Cultural Resources	St John's & St Mark's Lutheran Church	Low	Extreme

Figure II-5 Asset Inventory - Village of Canajoharie



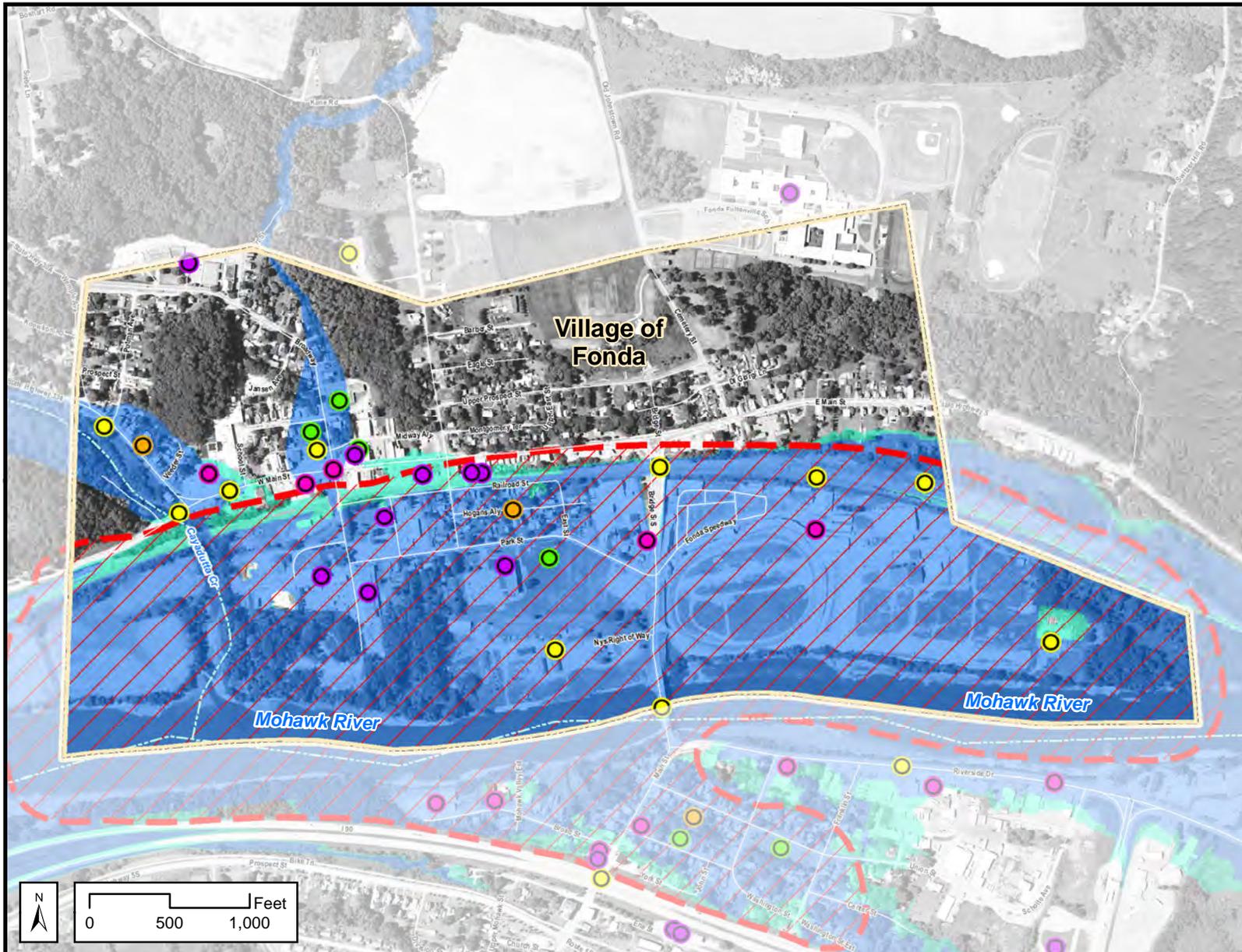
Assets	*Approximate Extreme Risk Zone	Village of Canajoharie
Economic	FEMA Preliminary Floodzones	Roads
Health and Social Services	High Risk Zone	Rivers & Streams
Housing	Moderate Risk Zone	Data Sources:
Infrastructure Systems		FEMA
Natural and Cultural Resources	*Extreme risk zones identified by Planning Committee	Montgomery County NAIP
		NYSDHSES
		June 2014



**Table II-6
Village of Fonda Community Assets**

Recovery Support Function	Asset Name	Community Value	Risk Area
Economic Development	Dollar General	Medium	High
Economic Development	Fonda Fairgrounds / Speedway	Medium	Extreme
Economic Development	Kasson & Keller, Inc.	Medium	High
Economic Development	Keymark Corp	Medium	High
Economic Development	Village of Fonda Downtown Businesses	High	High
Economic Development	Village of Fonda Park St Businesses	Medium	Extreme
Health and Social Services	Fonda Fire Station	High	Extreme
Health and Social Services	Fonda Post Office	Low	Extreme
Health and Social Services	Fonda-Fultonville Central School	High	N/A
Health and Social Services	Haven of Hope Food Pantry	Medium	N/A
Health and Social Services	Montgomery County Annex	High	Extreme
Health and Social Services	Montgomery County DPW	High	Extreme
Health and Social Services	Montgomery County Offices at Broadway	High	N/A
Health and Social Services	Montgomery County Offices at Park St	High	Extreme
Health and Social Services	Town of Mohawk DPW	High	Extreme
Health and Social Services	Village of Fonda Municipal Building	High	Extreme
Housing	Village of Fonda Residences at Risk Near Cayadutta St	High	High
Housing	Village of Fonda Residences at Risk Near Hogans Alley	High	Extreme
Infrastructure	Bridge - 30A over CSX Transportation/Amtrak	Low	Extreme
Infrastructure	Bridge - 30A over Erie Canal	Low	Extreme
Infrastructure	Bridge - 5 over Cayadutta Creek	Low	High
Infrastructure	Citizens Telecom Building - Fonda	Medium	High
Infrastructure	CSX Transportation Fonda Freight Station	Medium	Extreme
Infrastructure	Fonda-Fultonville Sewer Treatment Plant	High	Extreme
Infrastructure	National Grid Substation - Fonda	High	High
Infrastructure	National Grid Substation - Mohawk	Medium	N/A
Infrastructure	NYS Canal Corp Facilities	Medium	Extreme
Infrastructure	Railroad - Vulnerable Area in V. Fonda	Medium	Extreme
Infrastructure	State Highway 5 - Vulnerable Area in V. Fonda	High	High
Natural and Cultural Resources	Fonda Reformed Church	Low	High
Natural and Cultural Resources	Frothingham Library	Low	N/A
Natural and Cultural Resources	St. Cecelia Parsonage	Low	High
Natural and Cultural Resources	Village of Fonda Recreation Park	Low	Extreme
Natural and Cultural Resources	Revelation Ministry	Low	High

Figure II-6 Asset Inventory - Village of Fonda



- Village of Fonda
- Roads
- Rivers & Streams

Assets

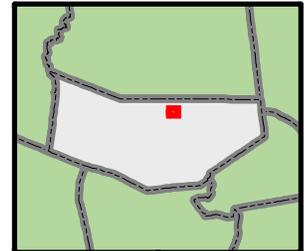
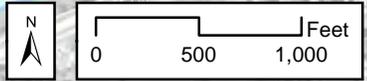
- Economic
- Health and Social Services
- Housing
- Infrastructure Systems
- Natural and Cultural Resources
- *Approximate Extreme Risk Zone

FEMA Preliminary Floodzones

- High Risk Zone
- Moderate Risk Zone

*Extreme risk zones identified by Planning Committee

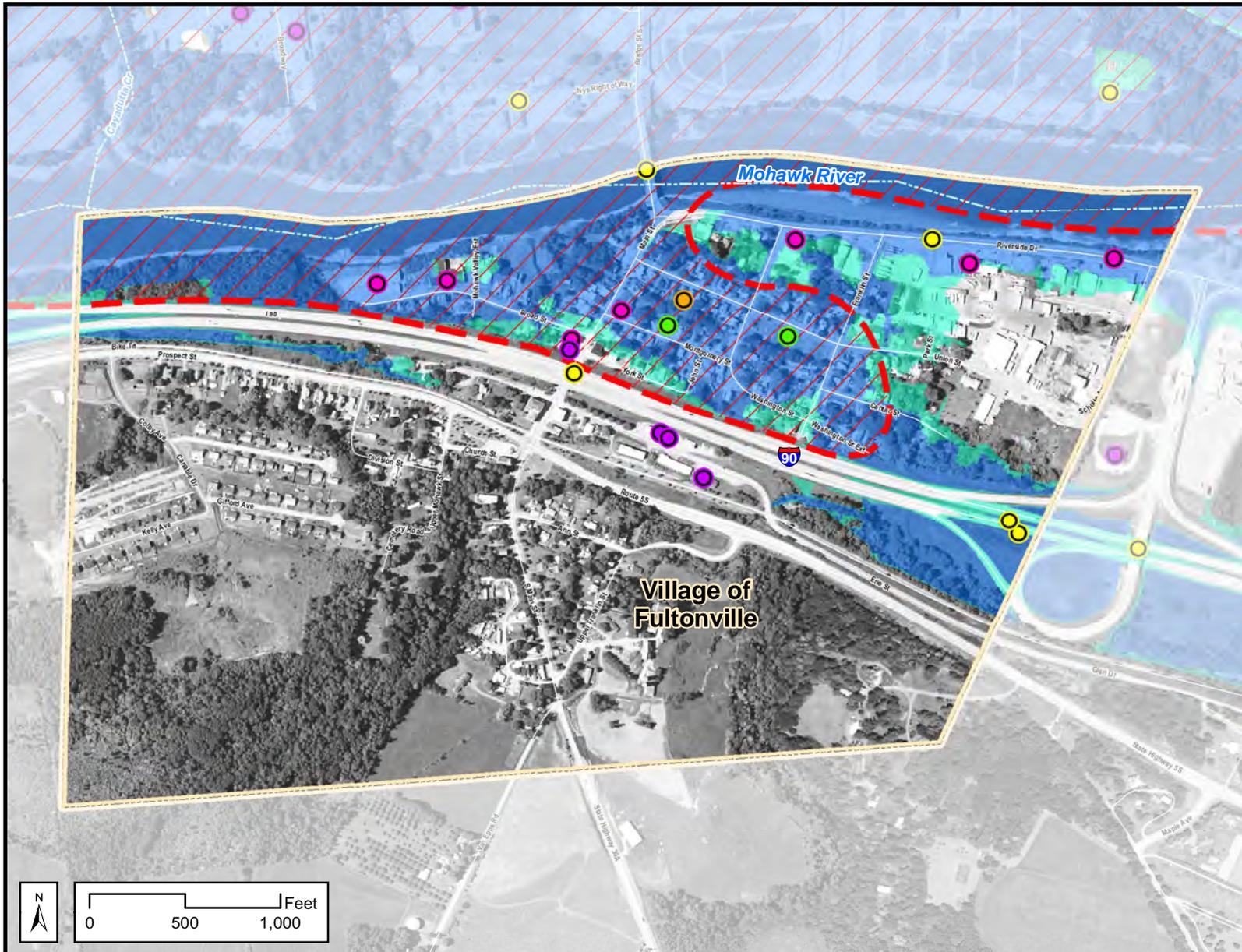
Data Sources:
 FEMA
 Montgomery County
 NAIP
 NYS DHSES
 June 2014



**Table II-7
Village of Fultonville Community Assets**

Recovery Support Function	Asset Name	Community Value	Risk Area
Economic Development	Betz, Rossi, Bellinger & Stewart (BRBS) Family Funeral Home	Medium	Extreme
Economic Development	Key Bank	Medium	Extreme
Economic Development	LD Terra Corp	Medium	Extreme
Economic Development	Macek’s Garage	Medium	High
Economic Development	Mohawk River Leather, Inc.	Medium	Extreme
Economic Development	Travel Centers of America at Fultonville	Medium	High
Economic Development	Village of Fultonville Commercial Corridor	Medium	High
Health and Social Services	Fultonville Fire Station	High	N/A
Health and Social Services	Fultonville Post Office	Low	Extreme
Health and Social Services	State Police Barracks	High	N/A
Health and Social Services	Town of Glen Municipal Building	High	N/A
Health and Social Services	Village of Fultonville Fire Station	High	N/A
Health and Social Services	Village of Fultonville Municipal Offices	High	N/A
Housing	Village of Fultonville Residences at Risk	High	Extreme
Infrastructure	I90 - Vulnerable Area in V. Fultonville	High	High
Infrastructure	State Highway 920P - Vulnerable Area in V. Fultonville	High	High
Infrastructure	Thruway Exit 28 - I90 & NY30A	High	N/A
Infrastructure	Thruway Exit 28 - I90 & NY920P	Medium	High
Infrastructure	Thruway I-90 Bridge (Mile Point 182.17)	Low	Moderate
Natural and Cultural Resources	Fonda-Fultonville United Methodist Church	Low	Extreme
Natural and Cultural Resources	Village of Fultonville Municipal Park	Low	Extreme

Figure II-7 Asset Inventory - Village of Fultonville



- Village of Fultonville
- Roads
- Rivers & Streams

Assets

- Economic
- Health and Social Services
- Housing
- Infrastructure Systems
- Natural and Cultural Resources

*Approximate Extreme Risk Zone

FEMA Preliminary Floodzones

- High Risk Zone
- Moderate Risk Zone

*Extreme risk zones identified by Planning Committee

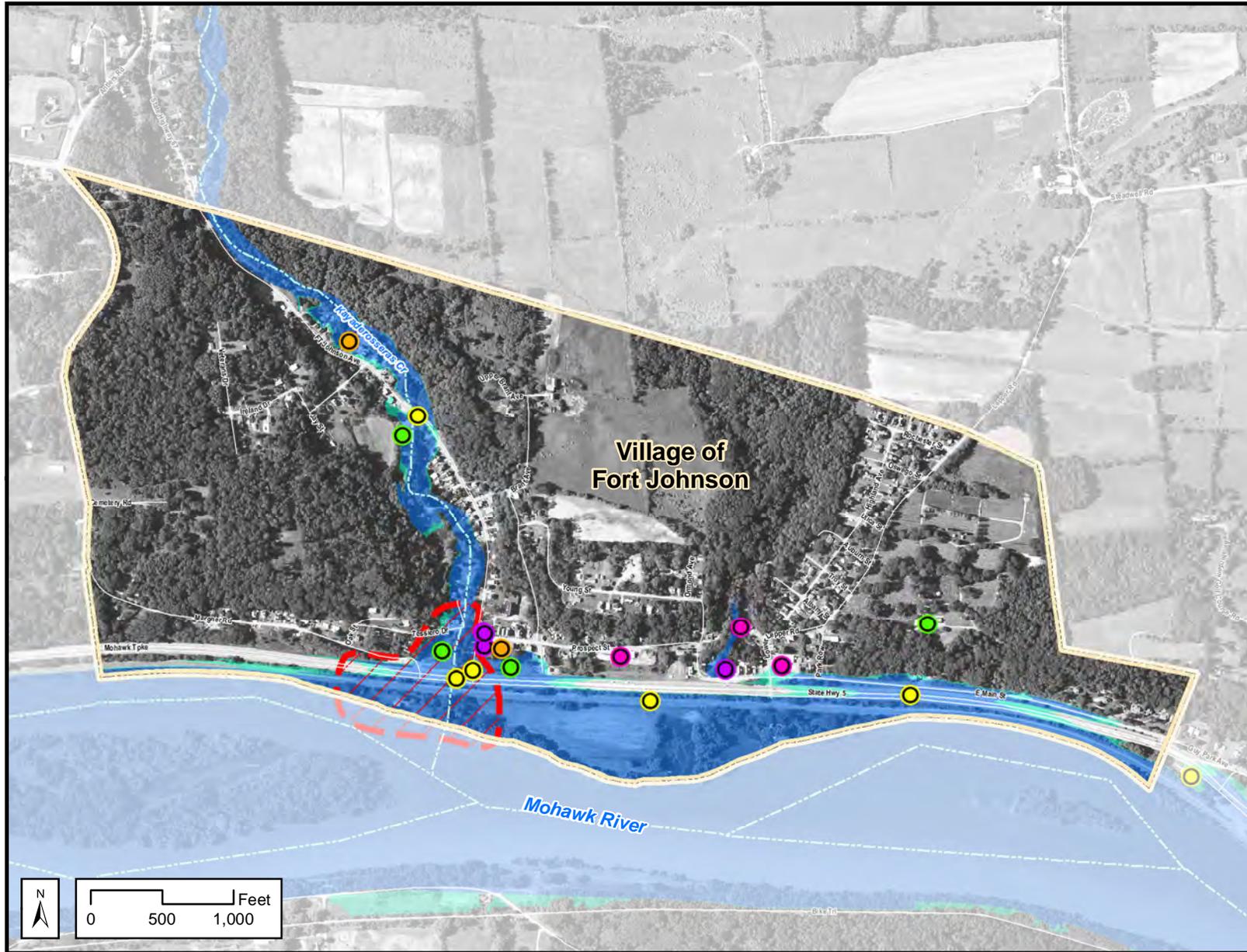
Data Sources:
FEMA
Montgomery County
NAIP
NYSDHSES
June 2014



**Table II-8
Village of Fort Johnson Community Assets**

Recovery Support Function	Asset Name	Community Value	Risk Area
Economic Development	Caprara Auto Service	Medium	High
Economic Development	Fort Johnson Stewart's Shops	Medium	Moderate
Economic Development	Vertucci Garage	Medium	N/A
Health and Social Services	Cardiology Associates of Schenectady	High	N/A
Health and Social Services	Fort Johnson Fire Station 1	High	High
Health and Social Services	Fort Johnson Post Office	Low	High
Health and Social Services	St. Mary's Hospital	High	N/A
Health and Social Services	St. Mary's Hospital Surgical Health Center	High	Moderate
Health and Social Services	Village of Fort Johnson DPW	High	High
Health and Social Services	Village of Fort Johnson Municipal Hall	High	High
Housing	Village of Fort Johnson Residences at Risk Near Ft Johnson Ave	High	High
Housing	Village of Fort Johnson Residences at Risk Near Prospect St	High	High
Infrastructure	Bridge - 67 over Kayaderosseras Creek	Low	High
Infrastructure	Bridge - 5 over Kayaderosseras Creek	Low	Extreme
Infrastructure	Niagara Mohawk Substation - Amsterdam	High	Moderate
Infrastructure	Railroad - Vulnerable Area in V. Fort Johnson	Medium	High
Infrastructure	State Highway 5 - Vulnerable Area in V. Fort Johnson	High	High
Infrastructure	State Highways 5 / 67 Intersection	High	Extreme
Natural and Cultural Resources	Montgomery County Historical Society	Low	Extreme
Natural and Cultural Resources	St. Mary's Church Cemetery	Low	N/A
Natural and Cultural Resources	Village of Fort Johnson Brant Ave Municipal Park	Low	High
Natural and Cultural Resources	Village of Fort Johnson Fort Johnson Ave Municipal Park	Low	High

Figure II-8 Asset Inventory - Village of Fort Johnson



- Village of Fort Johnson
- Roads
- Rivers & Streams

Assets

- Economic
- Health and Social Services
- Housing
- Infrastructure Systems
- Natural and Cultural Resources

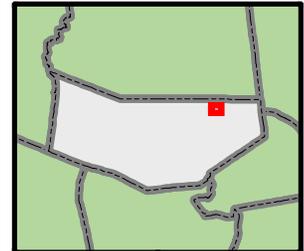
*Approximate Extreme Risk Zone

FEMA Preliminary Floodzones

- High Risk Zone
- Moderate Risk Zone

*Extreme risk zones identified by Planning Committee

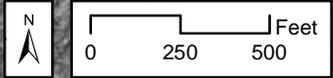
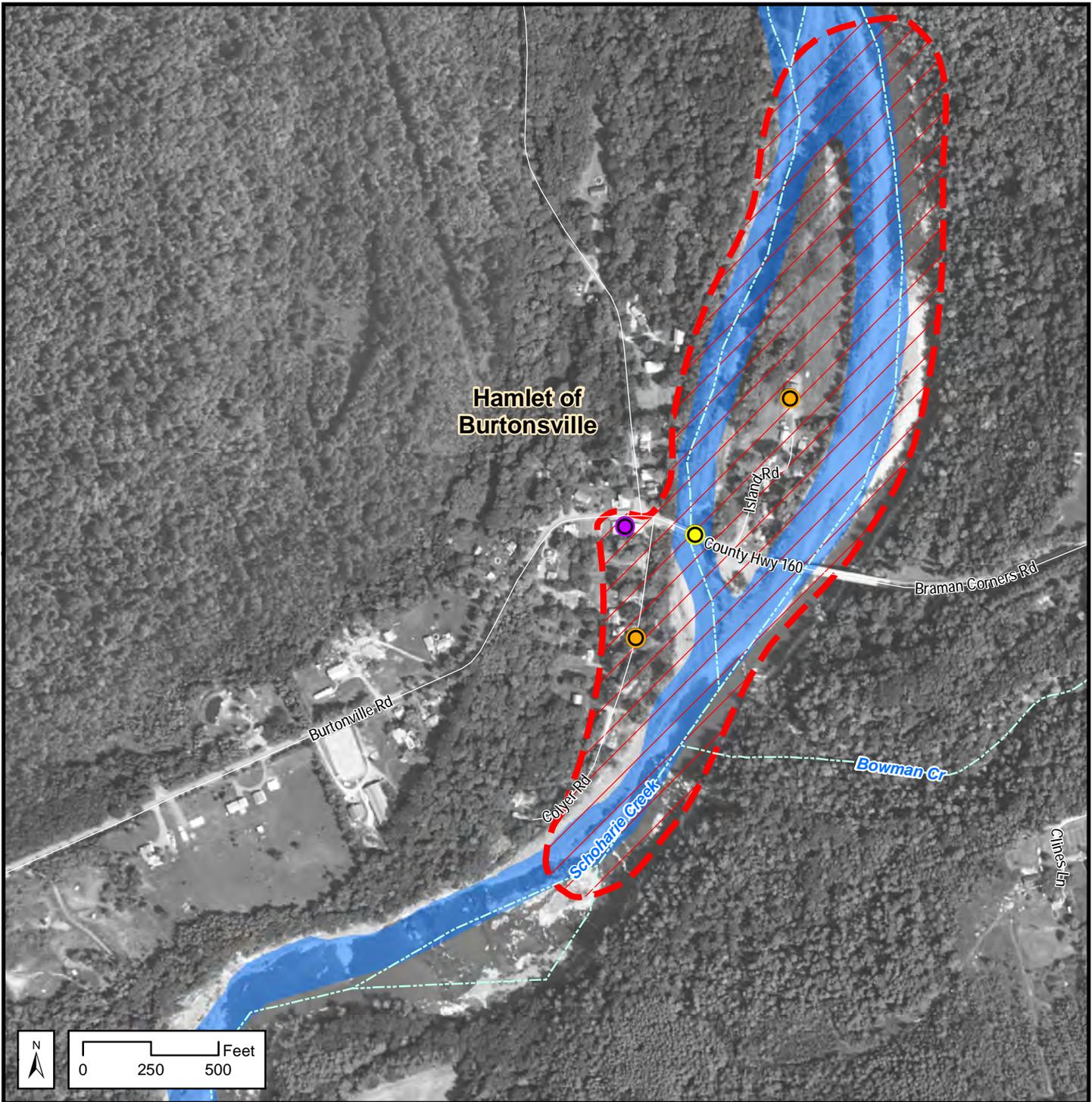
Data Sources:
FEMA
Montgomery County
NAIP
NYS DHSES
June 2014



**Table II-9
Hamlet of Burtonsville Community Assets**

Recovery Support Function	Asset Name	Community Value	Risk Area
Health and Social Services	Burtonsville Fire Station	High	Extreme
Housing	Burtonsville Residences at Risk Near Colyer Street	High	Extreme
Housing	Burtonsville Residences at Risk Near Island Road	High	Extreme
Infrastructure	Burtonsville Rd Bridge over Schoharie Creek	Low	Extreme

Figure II-9 Asset Inventory - Hamlet of Burtonsville



Assets	*Approximate Extreme Risk Zone	Roads
Economic	FEMA Preliminary Floodzones	Rivers & Streams
Health and Social Services	High Risk Zone	Data Sources:
Housing	Moderate Risk Zone	FEMA
Infrastructure Systems		Montgomery County NAIP
Natural and Cultural Resources	*Extreme risk zones identified by Planning Committee	NYSDHSES
		June 2014



This page intentionally left blank

C. Assessment of Risk to Assets and Systems

Montgomery County is characterized by an extensive network of waterways culminating in the Mohawk River, which flows across the length of the County from west to east. The Mohawk River and its tributaries each present a potential flood damage risk to the surrounding assets and systems. In order to mitigate flood risk and improve county-wide resiliency, the causes and magnitude of that risk must first be understood. The risk assessment process seeks to identify and analyze the degree of risk to assets and systems throughout Montgomery County by applying a standardized risk assessment procedure.

The highest concentration of assets at severe or high risk of flooding in Montgomery County typically occurs in locations in which major tributaries merge with the Mohawk River. In particular, at the points at which Canajoharie Creek, Otsquago Creek, and Cayadutta Creek flow into the Mohawk River, there are numerous assets identified as subject to severe and high flood risk. This is due largely to two key factors: the dual flood-susceptible waterways in these locations and the lower ground surface elevations relative to the base flood elevation (BFE). Furthermore, the downtown economic and residential centers of towns and villages are frequently and historically located at or near these points of confluence, meaning that a high



State Highway 80 – Town of Minden (Jeff Smith)

percentage of community assets are exposed to the heightened flood risk associated with these locations.

Of the assets identified as exposed to severe risk, the greatest proportion consists of government and social services assets, including municipal and county administrative offices, public works facilities, and water supply and wastewater treatment assets. These assets, along with the fire and police stations that are at severe risk, serve essential functions during and after storm events. Transportation assets that are at severe risk must also be carefully considered, as some roads and bridges serve as critical evacuation, access, and emergency response routes during flooding. Additionally, there are several economic assets and residential neighborhoods in the severe risk category due to their exposure and vulnerability to flooding.

In addition to the risk assessment completed for this Plan, the NYS Department of Transportation and the NYS Department of Environmental Conservation retained consultants to assess 13 watersheds in Herkimer, Oneida, and Montgomery Counties that ultimately empty into the Mohawk River. The completed engineering assessment provided additional information to the Planning Committee on the way water moves across the landscape, enabling better understanding of critical areas subject to flood risk. The recommendations for projects to mitigate severe flooding developed in the watershed assessment were provided to the Planning Committee and have been incorporated into the proposed projects, making sure short term recovery actions are compatible with the actions needed to implement long-term resiliency recommendations.

Background

Montgomery County is located within the Mohawk River Watershed, which is part of the larger Hudson River Watershed. The topography of Montgomery County ranges from hilly upland areas in the foothills of the Adirondack Mountains to the flats and terraces along the Mohawk River, which traverses the county flowing in a west to east direction. These landscapes



View of Village from Creek in Clinton (George Caprece)

are connected by the intricate network of tributary waterways that laces the entire county, ultimately discharging into the Mohawk River. Hydrography in the county is dominated by this network of streams and rivers.

The communities of Montgomery County are subject to flood risk along these riverine waterways. The primary flood sources among the nine communities are the Mohawk River, Otsquago Creek, East Canada Creek, Canajoharie Creek, Cayadutta Creek, Kayaderosseras Creek, and Schoharie Creek. As reported in the *Water Basin Assessment and Flood Hazard Mitigation Alternatives* report for Otsquago Creek, prepared by Milone and MacBroom, Inc. in March 2014, “flooding in Montgomery County typically occurs in the late winter and early spring months, as a result of ice blockages accompanied by the spring rainfall and snow melt. Flooding may also occur during the late summer months as a result of tropical storms tracking northward along the Atlantic Coast line, or due to regional thunderstorms.”

The predominant land uses in Montgomery County are agricultural, including pasture, hay fields, and row crops. There also are swaths of deciduous and evergreen forests, primarily in the upland portions of the county. According to the New York State Department of Environmental Conservation Environmental Resource Mapper, there exist some small pockets of



Condemned Home on Abbott St (Jacklyn Hakes)

freshwater wetlands around the county, with a larger freshwater wetland area in the southernmost part of the county, in the towns of Root and Charleston near the Schoharie County border.

There are concentrated clusters of human settlement along most of the larger waterways in the County, including the Mohawk River, Schoharie Creek, East Canada Creek, Kayaderosseras Creek, Cayadutta Creek, and Otsquago Creek.

Montgomery County consists of many geologic formations, with the two largest being the Schenectady Formation of sandstone and shale and the Beekmantown Group of dolomite and limestone, which occupy 17 and 16 percent of the county’s area, respectively (USGS Mineral Resources Spatial Data 2014). Other geologic formations in the area are similarly composed primarily of limestone, sandstone, and shale. Though there are some rock outcroppings throughout the county, these geologic formations are mostly covered by glacial till, clay, sand, and gravel, as reported in *The Ground-Water Resources of Montgomery County, New York* (1950). The soil types encountered in Montgomery County vary but, in general, the soil is silt loam with a typical water table depth of 6 to 12 inches. Many of the soils of Montgomery County are characterized by “seasonal and temporary wetness,” a condition that could increase risk of flooding because local soils do

not drain well after storm events (Natural Resources Conservation Service, Web Soil Survey 2014).

In combination, these hydrographic, geologic, and topographic factors define the landscape of Montgomery County. When storm or flood events occur, these conditions result in flood risk throughout the county. The magnitude of that risk to the identified community assets can be determined through the risk assessment process.

Risk Assessment

For many Montgomery County residents, especially those directly affected by past storms, specific areas of flood risk within the county may appear to be obvious. However, experiences during past storms do not necessarily predict impact and damage during future storms. Furthermore, an understanding of the relative degree of risk to one neighborhood or building as compared to another is not always readily apparent. The standardized risk assessment process strives to not only identify assets that were damaged during past storms, but also to identify assets that may be at risk of damage from future storms. The risk assessment tool developed by the NYRCR Program and the New York State Department of State (NYSDOS) enables quantification and comparison of the identified levels of risk to different community assets. Improved understanding of the severity and distribution of risk to assets throughout the community facilitates more effective resiliency and recovery planning.

The risk assessment tool combines information from the asset inventory, flood hazard maps, and qualitative exposure assessments into hazard, exposure, and vulnerability scores.

This information is further combined into one quantitative risk score. The risk score is calculated by multiplying the hazard score, exposure score, and vulnerability score (i.e. $Hazard \times Exposure \times Vulnerability = Risk$). Risk scores range from 0 to 75, with the following ranges signifying varying degrees of risk:

- ▶ <6: Residual risk;
- ▶ 6-23: Moderate risk;
- ▶ 24-53: High risk; and
- ▶ >53: Severe risk.

The components of the risk assessment tool are detailed in Section VI.C.

As defined in the risk assessment tool, the flood risk of an asset is a product of its exposure to flood sources, its vulnerability during flood events, and the level of hazard associated with a given flood event. Each of these factors were determined through discussion with the Montgomery County NYRCR Planning Committee and local officials, analysis of regional and national datasets, and examination of maps, aerial imagery, and site imagery.

The first step in applying the risk assessment tool is to identify “unmitigated” risk scores, which represent the risk to assets and systems without proposed mitigation projects in place.

To evaluate the risk reduction benefits of storm recovery projects, “mitigated” risk scores were prepared to reflect the degree to which a mitigation project may reduce risk to assets. Mitigated risk analyses were prepared for all Recovery Projects and are described in detail in Section VI.B.

In an effort to focus on those Montgomery County assets that are most at risk, unmitigated and mitigated risk scores were prepared only for assets identified on the asset inventory that are located within the (preliminary) 100-year flood zone or otherwise identified as subject to repeat flooding.

The unmitigated risk scores present a profile of the current risk to assets identified in Montgomery County. Analysis of these results provides insight into the factors driving flood risk in Montgomery County and

what strategies could be most effective in improving the long-term resiliency of assets county-wide.

Unmitigated Risk Score Results

In total, 159 assets located within high or extreme flood risk areas were identified in Montgomery County. These assets are distributed throughout the County, with the highest concentrations of assets in the Villages of Canajoharie, Fonda, and Fort Plain. Of the 159 assets, the vast majority were determined by the risk assessment process to be in the high or severe risk categories; 40 scored in the severe risk category and 108 scored in the high risk category. The remaining 11 assets scored in the moderate risk category. The complete set of unmitigated risk score results is presented by municipality in Tables II-10 to II-18 below.

A review of the unmitigated risk results reveals that *vulnerability scores are a key factor in the distribution of risk scores*. Though exposure scores vary across all of the risk categories, vulnerability scores are consistent at the high and low ends of the risk score distribution. All of the assets identified as severe risk have a vulnerability score of 4, and all of those identified as moderate risk have a vulnerability score of 2. The vulnerability scores directly correspond to the length of assets' service outages during historic storms, and thus is an indicator of the degree of impact of the storm on the asset. This can be interpreted to mean that, for assets located within the 100-year flood zone and those observed to flood frequently, past performance reasonably indicates future risk.

All five of the defined asset classes are represented in the severe risk category, though some more than others.

A particularly critical finding of the risk analysis is nearly half of the health and social services assets evaluated in the risk assessment scored within the severe risk category. These assets, including police and fire departments, municipal and county offices, and Department of Public

Works facilities, are vital pieces of the disaster response and recovery system within Montgomery County. Though these severe-risk elements of the disaster response system are spread throughout Montgomery County, they are all in highly exposed locations, often at low topographic elevations relative to the BFE. Risk to the health and social services system may further exacerbate risk to other Montgomery County assets by delaying the response to and recovery from future storm events. This finding is consistent with the needs identified by County residents.

Given its riverine topography and extensive network of streams and rivers, Montgomery County is heavily reliant upon bridges to connect its roadway system. Of the 28 bridges identified on the asset inventory within high and extreme risk areas, 19 scored in the high and severe risk categories. Because bridges facilitate critical access to otherwise inaccessible portions of the county, the risk to bridges is fundamentally a risk to the entire county-wide transportation system. The driving factors in the observed elevated risk to bridges throughout the County are that bridge structures are both aging and chronically under-sized relative to passing flood flows for the waterways below. Though repair or replacement of an individual bridge may improve access and alleviate vulnerability in its immediate vicinity, deteriorating bridge conditions must be addressed in aggregate in order to mitigate risk to the system as a whole.

The CSX freight railroad runs along the north bank of the Mohawk River, alongside State Highway 5, for the entirety of Montgomery County. In several locations, the railroad is highly exposed to flooding from the Mohawk River, as are the freight stations in Fonda and St. Johnsville. If any of these vulnerable locations were damaged in a flood, the railroad would be inoperable. The railroad is only as resilient as its most at-risk segment. The railroad and its freight stations are at high risk throughout Montgomery County.

Portions of other critical infrastructure systems in Montgomery County are at severe and high risk as well. Wastewater treatment facilities, water supply wells, and storm sewer systems throughout the County are at risk. These assets, located in Canajoharie, Fort Plain, the Village of St. Johnsville, Fonda, and Fultonville, are all parts of the larger infrastructure systems within their communities. In these water infrastructure networks, outage of any portion of the system has far-reaching consequences throughout the network. Protection of the most at-risk components of the infrastructure systems ultimately serves to reduce risk to the system overall.

The geographic distribution of risk throughout the county parallels, in general, the distribution of assets. Those municipalities with a greater overall number of assets similarly have a greater number of assets in the severe and high risk categories, often because the historic location of these communities originated adjacent to waterways. Descriptions of the risk distribution and contributing factors in each municipality are provided below.

Town of St. Johnsville

There are two major sources of flooding in the Town of St. Johnsville: the Mohawk River and East Canada Creek. The FEMA preliminary flood zones extend along the length of both of these waterways and cover the low-lying areas adjacent to the streams. A handful of assets are located along the Mohawk River and East Canada Creek waterways and scored in the high risk category (see Figure II-10). The close proximity of assets to flood sources is a driving factor for high risk scores in the Town of St. Johnsville.

State Highway 5 along the Mohawk River is a business and residential corridor as well as a main regional roadway. Portions of the corridor are at elevations below the BFE, resulting in high risk scores for several assets, including Schuurman Auto Dealer, a group of residences, and the highway itself. The intersection of

Thumb Road and Crum Creek Road provides important access to portions of St. Johnsville and is at high risk. Outages of key access routes during flood events can result in increased risk to assets throughout the community by inhibiting evacuation of residents and access by emergency personnel.

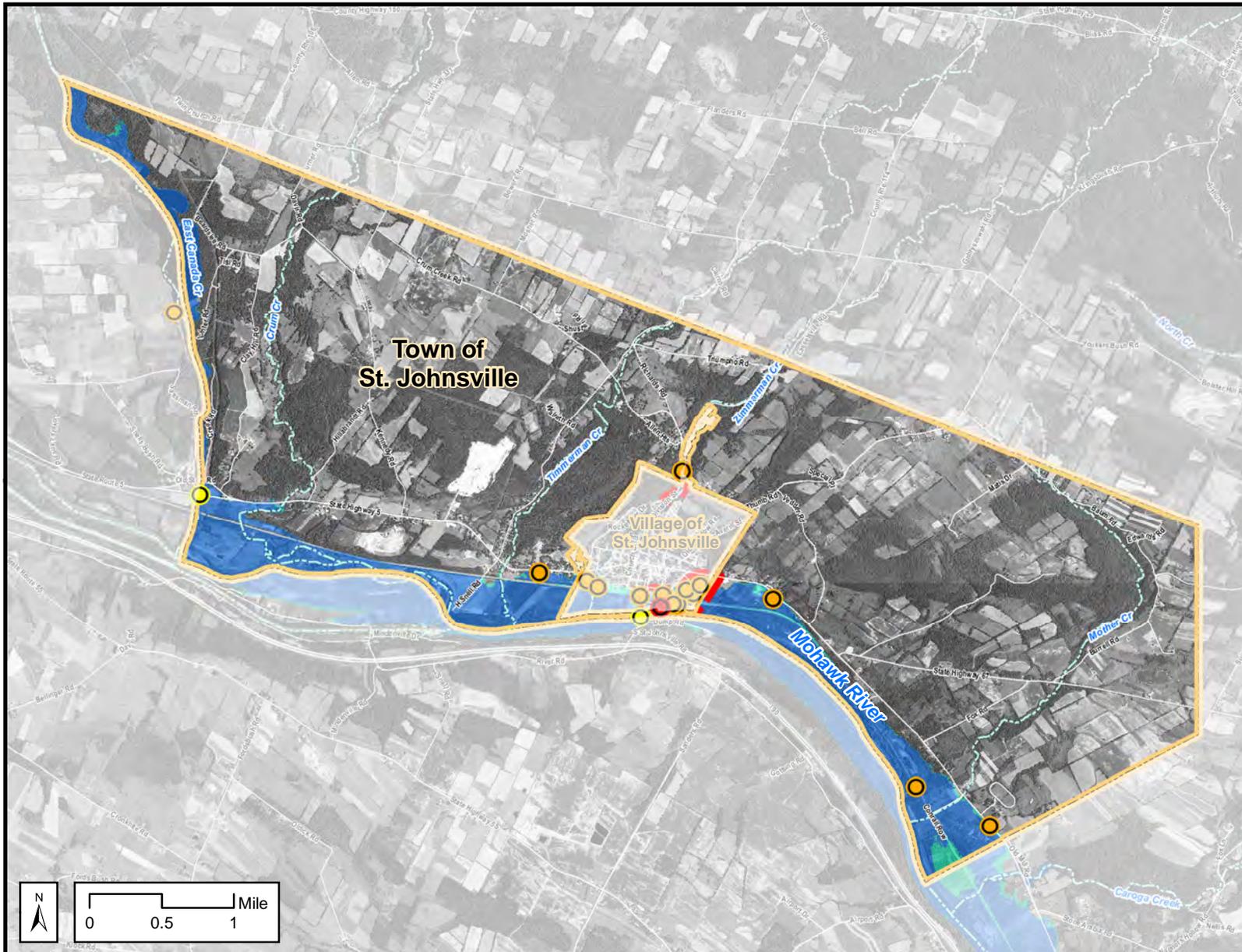
There is a hydroelectric power facility on East Canada Creek, which, due to its location on the Creek, is inherently located in an area of high flood risk. The bridges on State Highway 5 over East Canada Creek and on County Route 61 over the Erie Canal are likewise both located directly on flood sources, but both scored in the moderate risk category due to their low vulnerability scores.

The unmitigated risk score results for the Town of St. Johnsville are presented by Recovery Support Function in Table II-10.

Table II-10
Risk to Assets – Town of St. Johnsville

Recovery Support Function	Asset Name	Community Value	Risk Area	Risk Score Level
Economic Development	Schuurman Auto Dealer	Medium	High	High
Housing	Town of St. Johnsville Residences at Risk	High	High	High
Infrastructure	Beardslee Hydroelectric Facility	Medium	High	Moderate
Infrastructure	Bridge – State Highway 5 over East Canada Creek	Low	High	Residual
Infrastructure	Bridge - CR 61 (Bridge over Erie Canal)	Low	High	Moderate
Infrastructure	Railroad - Vulnerable Area in Town of St. Johnsville	Medium	High	High
Infrastructure	State Highway 5 - Vulnerable Area in Town of St. Johnsville	High	High	Moderate
Infrastructure	Thumb Road / Crumb Creek Road Vulnerable Area	High	Extreme	High

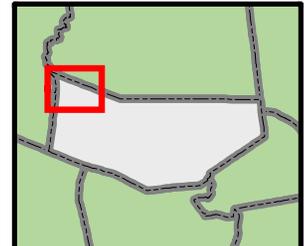
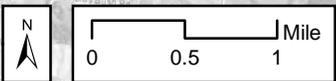
Figure II-10 Risk to Assets - Town of St. Johnsville



- Town of St. Johnsville
- Roads
- Rivers & Streams
- Assets**
- High Risk
- Moderate Risk
- *Approximate Extreme Risk Zone
- FEMA Preliminary Floodzones**
- High Risk Zone
- Moderate Risk Zone

*Extreme risk zones identified by Planning Committee

Data Sources:
FEMA
Montgomery County
NAIP
NYS DHSES
June 2014



Village of St. Johnsville

The Village of St. Johnsville is located along the northern shore of the Mohawk River, which provides vital economic, recreation, and natural resource opportunities to the community, but is also a significant source of flood risk to community assets. While the majority of assets in the Village are located in areas of higher elevation around the center of the community, there are several assets located in the high and extreme risk areas of the low-lying flats along the River (see Figure II-11).

All of the Village of St. Johnsville assets evaluated in the risk assessment process scored in the high and severe risk categories. These assets include infrastructure, economic assets, residences, and natural resources. Infrastructure assets at high risk include two bridges that provide key access in the community. The Village’s Department of Public Works and a Niagara Mohawk substation are also located very near the flood source and are at high risk.

Economic assets at high risk along the Mohawk River include two industrial facilities in locations of low elevation relative to the BFE in the area. Residences and parks in the area are also in the high risk category, while the recreational vehicle park located at the Village of St. Johnsville Marina is at severe risk. The marina and RV park are in a highly exposed location and very vulnerable during flood events.

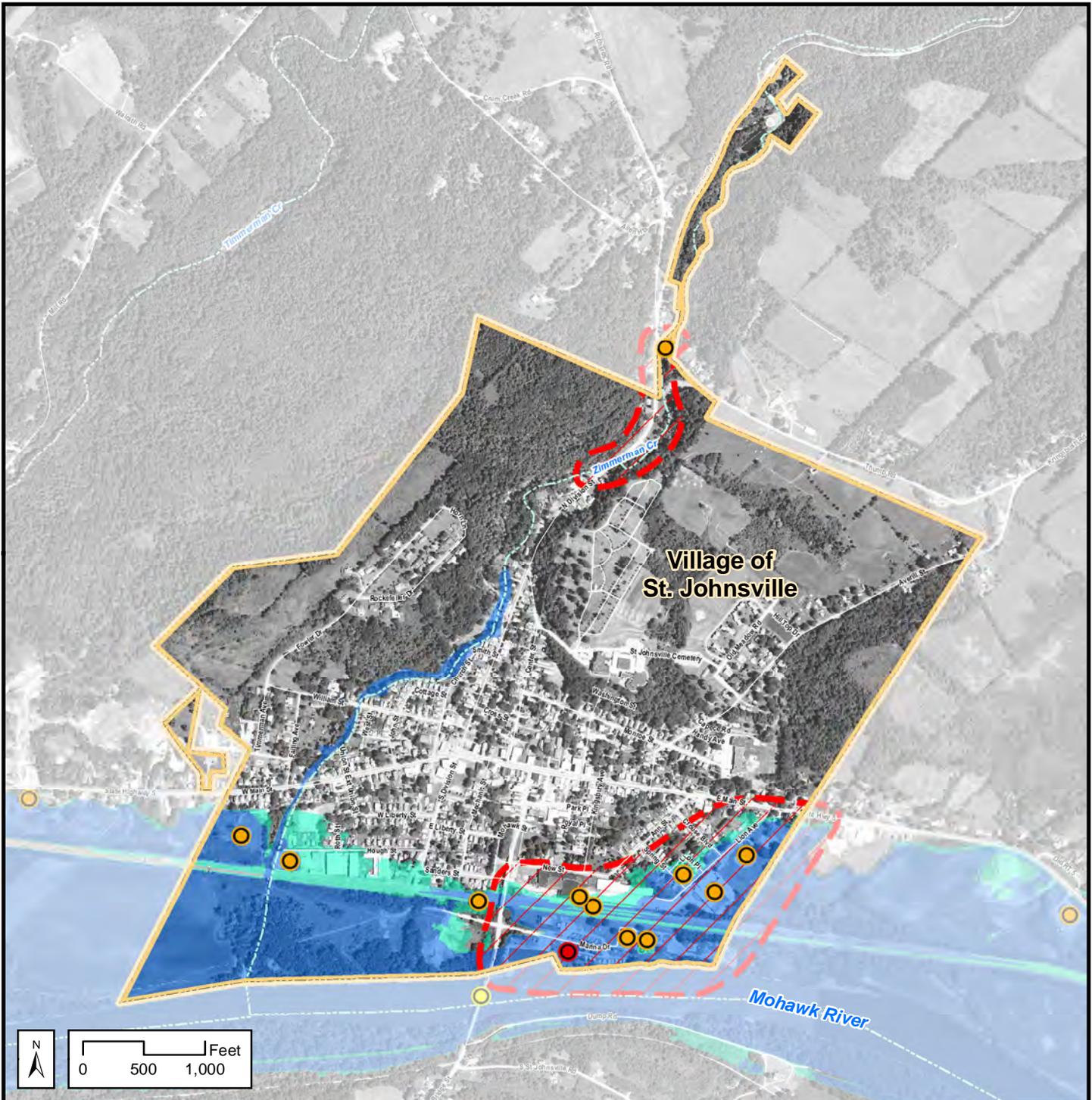
While all of the assets in the Village of St. Johnsville that are within the preliminary flood zones have high risk scores, many of the assets in the Village are located upland, away from the flood source. However, a tributary creek that runs through the Village causes flooding at the intersection of Thumb Road and Crum Creek Road. Though the Mohawk River is the primary source of flooding in the community, smaller tributaries contribute to risk as well.

The unmitigated risk score results for the Village of St. Johnsville are presented by Recovery Support Function in Table II-11.

**Table II-11
Risk to Assets – Village of St. Johnsville**

Recovery Support Function	Asset Name	Community Value	Risk Area	Risk Score Level
Economic Development	Collect Plastics	Medium	Extreme	High
Economic Development	Gehring Tricot Corp at Lion Avenue	Medium	Extreme	High
Health and Social Services	Village of St. Johnsville DPW	High	Extreme	High
Housing	Village of St. Johnsville Residences At Risk	High	Extreme	High
Infrastructure	CSX – St. Johnsville Freight Station	Medium	Extreme	High
Infrastructure	Niagara Mohawk Substation – St. Johnsville	Medium	High	High
Infrastructure	Railroad - Vulnerable Area in Village of St. Johnsville	Medium	High	High
Infrastructure	Village of St. Johnsville Sewer Treatment Plant	High	Extreme	High
Natural and Cultural Resources	St. Johnsville Little League Park	Low	High	High
Natural and Cultural Resources	Veteran's Park	Low	Extreme	High
Natural and Cultural Resources	Village of St. Johnsville Marina / RV Park	Low	Extreme	Severe

Figure II-11 Risk to Assets - Village of St. Johnsville



Assets	*Approximate Extreme Risk Zone	Village of St. Johnsville
Severe Risk	FEMA Preliminary Floodzones	Roads
High Risk		Rivers & Streams
Moderate Risk		High Risk Zone
	Moderate Risk Zone	Data Sources: FEMA Montgomery County NAIP NYSDHSES
*Extreme risk zones identified by Planning Committee		June 2014



Town of Minden

The primary source of flooding in the Town of Minden is the Otsquago Creek, which flows from west to east, roughly bisecting the Town. The FEMA preliminary flood zones in the Town extend along the length of Otsquago Creek and cover the low-lying areas adjacent to the stream. Many important community assets are located along the Creek, including many roads and bridges (see Figure II-12).

There are seven bridges that cross the Otsquago Creek and its tributaries in the Town of Minden. The bridge on Highway 80 over the Otsquago Creek is at the highest risk among these bridges, with a score in the severe risk category. The rating is driven largely by a high vulnerability score, as the asset was out of service for a considerable length of time during past storms. The bridges over the Otsquago Creek on Spring Street and H. Moyer Road are in the high risk category, and those on Casler Road and Brookmans Corners Road over the Otsquago Creek, Highway 80 over Otsquene Creek, and Bridge Street over the Erie Canal are in the moderate risk category. The risk scores of bridges vary according to the length of their service outages during past storms. Additionally, State Highway 80 runs parallel to Otsquago Creek throughout the Town of Minden, and is at high risk. Together, these assets are part of a transportation system that provides critical access to many portions of the community that might be isolated in the event of flooding. Because the flood source bisects the community, if bridges are damaged or are otherwise inaccessible during a flood event, the northern and southern portions of the Town of Minden could be isolated from one another. Risk to bridges and roads must be considered within the context of the interconnected transportation system. Vulnerable individual assets within the system result in vulnerabilities to the system overall.

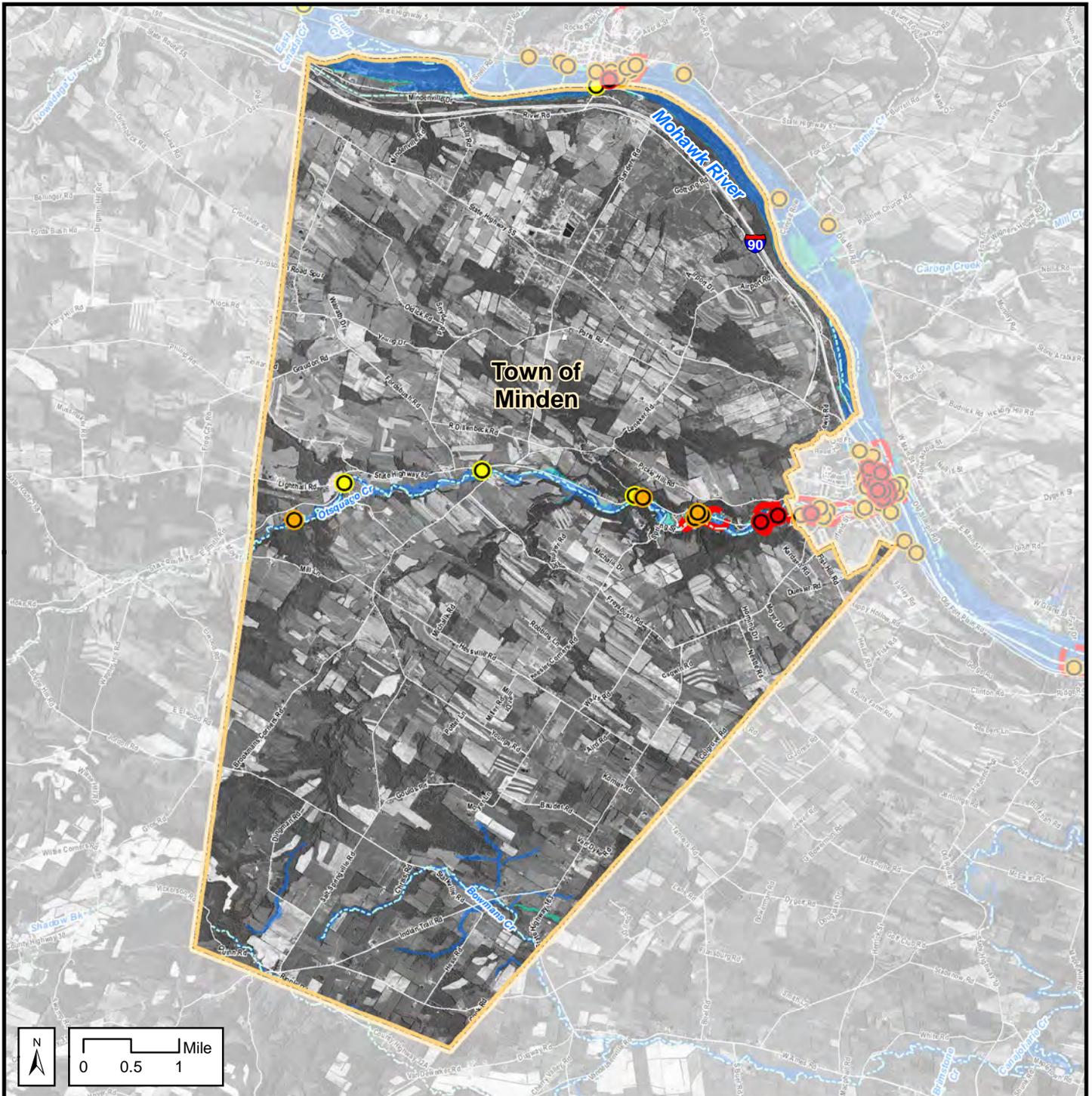
In addition to the transportation system, several residences, a church, and the Town of Minden Department of Public Works (DPW) are located along State Highway 80 within the flood zone along the Otsquago Creek. The church and residences are both at high risk, while the DPW is at severe risk. The elevated risk to the DPW is a result of stormwater runoff from a nearby park that increases the asset's exposure to flooding. These assets are among many that rely on Highway 80 and the nearby bridges for access. Risk to the transportation system may compound risk to these other community assets, as they are made vulnerable when access is eliminated during storm events.

The unmitigated risk score results for assets in the Town of Minden are presented by Recovery Support Function in Table II-12.

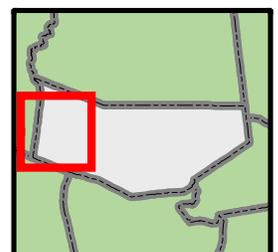
Table II-12
Risk to Assets – Town of Minden

Recovery Support Function	Asset Name	Community Value	Risk Area	Risk Score Level
Health and Social Services	Town of Minden DPW	High	Extreme	Severe
Housing	Town of Minden Residences at Risk	High	Extreme	High
Infrastructure	Bridge – State Highway 80 over Otsquago Creek	Low	Extreme	High
Infrastructure	Bridge - State Highway 80 over Otsquene Creek	Low	High	High
Infrastructure	Bridge – Brookmans Corners Rd over Otsquago Creek	Low	High	High
Infrastructure	Bridge - Casler Road over Otsquago Creek	Low	High	Moderate
Infrastructure	Bridge - CR 61 (Bridge over Erie Canal)	Low	High	Moderate
Infrastructure	Bridge - H Moyer Road over Otsquago Creek	Low	High	Moderate
Infrastructure	Bridge - Spring St over Otsquago Creek	Low	Extreme	Residual
Infrastructure	State Highway 80 - Vulnerable area in Town of Minden	High	Extreme	Residual
Natural and Cultural Resources	Revelation Ministry	Low	High	Residual

Figure II-12 Risk to Assets - Town of Minden



Assets	Approximate Extreme Risk Zone	Town of Minden
Severe Risk	FEMA Preliminary Floodzones	Roads
High Risk	High Risk Zone	Rivers & Streams
Moderate Risk	Moderate Risk Zone	Data Sources: FEMA Montgomery County NAIP NYSDHSES
*Extreme risk zones identified by Planning Committee		June 2014



Village of Fort Plain

The Village of Fort Plain is located at the confluence of the Otsquago Creek and the Mohawk River. Both waterways provide vital recreation and economic opportunities for the community, but both are significant sources of flood risk as well. The FEMA preliminary flood zones in the Village cover the low-lying areas along the banks of both the Otsquago Creek and the Mohawk River, which include several major transportation and economic corridors in the Village, as well as a portion of the downtown center. The distribution of severe and high risk assets in the community closely follows the preliminary flood zones (see Figure II-13).

The assets along the Mohawk River, including housing, economic, emergency response, and infrastructure assets, were out of service for prolonged periods of time during past flood events. These assets thus have high vulnerability scores, which, in concert with their exposure to the Mohawk River flood zone, resulted in severe risk scores. As the ground elevation rises away from the River, the vulnerability scores and risk scores correspondingly decrease. However, even these assets are still in the high risk category.

Many infrastructure assets in the Village of Fort Plain are located within the (preliminary) flood zones. Seven bridges and a section of Interstate 90 are in the high risk category, while sections of State Highway 80 are in the severe risk category. As is the case county-wide, this transportation infrastructure provides critical access to parts of the community and the county and must be considered at the transportation network level. An outage of any portion of the system transportation network can have far-reaching effects on travel involving the network.

The Otsquago Creek, though smaller than the Mohawk River, contributes significantly to flood risk in Fort Plain. Assets are built immediately adjacent to the Creek and lack defensive flood protection measures. Several residential neighborhoods and two churches along the Otsquago Creek are at high risk, and the residential area along Reid Street is at severe risk due to additional flood risk from storm water runoff.

Several important community services assets in Fort Plain are at severe and high risk, including the fire department, police station, and post office. Furthermore, the Village's medical center, food pantry, senior center, library, and VFW facility are also located in flood-prone areas. Recreational facilities, including parks and trails, are also at severe and high risk. All of these community assets serve important functions and are at risk of flooding.

Much of the community's economic base is also located in the high risk flood zone. Portions of the downtown business center and commercial corridor, as well as two small businesses, are subject to severe flood risk. Several residences are also located in the severe and high risk zones. It is clear from the risk assessment that flood risk mitigation measures would provide important asset protection with respect to both the Mohawk River and the Otsquago Creek flood sources in Fort Plain.

The unmitigated risk score results for assets in the Village of Fort Plain are presented by Recovery Support Function in Table II-13.

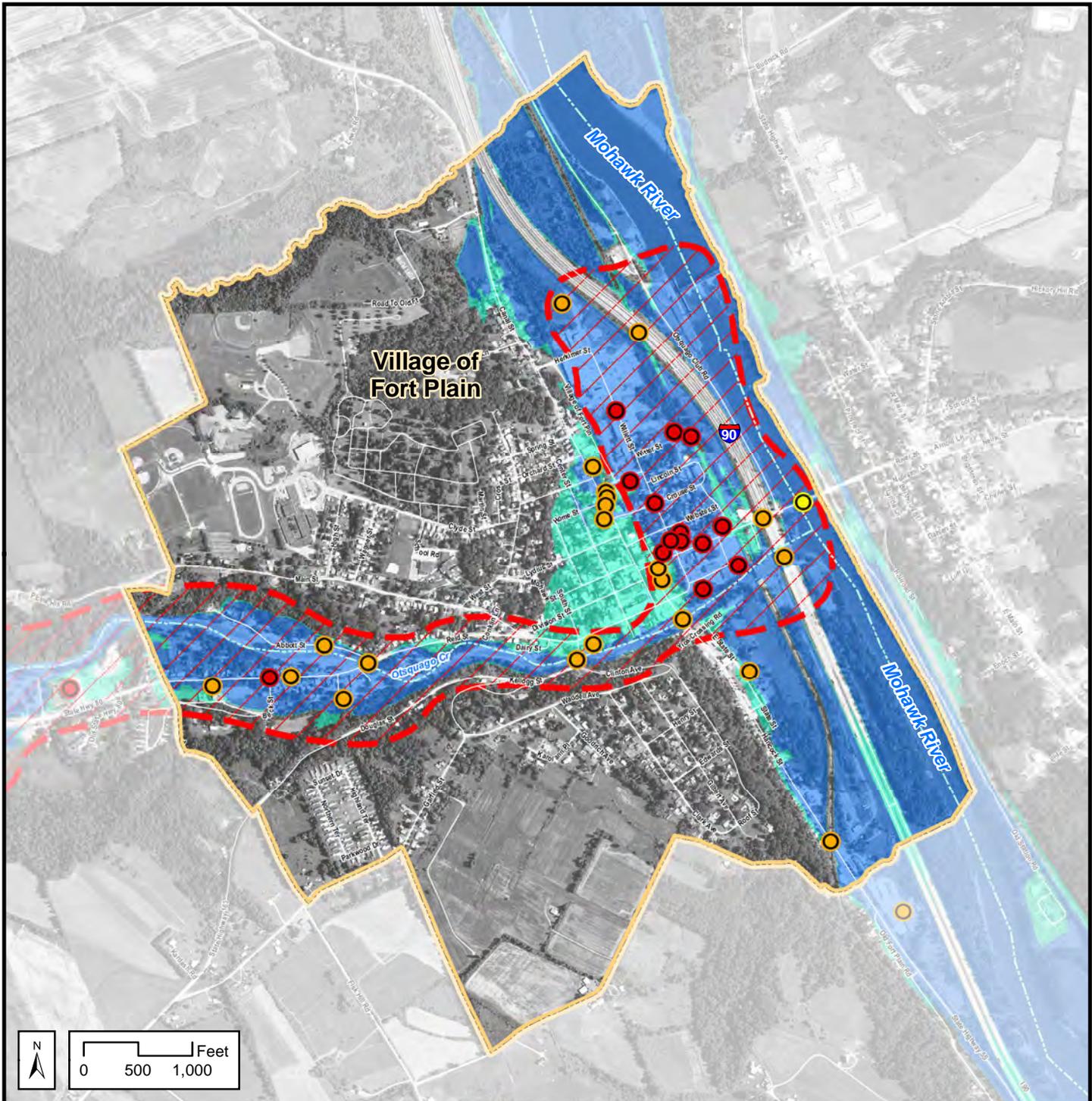
**Table II-13
Risk to Assets – Village of Fort Plain**

Recovery Support Function	Asset Name	Community Value	Risk Area	Risk Score Level
Economic Development	Dominion Transmission Inc.	Medium	Extreme	Severe
Economic Development	Nice N Easy	Medium	Extreme	Severe
Economic Development	Save-A-Lot	Medium	Extreme	Severe
Economic Development	Village of Fort Plain Commercial Corridor	Medium	Extreme	Severe
Health and Social Services	Access Transportation	Medium	Extreme	Severe
Health and Social Services	Fort Plain Fire Station	High	High	Severe
Health and Social Services	Fort Plain Medical Foundation Offices	High	Extreme	Severe
Health and Social Services	Fort Plain Police Department	High	Extreme	Severe
Health and Social Services	Fort Plain Post Office	Low	Extreme	Severe
Health and Social Services	Fulmont Community Action Agency Food Pantry	Medium	High	Severe
Health and Social Services	Village of Fort Plain Municipal Hall	High	High	Severe
Housing	Village of Fort Plain Residences at Risk Near Abbott Street	High	Extreme	High
Housing	Village of Fort Plain Residences at Risk Near Canal Street	High	High	High
Housing	Village of Fort Plain Residences at Risk Near Hancock Street	High	High	High
Housing	Village of Fort Plain Residences at Risk Near Reid Street	High	Extreme	High
Housing	Village of Fort Plain Residences at Risk Near Willett St	High	Extreme	High
Infrastructure	Bridge - State Highway 80 over Erie Canal	Low	Extreme	High
Infrastructure	Bridge – State Highway 80 over Otsquago Creek	Low	Extreme	High
Infrastructure	Bridge - I90 over Canalway Trail	Low	Extreme	High
Infrastructure	Bridge – Highway 163 over Otsquago Creek	Low	Extreme	High
Infrastructure	Bridge – Route 5S over Otsquago Creek	Low	Extreme	High
Infrastructure	Bridge - Canalway Trail over Route 5S	Low	High	High
Infrastructure	Bridge – I90 over State Highway 80	Low	Extreme	High
Infrastructure	Bridge – I90 over Otsquago Creek	Low	Extreme	High
Infrastructure	Fort Plain Water Works WTP/Well	High	Extreme	High
Infrastructure	State Highway 80 - Vulnerable area in Village of Fort Plain	High	Extreme	High
Infrastructure	Willett St Storm Sewer	High	Extreme	High

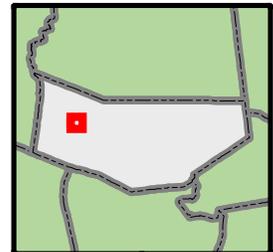
Table II-13
Risk to Assets – Village of Fort Plain

Recovery Support Function	Asset Name	Community Value	Risk Area	Risk Score Level
Natural and Cultural Resources	Canalway Trail - Vulnerable area in Village of Fort Plain	Low	Extreme	High
Natural and Cultural Resources	Community Bible Church	Low	Extreme	Moderate
Natural and Cultural Resources	Fort Plain Reformed Church	Low	High	Residual
Natural and Cultural Resources	Fort Plain VFW	Low	Extreme	Residual
Natural and Cultural Resources	St. James Catholic Church	Low	Extreme	Residual
Natural and Cultural Resources	The Church of Jesus Christ of Latter-Day Saints	Low	Extreme	Residual
Natural and Cultural Resources	Veteran Memorial Park	Low	Extreme	Residual
Natural and Cultural Resources	Williams Memorial Library	Low	Extreme	Residual

Figure II-13 Risk to Assets - Village of Fort Plain



Assets	*Approximate Extreme Risk Zone	Village of Fort Plain
Severe Risk	FEMA Preliminary Floodzones	Roads
High Risk	High Risk Zone	Rivers & Streams
Moderate Risk	Moderate Risk Zone	Data Sources:
		FEMA
		Montgomery County
		NAIP
		NYSDHSES
*Extreme risk zones identified by Planning Committee		
June 2014		



Village of Canajoharie

The Village of Canajoharie is located on the southern bank of the Mohawk River. Though many of the Village's residences and other assets are located upland and away from the River, there are numerous assets in the low-lying areas along the River. The FEMA preliminary flood zones in the Village cover those low-lying areas along the banks of the Mohawk River. Additionally, Canajoharie Creek runs through the Village to the Mohawk River, and some areas along the Creek are also included in the FEMA preliminary flood zones. Loss of floodplain and the siting of assets immediately adjacent to Canajoharie Creek exacerbate the risk to assets in this area. Many infrastructure, housing, economic, health and social services, and natural and cultural resource assets in the Village of Canajoharie are in the severe and high risk categories (see Figure II-14).

Several important community service assets in Canajoharie are at severe risk, including the fire department, police station, a healthcare facility, and the Village of Canajoharie Offices. All of these assets provide essential response and recovery services during storm events. Furthermore, the Village library, the Arkell Museum, and the post office are also at severe risk. These assets, all of which serve important community

and regional functions, are located in low-lying areas near the flood sources and have experienced significant loss of service during historic storms.

Many infrastructure assets in the Village of Canajoharie are at high risk. Five bridges are in the high risk category, as well as two major roadways. Both State Highway 5S and Interstate 90 have vulnerable, high-risk areas in Canajoharie. Additionally, the Village's wastewater treatment plant and a power substation scored in the high risk category. The location of these vital infrastructure assets causes significant exposure to flood risk. These infrastructure assets are all pieces of much larger systems that serve critical functions within the community and the county.

The results of the unmitigated risk assessment make it clear that assets along Canajoharie Creek and the Mohawk River are at significant risk from flooding. Strategies to mitigate the exposure of assets to these flood sources would help to alleviate risk to important infrastructure and community services assets in Canajoharie.

The unmitigated risk score results for assets in the Village of Canajoharie are presented by Recovery Support Function in Table II-14.

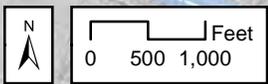
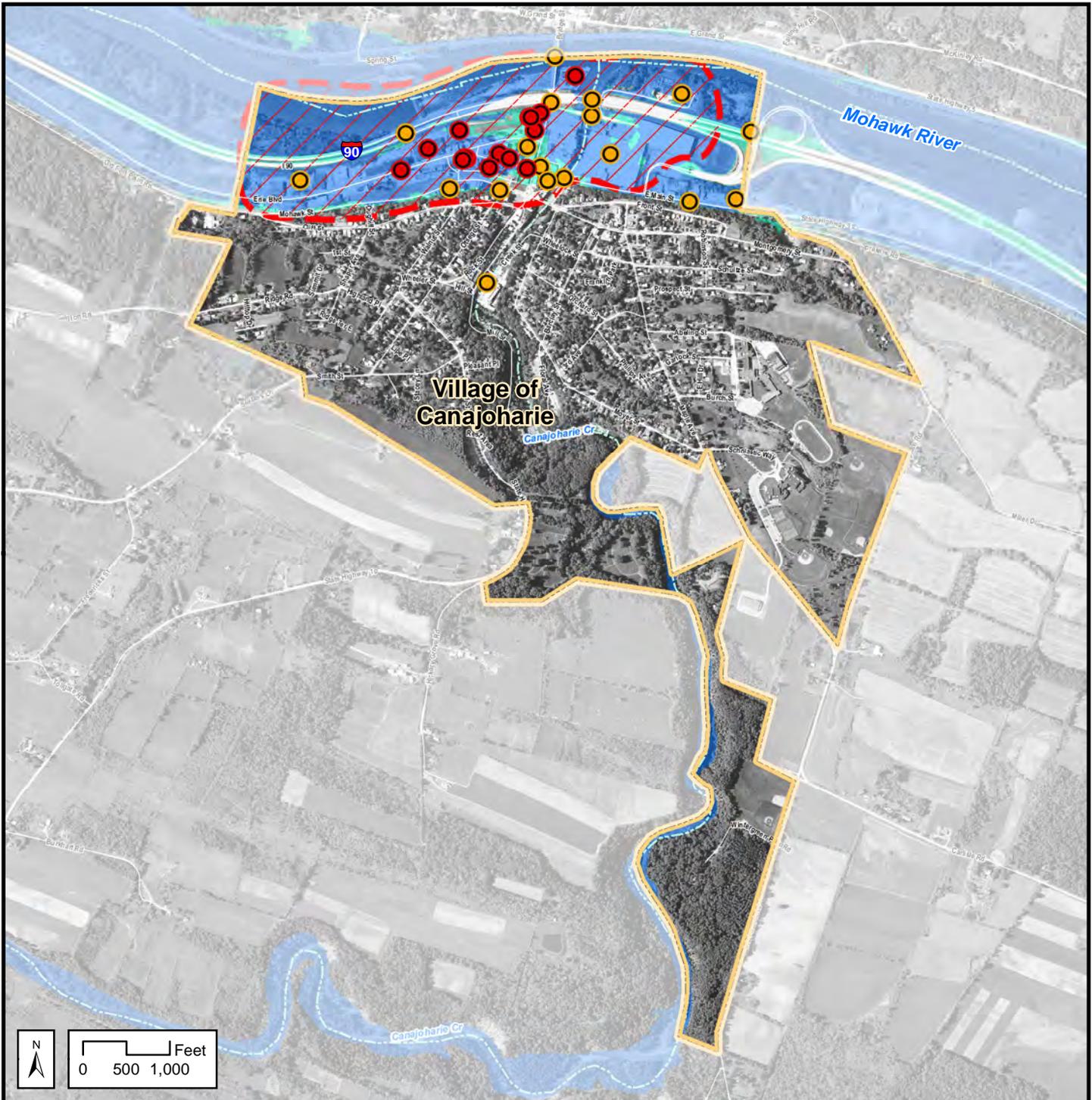
Table II-14
Risk to Assets – Village of Canajoharie

Recovery Support Function	Asset Name	Community Value	Risk Area	Risk Score Level
Economic Development	Curtis Lumber	Medium	High	High
Economic Development	Former Beech-Nut Factory	Medium	Extreme	Severe
Economic Development	Manufacturers along Canajoharie Creek	Medium	High	Severe
Economic Development	Richardson Brands Co.	Medium	Extreme	Severe
Economic Development	Village of Canajoharie Commercial Corridor	Medium	Extreme	Severe
Economic Development	Village of Canajoharie Downtown Businesses	High	Extreme	Severe
Health and Social Services	Arkell Hall	High	N/A	Residual
Health and Social Services	Canajoharie Fire Station	High	Extreme	Severe
Health and Social Services	Canajoharie Police Department	High	Extreme	Severe

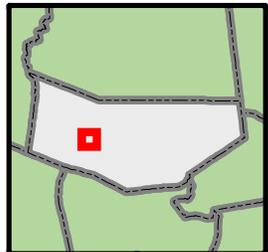
**Table II-14
Risk to Assets – Village of Canajoharie**

Recovery Support Function	Asset Name	Community Value	Risk Area	Risk Score Level
Health and Social Services	Canajoharie Post Office	Low	Extreme	Severe
Health and Social Services	NYSARC Professional Building	Medium	Extreme	Severe
Health and Social Services	NYSDOT Canajoharie Facility	High	High	High
Health and Social Services	St. Mary's Family Health Center of Canajoharie	High	Extreme	High
Health and Social Services	Village of Canajoharie Offices	High	Extreme	High
Health and Social Services	Village of Canajoharie Volunteer Firefighters	High	Extreme	High
Housing	Village of Canajoharie Residences at Risk	High	Extreme	High
Infrastructure	Bridge – Route 10 over Mohawk River	Low	Extreme	High
Infrastructure	Bridge – Route 5S over Canajoharie Creek	Low	Extreme	High
Infrastructure	Bridge – I90 over Route 10	Low	Extreme	High
Infrastructure	Bridge – I90 over Incinerator Road	Low	Extreme	High
Infrastructure	Bridge - Incinerator Road over Canajoharie Creek	Low	Extreme	High
Infrastructure	Frontier Communications Building	Low	Extreme	High
Infrastructure	I90 - Vulnerable Area in Village of Canajoharie	High	Extreme	High
Infrastructure	Niagara Mohawk Substation – Canajoharie	Medium	Extreme	High
Infrastructure	State Highway 5S - Vulnerable Area in Village of Canajoharie	High	High	High
Infrastructure	Thruway Exit 29 – I90 & Route 5S	High	High	High
Infrastructure	Village of Canajoharie Sewage Treatment Plant	High	Extreme	Residual
Natural and Cultural Resources	Arkell Museum	Low	Extreme	Residual
Natural and Cultural Resources	Canajoharie Community Youth Center	Low	Extreme	Residual
Natural and Cultural Resources	Canajoharie Public Library	Low	Extreme	Residual
Natural and Cultural Resources	Canajoharie United Methodist Church	Low	Extreme	Residual
Natural and Cultural Resources	Fraternal Order of Eagles	Low	Extreme	Residual
Natural and Cultural Resources	NYS Canal Corp Park	Low	Extreme	Residual
Natural and Cultural Resources	St. John's & St. Mark's Lutheran Church	Low	Extreme	Residual

Figure II-14 Risk to Assets - Village of Canajoharie



Assets	*Approximate Extreme Risk Zone	Village of Canajoharie
Severe Risk	FEMA Preliminary Floodzones	Roads
High Risk	High Risk Zone	Rivers & Streams
	Moderate Risk Zone	Data Sources: FEMA Montgomery County NAIP NYSDHSES
*Extreme risk zones identified by Planning Committee		June 2014



Village of Fonda

The Village of Fonda is located on the northern banks of the Mohawk River at its confluence with Cayadutta Creek. Both waterways are important natural resources and provide economic opportunities for the community, but both are significant sources of flood risk as well. The FEMA preliminary flood zones in the Village cover the low-lying areas along the banks of both Cayadutta Creek and the Mohawk River, which include major Infrastructure and economic corridors in the Village, as well as a portion of the downtown center. Many infrastructure, housing, economic, health and social services, and natural and cultural resource assets in the Village of Fonda are at high and severe risk (see Figure II-15).

The Montgomery County Offices, Annex, and DPW facilities are all located in Fonda, very near the Mohawk River banks. This exposed location, in conjunction with high vulnerability during flood events, results in severe risk scores for these important County facilities. Other assets located in the same area along the Mohawk River, including the Fonda Fairgrounds, NYS Canal Corporation Facilities, and the Village of Fonda Recreation Park, are also at severe risk. The results of the risk assessment clearly highlight this area as a critical location for flood risk.

Similarly, important municipal facilities for the Village of Fonda and the Town of Mohawk are at high risk. The Town of Mohawk DPW, as well as the Fonda Fire Station, Municipal Building, and Post Office are all at high risk due to their exposed locations.

As in other communities, there are several important infrastructure assets in the Village of Fonda that are at high risk, including both a telecommunications facility and a National Grid power substation. These infrastructure assets function as part of larger systems. Risk to these components presents a risk to the interconnected systems that sustain power and communications throughout the County.

Much of Fonda's economic base scored in the high risk category, including the downtown business district, businesses on Park Street, and local industrial and manufacturing facilities. Likewise, two residential neighborhoods are at high risk due to their exposure to Cayadutta Creek and the Mohawk River.

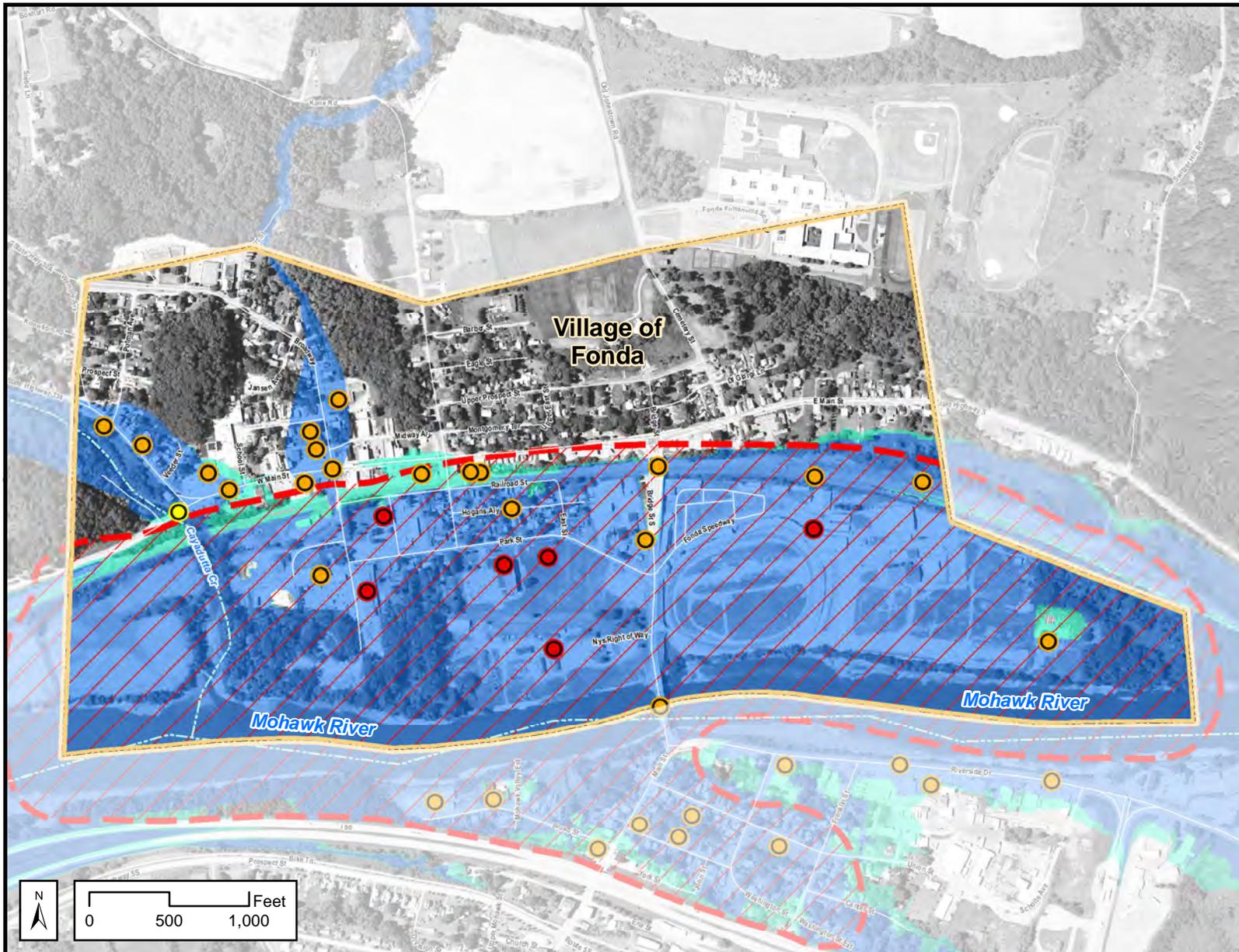
It is evident from the unmitigated risk assessment results that many assets in the Village of Fonda are at significant risk due to exposure to flood sources. Many of these assets serve essential functions for the Village and for Montgomery County as a whole. Mitigation of risk to these important assets and systems could result in improvements in vulnerability and risk to assets county-wide.

The unmitigated risk score results for assets in the Village of Fonda are presented by Recovery Support Function in Table II-15.

Table II-15
Risk to Assets – Village of Fonda

Recovery Support Function	Asset Name	Community Value	Risk Area	Risk Score Level
Economic Development	Dollar General	Medium	High	Severe
Economic Development	Fonda Fairgrounds / Speedway	Medium	Extreme	Severe
Economic Development	Kasson & Keller, Inc.	Medium	High	Severe
Economic Development	Keymark Corp.	Medium	High	Severe
Economic Development	Village of Fonda Downtown Businesses	High	High	Severe
Economic Development	Village of Fonda Park Street Businesses	Medium	Extreme	Severe
Health and Social Services	Fonda Fire Station	High	Extreme	High
Health and Social Services	Fonda Post Office	Low	Extreme	High
Health and Social Services	Montgomery County Annex	High	Extreme	High
Health and Social Services	Montgomery County DPW	High	Extreme	High
Health and Social Services	Montgomery County Offices at Park Street	High	Extreme	High
Health and Social Services	Town of Mohawk DPW	High	Extreme	High
Health and Social Services	Village of Fonda Municipal Building	High	Extreme	High
Housing	Village of Fonda Residences at Risk Near Cayadutta Street	High	High	High
Housing	Village of Fonda Residences at Risk Near Hogans Alley	High	Extreme	High
Infrastructure	Bridge - Route 30A over CSX Trans/ Amtrak	Low	Extreme	High
Infrastructure	Bridge - Route 30A over Erie Canal	Low	Extreme	High
Infrastructure	Bridge – Route 5 over Cayadutta Creek	Low	High	High
Infrastructure	Citizens Telecom Building - Fonda	Medium	High	High
Infrastructure	CSX Fonda Freight Station	Medium	Extreme	High
Infrastructure	Fonda-Fultonville Sewer Treatment Plant	High	Extreme	High
Infrastructure	National Grid Substation - Fonda	High	High	High
Infrastructure	NYS Canal Corp Facilities	Medium	Extreme	High
Infrastructure	Railroad - Vulnerable Area in Village of Fonda	Medium	Extreme	Moderate
Infrastructure	State Highway 5 - Vulnerable area in Village of Fonda	High	High	Residual
Natural and Cultural Resources	Fonda Reformed Church	Low	High	Residual
Natural and Cultural Resources	St. Cecelia Parsonage	Low	High	Residual
Natural and Cultural Resources	Village of Fonda Recreation Park	Low	Extreme	Residual

Figure II-15 Risk to Assets - Village of Fonda



- Village of Fonda
- Roads
- Rivers & Streams

Assets

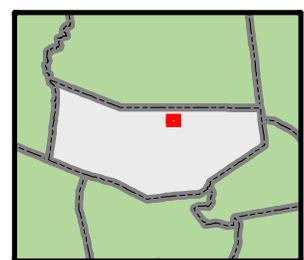
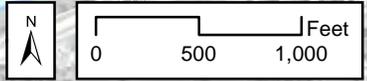
- Severe Risk
- High Risk
- Moderate Risk
- *Approximate Extreme Risk Zone

FEMA Preliminary Floodzones

- High Risk Zone
- Moderate Risk Zone

*Extreme risk zones identified by Planning Committee

Data Sources:
FEMA
Montgomery County
NAIP
NYSDHSES
June 2014



Village of Fultonville

The Village of Fultonville is located on the southern banks of the Mohawk River, across the river from the Village of Fonda. The FEMA preliminary flood zones extend along the length of the Mohawk River and cover the low-lying areas along its banks. The Mohawk River is an economic, recreation, and natural resource asset for the community, but it is also a significant source of flood risk to other community assets. All of the identified assets within the preliminary flood zone were identified as high risk (see Figure II-16).

Several economic assets in Fultonville are located within the preliminary flood zone and scored in the high risk category. The primary economic and industrial corridors in Fultonville are located on the northern side of the Village, adjacent to the Mohawk River in an area that is highly exposed to flood risk. These assets include the local commercial corridor and bank, local small businesses such as a funeral home and a garage, and industrial facilities including LD Terra Corp and Mohawk River Leather. Long-term outages of these assets in the wake of a storm event could disrupt the economic base of the community.

The Village of Fultonville is located at the point of convergence of three major state and local roadways. The New York State Thruway (Interstate 90), Route 30A, and State Highway 920P all pass through the most at-risk section of Fultonville. Portions of all of these roads are at high risk of flooding. Outages of any portion of each road could potentially sever access to other parts of the Village, not to mention Montgomery County and even potentially New York State. These assets are important segments of the regional transportation system.

Though many homes in Fultonville are located in upland areas and away from the Mohawk River, there are a number of homes on the banks of the Mohawk River, east of Main Street and north of the New York State Thruway. These homes are reportedly subject to repeated flooding and are at high risk of flooding from future storm events.

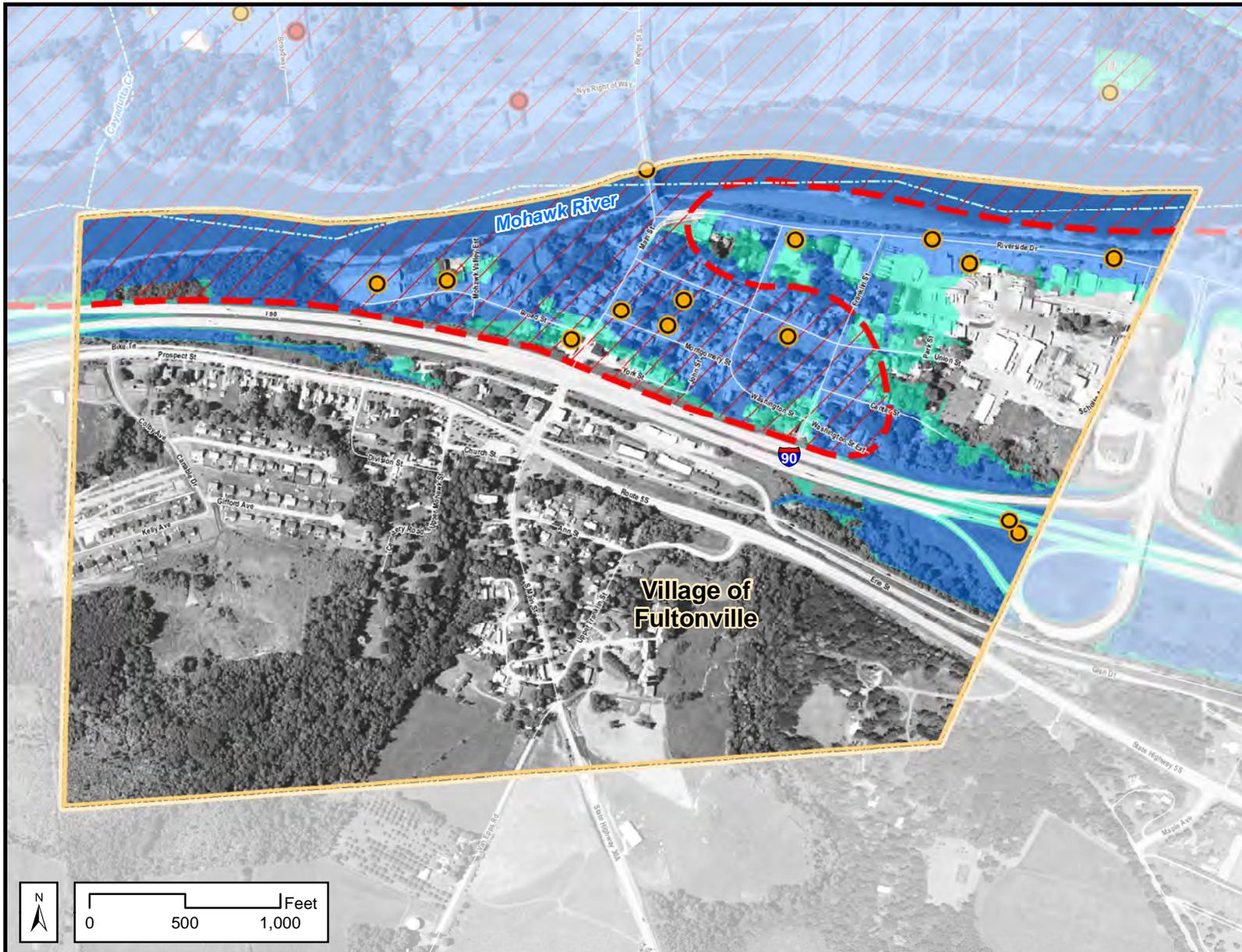
Flood risk in the Village of Fultonville is concentrated between the New York State Thruway and the Mohawk River. Mitigation of the exposure to flood risk for the assets in this area could provide benefits to the Village of Fultonville as a whole by securing its economic base, its transportation system, and many of its residences.

The unmitigated risk score results for assets in the Village of Fultonville are presented by Recovery Support Function in Table II-16.

Table II-16
Risk to Assets – Village of Fultonville

Recovery Support Function	Asset Name	Community Value	Risk Area	Risk Score Level
Economic Development	Betz, Rossi, Bellinger & Stewart (BRBS) Family Funeral Home	Medium	Extreme	High
Economic Development	Key Bank	Medium	Extreme	High
Economic Development	LD Terra Corp	Medium	Extreme	High
Economic Development	Macek's Garage	Medium	High	High
Economic Development	Mohawk River Leather, Inc.	Medium	Extreme	High
Economic Development	Travel Centers of America at Fultonville	Medium	High	High
Economic Development	Village of Fultonville Commercial Corridor	Medium	High	High
Housing	Village of Fultonville Residences at Risk	High	Extreme	High
Infrastructure	I90 - Vulnerable area in Village of Fultonville	High	High	High
Infrastructure	State Highway 920P - Vulnerable area in Village of Fultonville	High	High	High
Infrastructure	Thruway Exit 28 – I-90 & NY920P	Medium	High	High
Natural and Cultural Resources	Fonda-Fultonville United Methodist Church	Low	Extreme	High
Natural and Cultural Resources	Village of Fultonville Municipal Park	Low	Extreme	High

Figure II-16 Risk to Assets - Village of Fultonville



- Village of Fultonville
- Roads
- Rivers & Streams

Assets

- Severe Risk
- High Risk
- Moderate Risk
- *Approximate Extreme Risk Zone

FEMA Preliminary Floodzones

- High Risk Zone
- Moderate Risk Zone

*Extreme risk zones identified by Planning Committee

Data Sources:
FEMA
Montgomery County
NAIP
NYSDHSES
June 2014



Village of Fort Johnson

The Village of Fort Johnson is located on the northern banks of the Mohawk River at its confluence with the Kayaderosseras Creek. Both of these waterways are significant sources of flood risk. The FEMA preliminary flood zones in the Village cover the low-lying areas along the banks of both the Kayaderosseras Creek and the Mohawk River. Important infrastructure, social services, and housing assets within the community are located in these at-risk areas (see Figure II-17).

Much of the critical transportation infrastructure system in Fort Johnson is located near the local waterways. There are two bridges that cross the Kayaderosseras Creek in Fort Johnson, on State Highways 5 and 67. The bridge on Highway 5 is at a low elevation relative to the BFE and thus at high risk, while the bridge on Highway 67 is at a slightly higher elevation and at moderate risk. State Highway 5, which is a major regional access route, runs parallel to the Mohawk River within the preliminary risk zone. Because of its exposed location and a history of flooding, it is at high risk. Likewise, the intersection of Highways 5 and 67 is exposed to the flood source and has flooded historically, resulting in a score in the high risk category. Cumulatively, these assets and the larger system that they are part of provide a means of access and economic opportunity to the Village of Fort Johnson.

Two residential neighborhoods in Fort Johnson are at high risk. The homes near Fort Johnson Avenue along the Kayaderosseras Creek and those near Prospect Avenue along the Mohawk River are both in exposed locations and have experienced significant flooding during past storms. Several important social services assets are also located within the preliminary flood zone, including the fire station, highway garage, and municipal offices. These assets, which provide essential response and recovery services during storms and other emergencies, are all at moderate risk. Outages of these facilities could possibly exacerbate the risk to other assets in the community.

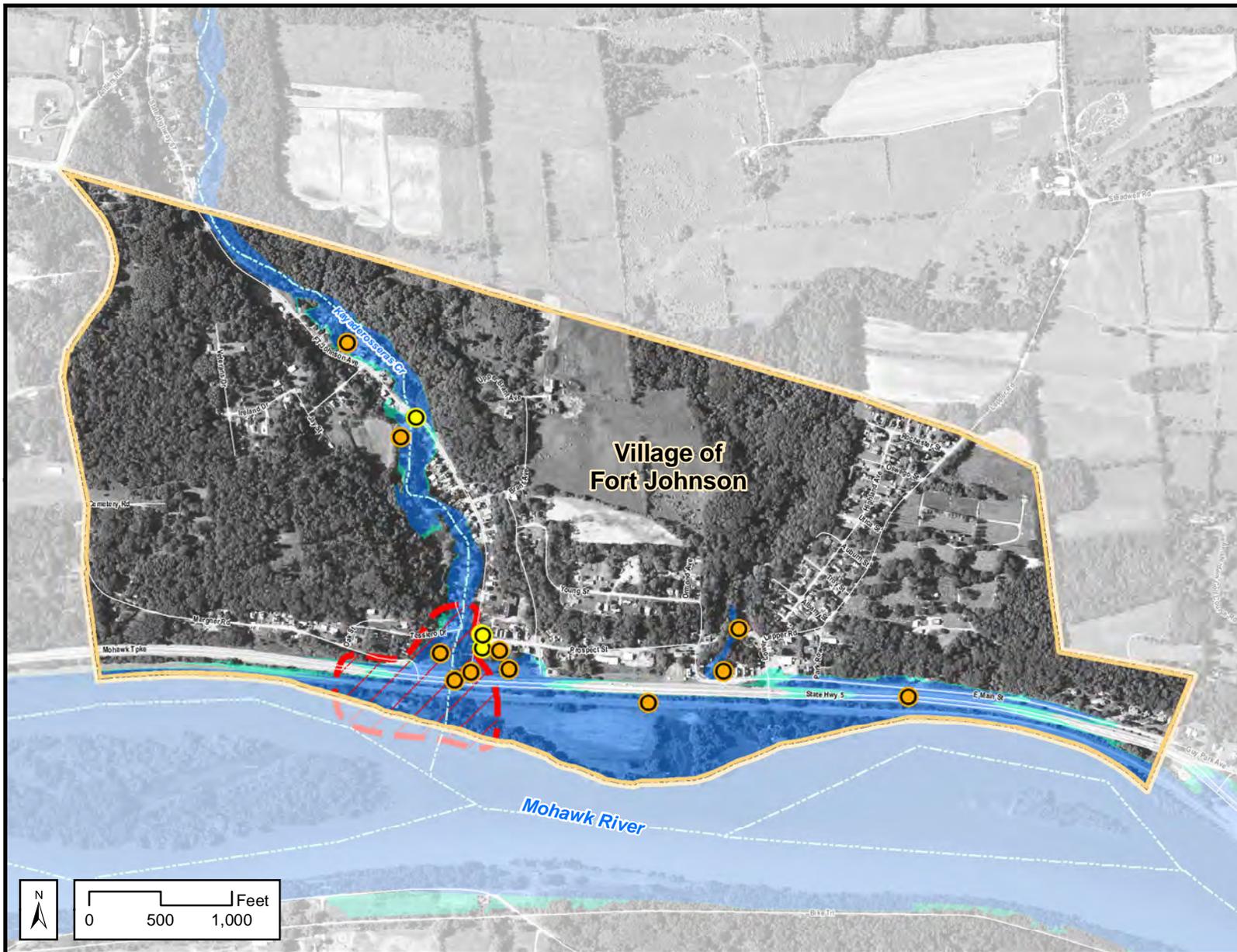
Though no assets in Fort Johnson scored in the severe risk category, a number of assets that provide fundamental access and services to the community are at high risk, including transportation infrastructure, emergency services, and homes. Mitigation of the exposure of these assets to flood risk is a key step towards improving the resiliency of Fort Johnson.

The unmitigated risk score results for assets in the Village of Fort Johnson are presented by Recovery Support Function in Table II-17.

Table II-17
Risk to Assets – Village of Fort Johnson

Recovery Support Function	Asset Name	Community Value	Risk Area	Risk Score Level
Economic Development	Caprara Auto Service	Medium	High	High
Health and Social Services	Fort Johnson Fire Station 1	High	High	Moderate
Health and Social Services	Fort Johnson Post Office	Low	High	High
Health and Social Services	Village of Fort Johnson DPW	High	High	Moderate
Health and Social Services	Village of Fort Johnson Municipal Hall	High	High	Moderate
Housing	Village of Fort Johnson Residences at Risk Near Fort Johnson Avenue	High	High	High
Housing	Village of Fort Johnson Residences at Risk Near Prospect Street	High	High	High
Infrastructure	Bridge - Route 67 over Kayaderosseras Creek	Low	High	Moderate
Infrastructure	Bridge – Route 5 over Kayaderosseras Creek	Low	Extreme	High
Infrastructure	Railroad - Vulnerable area in Village of Fort Johnson	Medium	High	High
Infrastructure	State Highway 5 - Vulnerable Area in Village of Fort Johnson	High	High	High
Infrastructure	State Highways 5 / 67 Intersection	High	Extreme	High
Natural and Cultural Resources	Montgomery County Historical Society	Low	Extreme	High
Natural and Cultural Resources	Village of Fort Johnson Brant Avenue Municipal Park	Low	High	High
Natural and Cultural Resources	Village of Fort Johnson Fort Johnson Avenue Municipal Park	Low	High	High

Figure II-17 Risk to Assets - Village of Fort Johnson



Village of Fort Johnson

Roads

Rivers & Streams

Assets

High Risk

Moderate Risk

*Approximate Extreme Risk Zone

FEMA Preliminary Floodzones

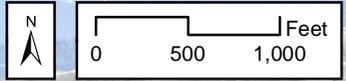
High Risk Zone

Moderate Risk Zone

*Extreme risk zones identified by Planning Committee

Data Sources:
FEMA
Montgomery County
NAIP
NYSDHSES

June 2014



Hamlet of Burtonsville

The Hamlet of Burtonsville is located along the banks of the Schoharie Creek. The FEMA preliminary flood zones in the Village are along the Creek and the areas of low elevation in its immediate vicinity (see Figure II-18).

The majority of assets in Burtonsville are located outside of these flood risk zones due to higher elevation and distance from Schoharie Creek. However, there are residences located on Island Road (on the island in the middle of the Creek), and near Colyer Street (immediately adjacent to the creek's western bank). Portions of the residences on Island Road are themselves located within the flood zone, but, more importantly, the bridge that serves as the only access point to these residences is within the flood zone and at severe risk. When the bridge is affected by flooding, the residences are inaccessible. This vulnerability leads to a severe risk score for the residences on Island Road. Likewise, the residences on the western bank of the Schoharie Creek, near Colyer Street, have demonstrated significant vulnerability during past storms and are at severe risk.

The Burtonsville Fire Station is also in a highly exposed location along the Schoharie Creek. During past storms, it has proven less vulnerable to flooding than the residences and bridge discussed above, but it is still subject to high risk.

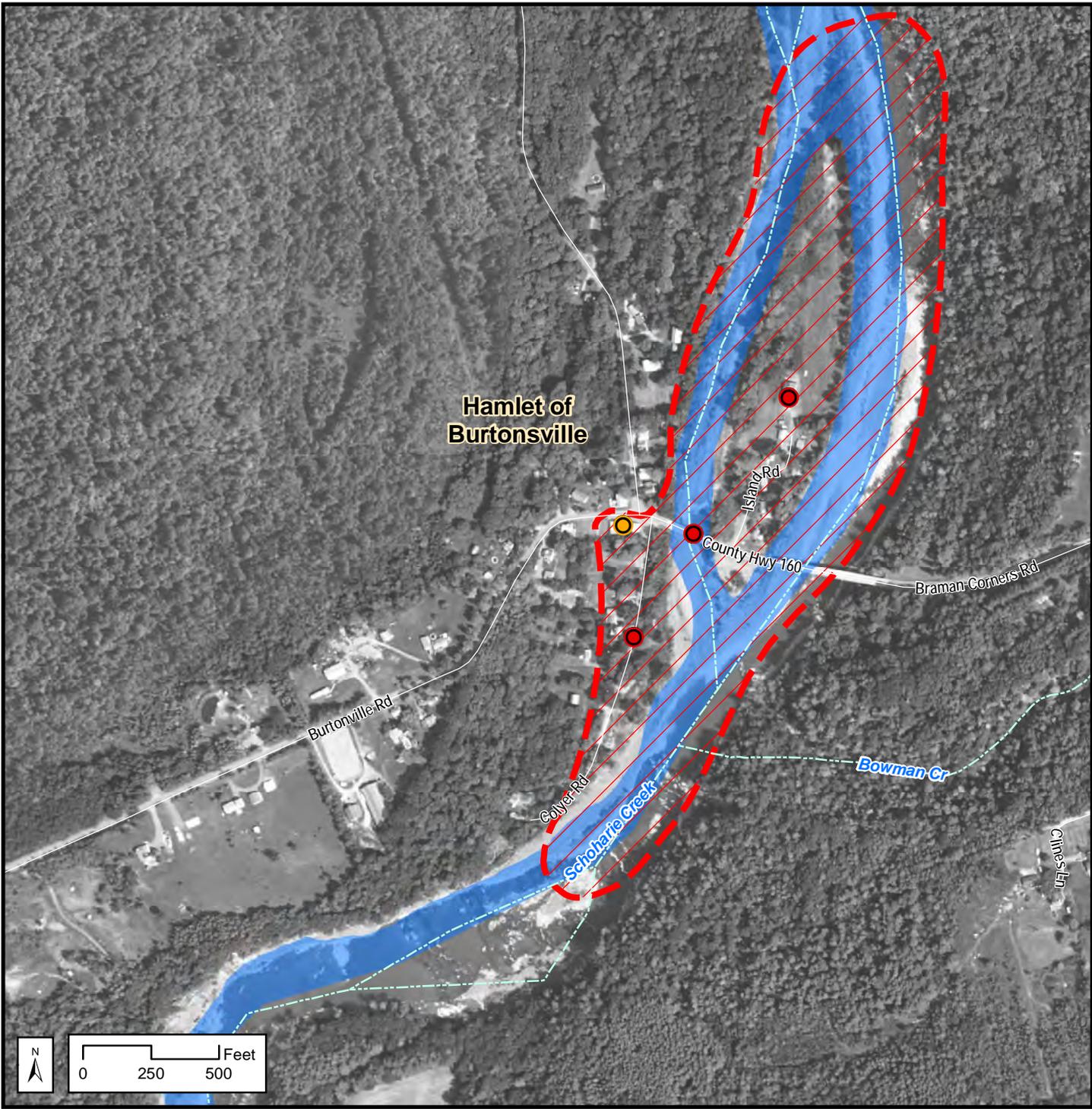
It is evident that the bridge, residences, and fire station along the Schoharie Creek in Burtonsville are at significant risk from flooding. Incapacitation of either the bridge or the fire station during a flood event would further exacerbate the vulnerability of the nearby residences. Risk to these important assets must be mitigated through resiliency strategies.

The unmitigated risk score results for assets in the Hamlet of Burtonsville are presented by Recovery Support Function in Table II-18.

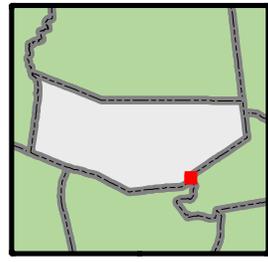
Table II-18
Risk to Assets – Hamlet of Burtonsville

Recovery Support Function	Asset Name	Community Value	Risk Area	Risk Score Level
Health and Social Services	Burtonsville Fire Station	High	Extreme	High
Housing	Burtonsville Residences at Risk near Colyer Street	High	Extreme	Severe
Housing	Burtonsville Residences at Risk near Island Road	High	Extreme	Severe
Infrastructure	Burtonsville Road Bridge over Schoharie Creek	Low	Extreme	Severe

Figure II-18 Risk to Assets - Hamlet of Burtonsville



Assets	*Approximate Extreme Risk Zone	Roads
Severe Risk	FEMA Preliminary Floodzones	Rivers & Streams
High Risk	High Risk Zone	Data Sources:
	Moderate Risk Zone	FEMA
		Montgomery County
		NAIP
		NYSDHSES
*Extreme risk zones identified by Planning Committee		June 2014



This page intentionally left blank

2014 NY RISING COUNTYWIDE RESILIENCY PLAN NYRCR MONTGOMERY COUNTY

Section III Reconstruction and Resiliency Strategies





Sections I and II of the NYRCR Montgomery County NYRCR Countywide Resiliency Plan provided an overview of the NYRCR Community and identified its risks and needs. This section presents the strategies for reconstruction and resilience. These strategies address local needs, problem areas and regional concerns and respond to critical issues and community feedback and ensure that the Community builds back better. The strategies proposed in the NYRCR Plan consider emergency, disaster recovery, and long-term resiliency and economic development needs that remain unmet by existing planning and rebuilding initiatives. They represent statements of action that address how to best fortify community assets, capitalize on opportunities, resolve critical issues and meet short, medium, and long-term goals identified during the planning process. Each strategy is mean to fulfill one or more of the Recovery Support Functions (RSFs), while addressing risks and needs to resolve critical community issues.

Community Planning and Capacity Building Strategy:

Develop plans, strengthen zoning codes and continue to coordinate with involved stakeholders.



The NYRCR Plan proposes to problem solve on a regional basis, which involves studying flooding throughout the watershed, and not by individual tributaries. Creating a mechanism for regional coordina-

tion of emergency, health and social service providers is extremely efficient. Coordinating economic and tourism revenue generators, through a County and region-wide network supports the local and regional

economy and more efficiently allocates resources, when supply routes are compromised.

Immediately following storm events, community response was swift and effective. The primary obstacles were a lack of coordinated communication between local and regional emergency service providers; difficulty in accessing medical facilities – both by residents and emergency service providers; the vulnerability of structures located in the floodway, and in or near the floodplain, and difficulty in dispatching resources to the most critical locations due to roadway closures.

Specific projects that address Community and Capacity Building include: developing an inventory of local and regional healthcare providers and providing real time updates for detour routes to these facilities, during and after storm events; a widespread (regional) review of zoning and building codes to better regulate – or eliminate altogether – development within the floodplain and require additional protective measures for structures currently located in the floodplain or flood prone areas; creating an updated supply chain network for large-animal/agricultural materials. In addition, consolidation of municipal services in flood safe locations and installation of additional stream gages increases the regional operational efficiency throughout the communities, further supporting this recovery support function.

Specific projects that address this strategy are presented in Table III-1.

**Table III-1
Community and Capacity Building Projects**

Project/Action Name	Description	Estimated Cost
Strategy: Develop plans, strengthen zoning codes and continue to coordinate with involved stakeholders		
Access to Health Care During Storm Events	Provide real time updates for viable routes to health care providers via a Smartphone APP to ensure access to health care providers during storm events.	\$18,000
Consolidation and Relocation of Montgomery County Services	Consolidate and centralize various County departments and services into renovated and new space, located out of the floodplain. This phased project will significantly increase efficiency and eliminate disruption to County operations during and after flooding events.	Phase 1: \$100,000; Phase 2: \$11M; Phase 3: \$4.8M; Phase 4: \$7.2M; Phase 5: \$150,000; TOTAL Estimated cost: \$23,250,000
Emergency Evacuation Program and Safe Haven Plan for Large Livestock Animals	Create a County-wide database of and distribution plan for providers of large animal/livestock supplies.	\$25,000
Expansion of St. Johnsville Fire Department Dive Rescue and Recovery Unit	Provision of additional equipment and training for additional staffing to the St. Johnsville Fire Department Dive Rescue and Recovery Unit.	\$23,500 (5 suits) Cost to outfit 1 diver = \$4,700 per diver
Stream Gage Installation and Monitoring	Installation of additional stream gages at 23 locations along the tributaries to the Mohawk River. The proposed gage locations and operational considerations will be fully integrated with the similar initiatives underway by the NYS Canal Corporation.	\$345,000
VHF - High Band Frequency Simulcast Dispatch/Transmitting System	Installation of and upgrades to the County's emergency communication infrastructure so that fire, police, Town and County DPW personnel are all communicating via a coordinated VHF high bank frequency system. Back-up power generators will also be installed to ensure uninterrupted communication during power outages.	\$2,918,700
Zoning Code Revisions	Revise and update local zoning ordinances to improve resiliency of projects within the 100 and 500 year floodplain.	Between \$15,000 and \$25,000 per community depending on level of need.

Economic Development Strategy:
Implement measures to fortify and increase the resiliency of commercial centers and economic drivers.



Hurricane Irene, Tropical Storm Lee and the summer 2013 storms caused substantial damage and in some cases completely destroyed many businesses throughout Montgomery County. While some

businesses have been able to reopen, others have closed their doors permanently, creating a substantial economic impact. Many of the rural Montgomery County Towns and Villages rely on one or two grocery stores, one pharmacy, one bank, and one gas station for their food and fuel needs. When the municipalities' only businesses are forced to close – even temporarily- the loss of basic goods and services including food, pharmaceuticals, gas for generators, and banking can be catastrophic to the recovery of the community. Because major through-roads were inoperable for extended periods due to bridge flooding, roadway collapse, and downed trees and power lines, residents were not only unable to access basic needs within their own municipalities, but also could not travel to neighboring municipalities

The Save-a-Lot and the Family Dollar, both vital businesses in the Village of Fort Plain were inundated with over eight feet of water resulting in devastating damage. The Save-A-Lot, the Village of Fort Plains' only grocery store lost their entire inventory in the 2013 Storm and was closed for three months. Because the next closest grocery store is located approximately two miles away, the closure of the Save-A-Lot resulted in a considerable hardship for residents without access to cars.

Similarly, the Family Dollar, which is the only department store in Fort Plain, and critical to the Village population, was entirely destroyed and currently remains closed. Initially, the damage was so complete that despite being the most profitable Family Dollar store in New York State, representatives of the



Flooding at Gas Station in Fort Plain, June 2013 Storm (Jeff Smith)

company indicated that they were not going to reopen. Town and County officials convinced the store ownership to reopen because of the need by the Village.

In the rural Montgomery County communities, much of the economy is supported by commodity and livestock farming. Farms throughout the County are frequently impacted not only by loss of crops and livestock due to flooding, but also by the resulting loss of farmland through erosion. The Arkell Museum and Montgomery County Fairgrounds are key tourism assets to the County. Their protection is important so that they may recover more quickly and efficiently after storms have subsided and continue to generate tourism and economic activity in the County.

There is a clear need to better protect and provide ongoing support to local and regional business centers and agricultural operations. Critical additional recovery needs include: infrastructure for flood protection during and immediately following storm events, business assistance in the form of loans and grants, equipment needs, facility relocation, and secondary/back-up power sources.

“Our vision is to work as a region to protect our residents, commercial centers and other economic drivers... by identifying and implementing sound recommendations aimed at increasing resiliency.”

To that end, the County seeks to protect vital economic assets and strengthen the commercial centers and to make them more resilient. The Planning Committee has identified projects and actions that will support the economic resiliency of the County both during and after extreme storm events. These projects include: providing gap funding to businesses to retrofit, elevate, or relocate their structures; improving, expanding and upgrading the Montgomery County Fairground seating and vendor area; designing and

construction of above ground, flood proofed, climate controlled storage areas for the Arkell Museum’s permanent collection, local historic archives and sculpture; and creating a County-wide database of and distribution plan for providers of large animal/livestock supplies to ensure continued uninterrupted provision of goods, materials and services.

Specific projects that address this strategy are presented in Table III-2.

**Table III-2
Economic Recovery Projects**

Project/Action Name	Description	Estimated Cost
Strategy: Implement measures to fortify and increase the resiliency of commercial centers and economic drivers		
Protect Businesses from Flooding	Provide gap funding to businesses to complete retrofits, elevate, or relocate	\$500,000
Montgomery County Fairgrounds Improvements	Improvements to, expansion of, and resiliency upgrades for the Montgomery County Fairground seating and vendor area.	\$691,000
Arkell Museum Artwork Protection	Design and construction of above ground, flood proofed, and climate controlled storage areas for the Arkell Museum's permanent collection, local historic archives and sculpture.	\$2,100,000

Health and Social Services Strategy:
Upgrade, strengthen, and coordinate County-wide emergency management, communications and early warning systems to mitigate flooding, plan for future disasters, and protect communities.



During flooding events, communities become isolated and inaccessible to emergency service providers due to downed power lines, washed out bridges and roads.

Regional hospitals and health care facilities in Montgomery County were not damaged during the storm events; however, access to these facilities was compromised. Additionally, due to a lack of coordinated communication infrastructure, ambulance and other emergency service providers were not able to adequately connect with each other, or with other municipal service agencies complicating rescue efforts. Damage to cellular towers further confounded the ability of emergency service personnel to communicate efficiently forcing them to communicate by their own cell phones, where service was available.

Ensuring that public health, health care facilities and essential social service needs are restored straight-away is critical to community recovery. Inter-municipal and mutual aid emergency service coordination is critical during and after storm events to identify road closures and detour routes and was hampered by the lack of a coordinated regional system.

Several actions and projects that would improve communication and coordination, particularly for emergency service providers, were identified. At present, police and EMS service providers operate on a high band frequency, while the fire departments, and the

Town and County Departments of Public Works have not yet converted to this same band.

“Our vision is to work as a region to protect our residents, commercial centers and other economic drivers, historic resources, infrastructure assets, and natural systems by identifying and implementing sound recommendations aimed at increasing resiliency.”

Increasing resiliency includes prioritizing communication infrastructure. The County’s ongoing initiative to install new microwave technology throughout the County represents a significant investment in regional communication infrastructure. However, additional resources are required. Improvements to regional communication infrastructure are critical to ensure seamless assistance to people in need and communication between the emergency service providers for efficient emergency response.

Improved coordination and communication would include: the installation of and upgrades to the County’s emergency communication infrastructure to facilitate communication between fire, police, Town and County DPW personnel via a coordinated VHF high band frequency system; installation of back-up power generators to ensure uninterrupted communication during power outages and provision of additional equipment to the St. Johnsville Fire Department Dive Rescue and Recovery Unit; and cross-jurisdictional mapping of alternative evacuation routes available for people’s smart phones.

Specific projects that address this strategy are presented in Table III-3.

**Table III-3
Health and Social Services Projects**

Project/Action Name	Description	Estimated Cost
Strategy: Upgrade, strengthen, and coordinate County-wide emergency management, communications and early warning systems to mitigate flooding, plan for future disasters, and protect communities.		
Access to Health Care During Storm Events	Provide real time updates for viable routes to health care providers via a Smartphone APP to ensure access to health care providers during storm events.	\$18,000
Expansion of St. Johnsville Fire Department Dive Rescue and Recovery Unit	Provision of additional equipment and training for additional staffing to the St. Johnsville Fire Department Dive Rescue and Recovery Unit.	\$23,500 (5 suits) Cost to outfit 1 diver = \$4,700 per diver
Stream Gage Installation and Monitoring	Installation of additional stream gages at 23 locations along the tributaries to the Mohawk River. The proposed gage locations and operational considerations will be fully integrated with the similar initiatives underway by the NYS Canal Corporation.	\$345,000
VHF - High Band Frequency Simulcast Dispatch/Transmitting System	Installation of and upgrades to the County's emergency communication infrastructure so that fire, police, Town and County DPW personnel are all communicating via a coordinated VHF high bank frequency system. Back-up power generators will also be installed to ensure uninterrupted communication during power outages.	\$2,918,700

Housing Strategy:
Provide assistance to homeowners and renters to protect themselves from future flooding through mitigation measures, elevation, acquisition, relocation and general flood proofing.



Although there was widespread damage to residences throughout Montgomery County in the June 2013 storms, homes along the Otsquago Creek in the Village of Fort Plain and the Town of Minden

were particularly hard hit. Over 100 homes and numerous businesses in the Village of Fort Plain were inundated by floodwaters, which undermined building foundations, destroyed belongings, and in some cases washed away entire structures. Homes and

properties along Brimstone Creek – a tributary of the Canajoharie Creek (on West Ames Road and Latimer Hill Road in the Village of Ames) experienced widespread basement flooding, revealing a pressing need to address the issue with a multi-pronged approach.

“Our vision is to work as a region to protect our residents, commercial centers and other economic drivers, historic resources, infrastructure assets, and natural systems by identifying and implementing sound recommendations aimed at increasing resiliency.”

Consistent with the vision for the Montgomery County NYRCR Program, several initiatives that would facilitate recovery and promote resiliency of residential

development were identified. In addition to the traditional residential assistance methods of educating residents about flood proofing techniques, re-examining zoning and building codes to manage and/or eliminate development in the floodplain, a project to relocate residents was developed. The Project would provide direct assistance in the form of grants, loans or other incentives to enable families and property owners in high risk areas to relocate to flood safe locations. The Countywide Residential Relocation and Assistance Program targets flood-prone areas that are subjected to repetitive loss, which would be applied to residential areas throughout the county as they are identified.



Flooded Residential Properties, Reid Street, Village of Fort Plain – June 2013 Storm (Jeff Smith)

Specific projects that address this strategy are presented in Table III-4

**Table III-4
Housing Recovery Projects**

Project/Action Name	Description	Estimated Cost
Strategy - Provide assistance to homeowners and renters to protect themselves from future flooding through mitigation measures, elevation, acquisition, relocation and general flood proofing.		
Residential Relocation and Assistance Program	Support residential property owners and renters in high risk target areas to relocate to safe locations within their community.	Cost of sites for relocation to be determined. Value of HMGP buyout packages determined through appraisal process. Typical cost for a homebuyer assistance/gap financing program under NYS housing program, is assistance up to \$40,000 per participant scaled based upon income, need and family size. Assuming assistance to 20 households, the estimated cost would be \$800,000 in direct costs with administration.

Infrastructure Strategy:

Repair, upgrade and protect existing infrastructure assets and critical facilities from flood damage to reduce their vulnerability.



Critical infrastructure in Montgomery County, such as bridges, culverts, stormwater drainage and conveyance systems, are regularly subject to flooding. In the past, particularly hard hit were the Towns

of Minden and St. Johnsville; and the Villages of Fort Plain, Canajoharie, St. Johnsville, Fonda, Fort Johnson, and Fultonville, and the Hamlet of Burtonsville. While some of these communities were able to repair damaged infrastructure, many were still seeking required funding to support resiliency upgrades when severe storms struck again in June 2013. Infrastructure along the Otsquago Creek in Fort Plain was subjected to flood waters which rose seven feet higher than its previously recorded high mark. The flooding from these events led to stream bank failures, storm drainage issues, bridge closures, clogged culverts and other infrastructure damage.

Critical County facilities have flooded regularly, disrupting services and forcing prolonged relocation of County services and functions. Because they are located within the floodplain, the Montgomery County Annex Building in Fonda, and the Canajoharie Highway Department Garage both suffer from repeated flooding during storm events. This lack of continuity for provision of vital community services is disruptive and can compromise the ability for communities to recover quickly from storm events.

Infrastructure repair and improvement is one of the largest capital investments a community will make following a major disaster. Rebuilding infrastructure in a way that is more resilient is integral to ensuring community-wide resiliency to future storms. The Planning Committee identified the need to repair and protect



Moyer Road Bridge - Town of Minden (Jeff Smith)

certain infrastructure assets; improve stormwater management in selected locations; and maintain an integrated county-wide early warning system that is linked with NYS Canal Corporation.

“To achieve this vision, Montgomery County will design and implement County-wide infrastructure that will minimize the impact of disasters on our residents, protect our assets from storm damage and facilitate rapid recovery.”

To that end, projects that protect identified infrastructure assets while realizing the vision were developed throughout the planning process. Mitigation measures include evaluating the optimal sizing, elevation and improvements for structures located in the floodway (bridges, culverts); consolidation of services to structures located outside of the floodplain additional flood proofing measures for structures that cannot be relocated; working with the NYS Canal Corporation to create an integrated approach to early warning systems; and continued county-wide inventory and structural assessment of existing bridges and culverts, and prioritize for rehabilitation and replacement.

Projects identified to address infrastructure improvements include: repairing damaged and undersized storm sewer infrastructure in the Villages of St. Johnsville and Canajoharie; an extensive County-wide bridge rehabilitation and replacement initiative beginning with the Burtonsville Road Spur Bridge in the Town of Charleston; followed up by nine additional bridges throughout the County to improve the condition and safety of bridges along the Mohawk River

and its tributaries. Also proposed is the consolidation and relocation of Montgomery County services out of the current Annex Building in Fonda, and a repurposing of that structure and evaluating better flood protection measures for the Highway Department Garage in the Town of Canajoharie.

Specific projects that address this strategy are presented in Table III-5

**Table III-5
Infrastructure Projects**

Project/Action Name	Description	Estimated Cost
Strategy - Repair, upgrade and protect existing infrastructure assets and critical facilities from flood damage to reduce their vulnerability		
Capital Bridge Program	A phased County-wide bridge rehabilitation and reconstruction project to improve the condition and safety of bridges along the Mohawk River and its tributaries.	Varies – see Section IV – Project Profiles
Consolidation and Relocation of Montgomery County Services	Consolidate and centralize various County departments and services into renovated and new space, located out of the floodplain. This phased project will significantly increase efficiency and eliminate disruption to County operations during and after flooding events.	Phase 1: \$100,000; Phase 2: \$11M; Phase 3: \$4.8M; Phase 4: \$7.2M; Phase 5: \$150,000; TOTAL Estimated cost: \$23,250,000
Stormwater Management System Projects	Identify measures to reduce in-stream erosion and replace damaged and undersized storm sewer infrastructure in the Villages of Canajoharie, Fonda and St. Johnsville.	\$900,000 (\$50,000 each for engineering evaluation and \$250,000 each to support implementation)
Stream Gage Installation and Monitoring	Installation of additional stream gages at 23 locations along the tributaries to the Mohawk River. The proposed gage locations and operational considerations will be fully integrated with the similar initiatives underway by the NYS Canal Corporation.	\$345,000
Town of Canajoharie Highway Department Garage Relocation or Replacement	Evaluate flood protection measures for the Town of Canajoharie Highway Department Garage, located on West Ames Road.	\$25,000.00

Natural and Cultural Resources Strategy:
Preserve and restore natural areas including floodplains, streams and wetlands to help mitigate flooding via watershed and stream restoration projects.



When the Mohawk River, the Otsquago, Canajoharie, and Schoharie Creeks and various streams and tributaries overflow their banks, water is forced through the towns and villages in Montgomery

County. Development and the prevalence of impervious surfaces within the floodplain inhibit water storage and absorption, funneling water further away from the source. Undersized infrastructure within the floodway, and the furious rate of water flow causes massive stream bank erosion throughout the watershed leaving massive debris in its wake. When the water eventually recedes, it takes with it bacteria, roadway spills and other contaminants, with potential significant environmental consequences to riverine ecosystems. Critical historic documents and cultural resources stored in structures located within the floodplain have been damaged and destroyed. Better protection for these natural resources is critical for the County’s long term economic resiliency.



Arkell Museum (Jonathan Hillyer)

To prepare a holistic approach to watershed management, the hydrologic and hydraulic function of the watershed needs to be evaluated. Additionally, coordination with state and local agencies on water-related issues is essential. Restoring natural resource infrastructure is a fundamental project goal and a stated component of the NYRCR Montgomery County Vision. To achieve this goal, projects were developed that would study the feasibility of and optimal solutions for channel restoration and improvements; upgrading and installation of new stream gages to provide more accurate water level data throughout the various tributaries to the Mohawk River; increasing the use of green infrastructure and natural groundcovers to minimize or retrofit impervious surfaces; promoting policies that minimize development in the floodplain; and right-sizing infrastructure located in the floodway.

Specific projects identified to protect the County’s natural and cultural resources include: stream bank improvements along a portion of the Otsquago Creek in the vicinity of Kellogg Street Bridge in the Village of Fort Plain; provision of more stream gages in 23 locations along the tributaries to the Mohawk River; hydraulic and hydrologic modeling of various structures within the floodway to determine optimal improvement projects; the reconstruction of the damaged bulkhead along the Mohawk River adjacent to Collect Plastics in the Village of St. Johnsville and hydraulic and hydrologic modeling to identify needed improvements and restoration of the Creek Channel for Zimmerman Creek.

Specific projects that address this strategy are presented in Table III-6.

Table III-6
Natural and Cultural Resource Projects

Project/Action Name	Description	Estimated Cost
Strategy: Preserve and restore natural areas including floodplains, streams and wetlands to help mitigate flooding via watershed and stream restoration projects		
Bulkhead Restoration	Reconstruction of the damaged bulkhead along the Mohawk River adjacent to Collect Plastics in the Village of St. Johnsville.	\$15,000
Canajoharie Creek Wall Restoration	Design, engineering and creating construction documents to repair damage to the Creek Wall on a stretch of the Canajoharie Creek.	\$1M for engineering analysis and implementation (to be confirmed when assessment is complete)
Otsquago Creek Bank Engineering Analysis and Design	Evaluate the extent of deterioration, design and engineering analysis, cost estimates and construction documents for the Otsquago Creek bank and channel in the vicinity of the Kellogg Street Bridge.	\$1M
Stream Gage Installation and Monitoring	Installation of additional stream gages at 23 locations along the tributaries to the Mohawk River. The proposed gage locations and operational considerations will be fully integrated with the similar initiatives underway by the NYS Canal Corporation.	\$345,000
Zimmerman Creek Channel Restoration	Phase 1: Hydraulic and hydrologic modeling to identify needed improvements to and Phase 2: provide construction funding for restoration of the Creek Channel.	\$40,000 for engineering evaluation and \$1M for implementation (to be confirmed when evaluation is complete)

This page intentionally left blank

2014 NY RISING COUNTYWIDE RESILIENCY PLAN NYRCR MONTGOMERY COUNTY

Section IV Project Profiles





This section provides detailed information on the Montgomery County NY Rising proposed Resiliency Projects. The Resiliency Projects are categorized as follows:

Critical Projects: Essential measures that address life-in-peril situations and life safety issues during and after storm events.

Necessary Projects: Key projects, which are needed to ensure the resiliency of the County.

Enhancement Projects: Projects, which support the overall well-being and economic future of the County.

Access to Health Care During Storm Events



Emergency Service Providers (Jeanne Walsh)

Project Description:

The Montgomery County Department of Emergency Management received a grant to develop a smartphone APP, which will provide interactive real time communication between emergency personnel for road closures. This Project would propose to further develop the APP to include communication with residents regarding safe evacuation routes, access to health care facilities and shelters, including those that are pet-friendly. The first phase of the project would involve preparing a county-wide inventory and map of all health care providers. The second phase would further develop the smartphone APP to make this information widely available.

Municipality:

County-wide

Project Location:

County-wide

Cost Estimate:

\$18,000

Type of Request:

Straight-up funding

Strategy:

Upgrade, strengthen, and coordinate County-wide emergency management, communications and early warning systems.

Project Benefits:

Benefits of implementing this project include streamlined real time communication of safe routes for both residents and emergency service workers, reducing risk of encountering dangerous roadway conditions, ensuring access to health care and sheltering during storm events by linking to real time information provided through the Montgomery County Emergency Management APP. The project would benefit, residents, visitors, emergency service personnel, and town, county and state officials. The Project would increase overall resiliency by disseminating critical information quickly and efficiently.

Anticipated Timeframe:

Six months – 1 year

Project Status:

Not started

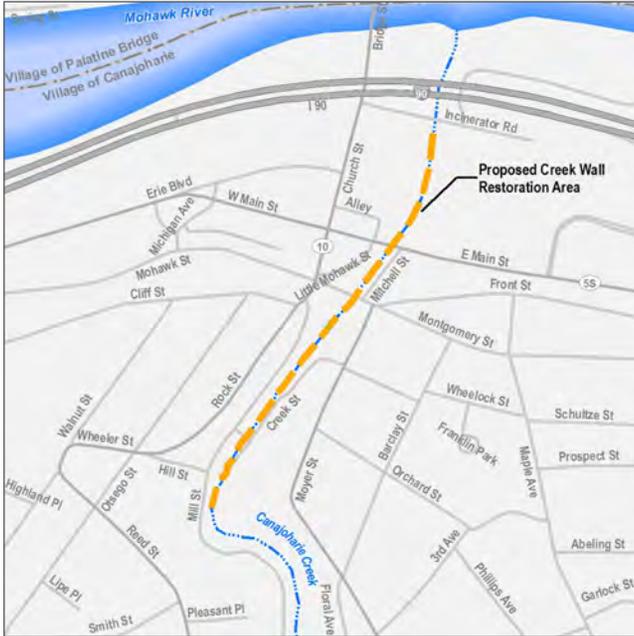
Anticipated Project Lead:

Montgomery County Emergency Management

Potential Funding Sources:

NYS Health Foundation Special Projects Fund, Private Foundation

Canajoharie Creek Wall Restoration



Canajoharie Creek Wall Damage Photos (Nick Zabawsky)

Project Description:

Retaining walls along the Canajoharie Creek are deteriorating and were undermined as a result of erosion and the increased velocity of water during the 2006 and 2013 storms in particular, but annually during the springtime thaw. As a result, buildings and roadways adjacent to the Creek and its walls are at significant risk of structural failure. Of particular concern are the walls at the intersection of Hill and Mill Streets and the condemned buildings on the north end of Mill Street. Immediate detailed assessment of the walls and stabilization are needed. Note: The proposed NYS Canal Corporation real time Flood Warning & Mitigation Program has the potential to significantly reduce severe flooding along the Mohawk River and at the confluence with Canajoharie Creek; however, actual performance cannot be predicted until system modeling and validation is performed over the next year. Regardless, Creek wall restoration is critical in the short term due to the severely deteriorated condition.

Municipality: Village of Canajoharie

Project Location: Canajoharie Creek from Hill Street to Mohawk River

Cost Estimate:

\$1M for engineering analysis, design and construction documents and earmark for implementation (to be confirmed when assessment is complete).

Type of Request: Straight-up funding

Strategy: Preserve and restore natural areas including floodplains, streams and wetlands to help mitigate flooding via watershed and stream restoration projects.

Project Benefits:

The retaining wall, which stabilizes the stream banks along the Creek and protects adjacent assets is severely damaged in several locations and in danger of a larger collapse. The project would reduce the risk to economic assets, including the downtown business district and several manufacturers. Residents and businesses would benefit from this project, as well as community services such as Municipal Hall and a temporary shelter facility.

Anticipated Timeframe: 1 year – 6 months for design development and 6 months for construction

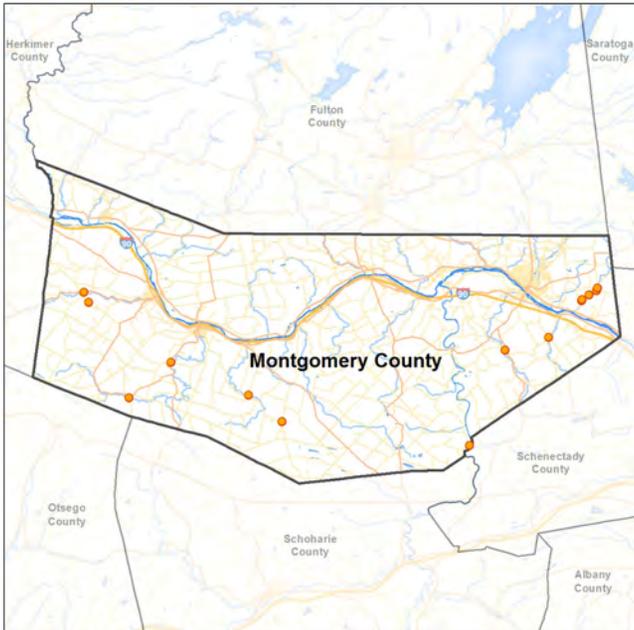
Project Status: Some hydraulic and hydrologic modeling has been completed, but additional engineering and structural assessment has not yet been initiated.

Anticipated Project Lead:

Village of Canajoharie

Potential Funding Sources: NYS Department of State Office of Planning and Development, CDBG Infrastructure Grants, NYSDEC, Montgomery County Soil and Water Conservation Service, FEMA HMGP

Capital Bridge Program



Project Description:

A review of Montgomery County’s bridge inventory (completed by AECOM, 2014, “Capital Bridge Program Recommendations, Montgomery County”) identified bridges that received a conditional rating below 5.0 (accounting for overall NYSDOT condition rating, load posting, safety and other flagged conditions, AADT – average annual daily traffic) and other factors. The Report identified three priority projects (those that received a condition rating below 5.0). These include the Burtonsville Road Spur Bridge (Town of Charleston), the Thayer Road Bridge over Terwilligar Creek (Town of Florida) and the Brookmans Corners Road Bridge over the Otsquago Creek (Town of Minden). The remaining seven bridges are identified as replacement projects and include the McEwan Road Bridge over Canajoharie Creek (Town of Canajoharie), the South Buel Road over Canajoharie Creek (Town of Canajoharie), Fort Hunter Road Bridge over South Chuctanunda Creek (Town of Florida), the Freysbush Road Bridge over the South Branch of the Otsquago Creek (Town of Minden), the Rappa Road Bridge over Flat Creek (Town of Root), the Darrow Road Bridge over East Creek (Town of Root) and the Cranes Hollow Road Bridge over Evans Kill (Town of Amsterdam). The design for the replacement bridges would account for improvements that would increase the resiliency of the bridges, including potentially elevating or widening the bridge abutments.

This Project identifies the Burtonsville Road Spur Bridge as a “Critical Resiliency Project” and the remaining nine bridge projects, listed above as “Necessary Resiliency Projects”

Municipality: County-Wide

Project Location: County-Wide

Cost Estimate:

Varies – \$792,000 to \$6,394,556

Type of Request: Cost Share with Montgomery County Capital Funds

Strategy:

Repair, upgrade and protect existing infrastructure assets and critical facilities from flood damage to reduce their vulnerability.

Project Benefits:

Rehabilitation or replacement of deteriorating infrastructure is essential to the resiliency of not only the County, but also the region. The County’s Capital Bridge Program Recommendations Report prioritizes the bridge rehabilitation program, understanding current threats and hazards, so resources can be wisely allocated to where they are most needed. Critical infrastructure protection, including roadways and bridges, supports the whole community, helping to build and sustain the capabilities needed to be secure and resilient.

Anticipated Timeframe:

Phased implementation – 2015-2019

Capital Bridge Program (continued)



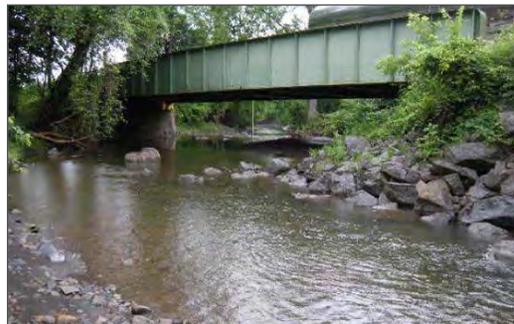
Darrow Road over East Creek (AECOM Bridge Study)



Rappa Road over Flat Creek (AECOM Bridge Study)



Freybush Road over South Branch of Otsquago (AECOM Bridge Study)



Fort Hunter Road over South Chuctanunda (AECOM Bridge Study)



McEwan Road Bridge (AECOM Bridge Study)



South Buel Road Bridge (AECOM Bridge Study)

Project Status:

Bridge condition evaluation completed and replacement recommendations and prioritization complete. Design has not been initiated.

Anticipated Project Lead:

Montgomery County Department of Public Works

Potential Funding Sources:

NYSDOT LAFA Program with Local Cost Share, USDA Rural Facilities, State Transportation Improvements Program (STIP), Transportation Enhancements Program (TEH)



Cranes Hollow Road over Evans Kill (AECOM Bridge Study)

Consolidation and Relocation of Montgomery County Services



Montgomery County Annex - 20 Park Street, Fonda (Google Earth)

Project Description:

The Montgomery County Annex building located at 20 Park Street, Fonda is located within a floodplain and has been inundated during recent extreme storm events forcing relocation of vital County services. A Montgomery County Capital Program Application for various County emergency service facility projects has been prepared and submitted, and is proposed to be initiated in several phases. Phase 1 includes architectural and engineering services (2015); Phase 2 includes additional facilities at the Public Safety Facility for: new emergency vehicle storage building for sheriff and emergency management, Emergency Management, Probation, Public Defender, Coroner; and a new office building for social services (2016); Phase 3 includes renovation of the County Office Building, for use by Annex Building Departments (2018); Phase 4 includes construction of a new DPW facility at the Public Safety Facility; Phase 5 would include the repurposing or demolition of the County Annex Building (2019).

Municipality: County-Wide

Project Location: County-Wide

Cost Estimate: Phase 1: \$100,000; Phase 2: \$11M; Phase 3: \$4.8M; Phase 4: \$7.2M; Phase 5: \$150,000; TOTAL Estimated cost: \$23,250,000

Type of Request: Cost Share with Montgomery County Capital Funds

Strategy:

Repair, upgrade and protect existing infrastructure assets and critical facilities from flood damage to reduce their vulnerability.

Project Benefits:

Relocating all County services from the County Office Building Annex is critical to uninterrupted provision of vital community services during and after extreme storm events. Completing this project as part of an overall phase consolidation program would be more financially efficient.

Anticipated Timeframe:

2015: Architectural Services/Engineering for new/renovated buildings; 2016: Construct addition at Public Safety Facility for Emergency Mgmt, Probation, Public Defender, Coroner; Construct new emergency vehicle storage bldg. for Sheriff+Emergency Mgmt at Public Safety Bldg; and Construct new office building for social services; 2017: Renovate County Office Building for use by Annex Bldg. Depts; 2018: Construct new DPW facility; 2019 Repurpose/demolish Annex Building

Project Status: Preliminary analysis and application complete.

Anticipated Project Lead: Montgomery County

Potential Funding Sources: Montgomery County Capital Program Application prepared and submitted, USDA Rural Facilities

Expansion of St. Johnsville Fire Department Dive Rescue and Recovery Unit



Dive Rescue and Recovery Unit (St. Johnsville Fire Department)

Project Description:

In 2001, the St. Johnsville Fire Department implemented a Dive Rescue and Recovery Unit to address needs created by the increased recreational usage of the Erie Canal, Mohawk River, and Beardslee Reservoir. During the 2013 storm, the Dive Rescue and Recovery Unit rescued stranded motorists, and an elderly resident in danger of being swept away by floodwaters. This six person unit provides service to all of Montgomery County, and a large portion of Herkimer County. Provision of service to Fulton County is also under consideration. Current equipment includes two jetskis, an airboat and dive suits, with additional rescue ropes and equipment. The Dive Rescue and Recovery Unit is currently funded by the Fire Department and supplemented with private donations. This project would fund the purchase of additional equipment and training for additional staffing to expand this critical emergency service.

Municipality:

County-Wide

Project Location:

St. Johnsville Fire Department

Cost Estimate:

\$23,500 (for 5 Suits) Cost to outfit 1 diver = \$4,700 per diver (dry Suits - \$2,200 per suit; DACOR HUB BC's - \$1,000 each; AGA and EXO full face masks - \$1,500 each).

Type of Request:

Straight-up funding

Strategy:

Upgrade, strengthen, and coordinate County-wide emergency management, communications and early warning systems.

Project Benefits:

Additional funding for widespread implementation of dive rescue and recovery unit services and upgraded equipment would provide this critical service to Montgomery County, and adjacent Counties. Provision of additional emergency service decreases the risk to County residents and to the Fire Department personnel.

Anticipated Timeframe:

If funding is secured, additional equipment can be purchased immediately

Project Status:

The St. Johnsville Fire Department Dive and Rescue Team has identified the need for additional staff and equipment.

Anticipated Project Lead:

St. Johnsville Fire Department

Potential Funding Sources:

US Department of Homeland Security

Otsquago Creek Bank and Channel Engineering Analysis and Design

Project Description:

Flooding severely impacted the Village of Fort Plain's major economic/commercial center, including the grocery store, Family Dollar, Nice N Easy, and medical offices. It is anticipated that work along the Creek bank and channel, and other resiliency measures will be required. Limited HEC-RAS (Hydrologic Engineering Centers River Analysis System) modeling completed by an engineering firm under contract with NYSDOT in cooperation with NYSDEC indicated that additional analysis as part of a regional watershed hydraulic and hydrologic modeling effort will be required to clearly define the optimal program for the Creek, and other tributaries in the system. This project would involve analysis of existing deterioration, detailed engineering to determine what improvements would be applicable and appropriate, and preparation of design and construction documents. Implementation funding has also been earmarked, though more detailed cost estimates would be developed in conjunction with the engineering analysis. Note: The proposed NYS Canal Corporation Mohawk River Basin flood modeling and real time Flood Warning & Mitigation Program has the potential to significantly reduce severe flooding along the Mohawk River and at the confluence with Otsquago Creek; however, actual performance cannot be predicted until system modeling and validation is performed over the next year. Regardless, improvements along the Creek are

required in the short term to mitigate substantial flooding issues.

Municipality:

Village of Fort Plain

Project Location:

Otsquago Creek in the vicinity of the Kellogg Street Bridge (the exact extent will be determined by the engineering analysis).

Cost Estimate:

\$1M for evaluation of the existing deterioration, engineering, design, construction and bid documents, with some funding earmarked for implementation (to be determined based on the analysis).

Type of Request:

Straight-up funding

Strategy:

Preserve and restore natural areas including floodplains, streams and wetlands to help mitigate flooding via watershed and stream restoration projects.

Project Benefits:

A complement of creek channel restoration bank stabilization improvement projects will mitigate the current reduced hydraulic capacity in the waterway. Changes in the hydraulic capacity of the waterway may result in changes in the shape and extent of the flood zone

surrounding the stream. This project would propose measures that could stabilize the bank, and increase the capacity of the Creek and therefore reduce the risk of flooding for some assets along the restored reach of the creek. It can be expected that many assets in downtown Fort Plain would benefit from this project, including the central business district, residential neighborhoods, and vital community services such as a healthcare clinic and grocery stores.

Anticipated Timeframe:

1.5 years – 6 months for design development and securing approvals and 6 months to 1 year for construction

Project Status:

Some hydraulic and hydrologic modeling has been completed, but additional engineering and structural assessment has not yet been initiated.

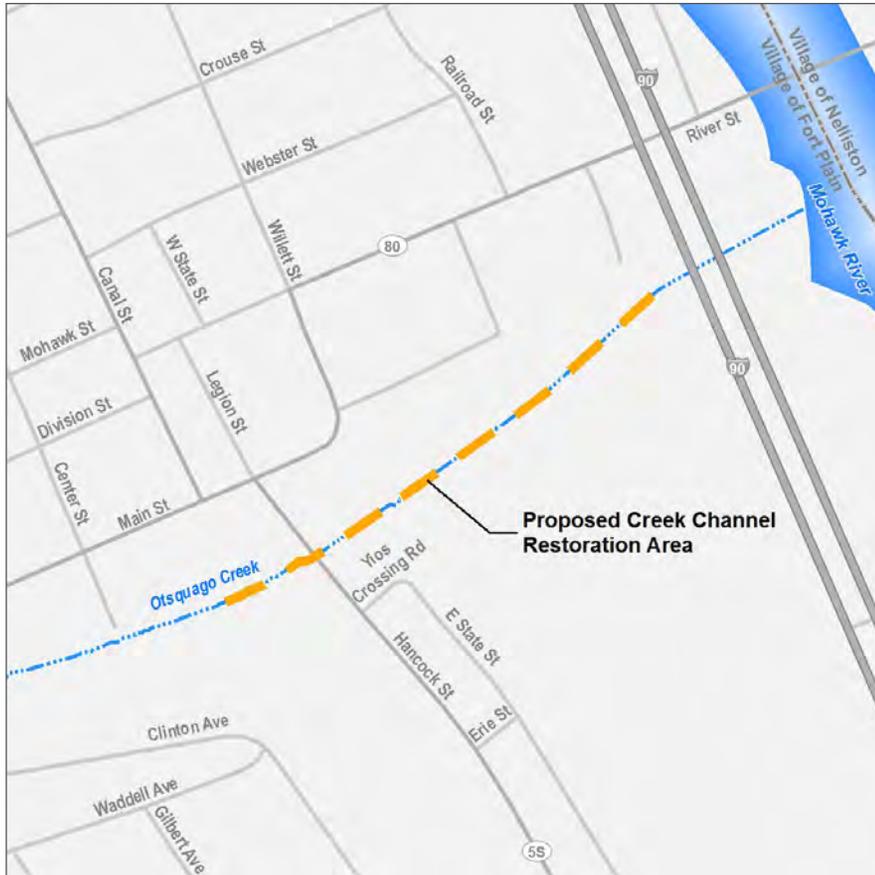
Anticipated Project Lead:

Village of Fort Plain

Potential Funding Sources:

NYS Department of State Office of Planning and Development, CDBG Infrastructure Grants, NYSDEC, Montgomery County Soil and Water Conservation Service, FEMA HMGP, USEPA Green Innovation Grant Program (GIGP)

Otsquago Creek Bank and Channel Engineering Analysis and Design (continued)



Village of Fort Plain Save A Lot & Family Dollar following a June 2013 storms (Jeff Smith)

Residential Relocation and Assistance Program



Example of storm damaged home (Jaclyn Hakes)

Project Description:

This project provides support to residential property owners and renters in high risk areas to relocate to safe locations within their communities. A core focus is to retain residents and residential tax base and considerations would include potential annexation of property to accomplish this goal. Annexation could involve a legal transfer of property located in one municipality (Town, Village or an un-incorporated area) to another. The first step is to educate residents of the various options that are available to them and then identify safe sites appropriate for relocation. These could be scattered site infill opportunities or properties large enough for new neighborhood development. Outreach to individuals is required before final program design can be determined.

The communities could develop layered incentive packages for residents and property owners that build upon the HMGP buyout program and offer additional homebuyer/relocation gap financing. This is particularly important where property owners either owe more on mortgages than the property is worth, or owe more than they would receive in buyout (being “upside down” in their mortgage.) The assistance could take a number of forms based on individual needs and family income, including assistance with closing costs or mortgage rate write-downs, buy downs of purchase price, donation of

building sites, or assistance to move a residential structure if possible.

In preparation for relocation, an evaluation would be completed to determine how the vacated areas could contribute to flood storage or other mitigation measures. Consideration should be given to designing these areas to mitigate flooding in nearby neighborhoods using green infrastructure measures that improve the visual appeal and open space access for adjacent residences.

Municipality:

County-Wide

Project Location:

County-Wide

Cost Estimate:

Cost of sites for relocation to be determined. Value of HMGP buyout packages determined through appraisal process. Typical cost for a homebuyer assistance/gap financing program under NYS housing programs, is assistance up to \$40,000 per participant scaled based upon income, need and family size. Assuming assistance to 20 households, the estimated cost would be \$800,000 in direct costs with administration.

Type of Request:

FEMA HMGP, various NYS housing assistance grant programs and private property owner contributions.

Residential Relocation and Assistance Program (continued)



Flooded Residential Properties, Village of Fort Plain (Jeff Smith)



Flooded Residential Properties, Village of Fort Plain (Jeff Smith)

Strategy:

Provide assistance to homeowners and renters to protect themselves from future flooding through mitigation measures, elevation, acquisition, relocation and general flood proofing.

Project Benefits:

This program offers the “100% solution” to make residents safe by relocating them to resilient sites. Provision of incentives and gap financing will help to restore lost equity in homes and enable families to put their lives back together. Due to repetitive flooding, properties have lost significant value, impacting local tax base. New floodsafe structures will be part of an overall strategy to increase residential rates and encourage residents to remain in their communities. As families are relocated, structures can be demolished and land can be made available for stormwater storage or other hazard mitigation measures that can be designed to help protect properties in adjacent streets and neighborhoods.

Anticipated Timeframe:

Immediately following relocation of families and demolition of properties through Hazard Mitigation Grant Program.

Project Status:

Not Started

Anticipated Project Lead:

Various Montgomery County agencies including: Soil and Water Conservation District and Planning Departments for identification of relocation sites and administration of HMGP buyout program. Montgomery County or local Rural Preservation Corporation like Valley Housing Corporation for administration of homebuyer gap funding incentives.

Potential Funding Sources:

New York State Housing and Community Renewal CDBG Program and Rural Area Revitalization Program (for relocation sites land acquisition, demolition and gap financing assistance); Mohawk Valley Flood Buyout Program, NYS Affordable Housing Corporation (for single family and/or multi-family homebuyer gap financing assistance); NYS Low Income Tax Credit Program for multi-family mixed income housing); NYS Environmental Facilities Corporation Green Infrastructure Grant Program (for evaluation and design of potential post-relocation mitigation measures. This requires feasibility study to be completed prior to 2015 CFA round); FEMA HMGP (for direct buyout assistance); private equity from affordable housing developers and property owners.

VHF – High Band Frequency Simulcast Dispatch/Transmitting System

Project Description:

Implementation of a County-wide VHF High Frequency Simulcast dispatch will dramatically improve coverage and increase the reliability and security of the dispatch system, some of which is outdated and inefficient. As a first phase of this regional initiative, the Montgomery County Department of Emergency Management installed a new microwave system (2011/2012) and replaced several base stations (Montgomery County Sheriff's Office and Sanders Road Tower). Components needed for the new system include new pagers to receive signals, mobile radios and base stations. The project would provide pagers, base stations and mobile equipment for the 18 fire companies in the County, and County and Town DPW personnel to upgrade them from current low band frequency to a VHF high band frequency with simulcast radios. In addition, the project would provide upgraded transmitter infrastructure as needed. The upgrade would bring the fire companies and Town/County DPW onto the same system as the Police and EMS providers, who are currently using the high band frequency, but also require additional and updated equipment. Ultimately, the School Districts could upgrade their equipment and tie into the system.

Municipality: County-Wide

Project Location: County-Wide

Cost Estimate:

\$2,918,700. Detailed as follows: VHF Simulcast infrastructure for civil work at the 8 tower sites = \$2,040,000; Fire Co. - 810 pagers (45 per dept x

18 departments x \$500 per unit) = \$405,000, mobile radios (5 per dept x 18 dept x \$870 per unit) = \$78,300 and portable radios (10 per dept x 18 dept x \$1050 per unit) = \$189,000; SUBTOTAL FIRE DEPT= \$672,300; Department of Public Works (for Towns): Pagers (1 per Town x 10 Towns x \$500 unit) = \$5,000, Mobile Radios (8 per Town x 10 Towns x \$870 unit) = \$69,600 and Portable Radios (8 per Town x 10 Towns x \$1050 per unit) = \$158,600; County DPW - 5 Pagers x \$500 per pager = \$2,500, 40 Mobile Radios = \$34,800 and 10 Portable Radios x \$1,050 = \$10,500.

Type of Request: Montgomery County Capital Program Application prepared and submitted

Strategy: Upgrade, strengthen, and coordinate County-wide emergency management, communications and early warning systems.

Project Benefits:

The ability to simulcast from all towers as part of dispatch operations will result in faster, more consistent messaging to all emergency service providers. Upgrades and coordinated systems for multiple Montgomery County agencies (Fire and Police Departments, EMS, and DPW) would stabilize emergency communications throughout the County, significantly improve responder safety and allow better preparation for and organization during extreme weather events. Implementation of the VHF High Frequency Simulcast system would allow Montgomery County to communicate with adjacent communities significantly improving regional emergency coordination

initiatives and reducing risk to residents of multiple counties.

Anticipated Timeframe: Engineering work would be completed in 2015, and implementation and equipment purchase would occur in 2016.

Project Status: Montgomery County Office of Emergency Management submitted Capital Projects funding request.

Anticipated Project Lead: Montgomery County Office Emergency Management

Potential Funding Sources: US Department of Homeland Security



Motorola Pager (<http://www.motorolasolutions.com>)

Zoning Code Revisions

TOWN OF MINDEN
CODE AND ZONING ENFORCEMENT
134 STATE ROUTE 80 ♦ FORT PLAIN, NEW YORK 13339 ♦ TEL: (518) 993 – 3443 / FAX: 993 – 3258
www.townofminden.org ♦ oneshotvic@yahoo.com

Permit Application: Building, Demolition, Septic, Other

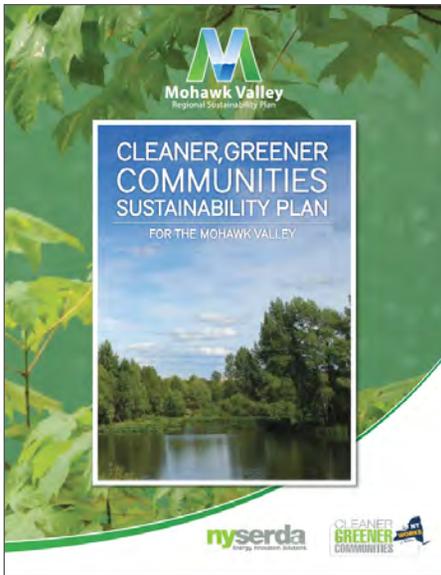
Work covered by this application shall not commence before the issuance of a building permit. Upon approval of this application, a building permit will be issued to the applicant and owner as stated. Such permit shall be posted and available for public inspection throughout the progress of the work. **The Code Officer shall be notified seventy-two (72) hours in advance to make the necessary inspections of progress.**

Zoning: Approved Disapproved; ZEO Initials: _____ Date: _____ Application No.: _____
Codes: Approved Disapproved; CEO Initials: _____ Date: _____ Permit No.: _____

S.B.L. No.: _____

Owner: _____ Phone: (____) _____

Applicant: _____ Phone: (____) _____



Project Description:

To improve resiliency and lessen the impact of storms on homes, businesses, and key assets during future floods, Montgomery County’s towns and villages should evaluate and potentially update their zoning ordinances to ensure that new and existing development and other key natural areas are better protected from future flood events. A project cost estimate has been provided for individual municipalities to develop their own revisions, however, Montgomery County Department of Planning could provide sample/model ordinances to the municipalities for review and potentially adoption. Revisions to policy documents could include adopting or, if already adopted, customizing the Flood Damage Prevention Local Law so that it reflects the existing conditions of a given community. Other options include requiring site plan review and/or a special use permit for projects within the 100 and 500 year flood plains. This project would also fund training for municipal boards and code enforcement officers who would be responsible for implementing the codes.

Municipality:

County-wide

Project Location:

County-wide

Cost Estimate:

Between \$15,000 and \$25,000 per community depending on level of need.

Type of Request:

Straight-up funding

Strategy:

Create and implement community planning and capacity building strategies via the development of plans, strengthened zoning codes and continued communication with involved stakeholders.

Project Benefits:

The project would benefit the entire community by requiring additional review (or prohibiting altogether) projects located in flood prone areas. Ensuring that development projects account for typical flood levels in their construction reduces risk and increases the overall community resiliency.

Anticipated Timeframe:

2 years

Project Status:

Not started

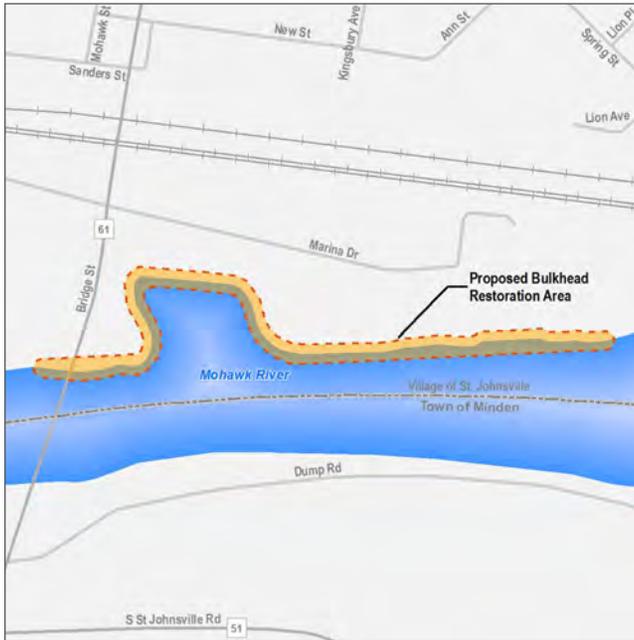
Anticipated Project Lead:

Individual Community

Potential Funding Sources:

NYS Department of State Office of Planning and Development, NYSERDA Cleaner Greener Phase II C

Bulkhead Restoration



Project Description:

The bulkhead near the Collect Plastics Company on New Street along the Mohawk River in St. Johnsville is deteriorating and in need of repair. Phase 1 of the project includes engineering evaluation (assessing the structural condition of the bulkhead) to determine necessary improvements. Phase 2 would include detailed engineering design and construction.

Municipality:

Village of St. Johnsville

Project Location:

Adjacent to Collect Plastics - 10 New Street, St. Johnsville, NY 13542

Cost Estimate:

\$15,000 (Phase 1 only)

Type of Request:

Straight-up funding

Strategy:

Repair, upgrade and protect existing infrastructure assets and critical facilities from flood damage to reduce their vulnerability.

Project Benefits:

This project would reduce risk to assets along the Mohawk River in the Village of St. Johnsville by minimizing their exposure to flooding. If the wall were reconstructed to a height at or above the base flood elevation, assets upland

of the wall location would be protected from rising flood waters. In general, the assets between the Mohawk River and the Collect property, a major commercial enterprise, would likely be protected, including the St. Johnsville freight station, the marina, and the Village's garage and wastewater treatment facilities, in addition to the Collect property itself.

Anticipated Timeframe:

1 year – 6 months for design development and securing approvals and 6 months for construction

Project Status:

Some hydraulic and hydrologic modeling has been completed, but additional engineering and structural assessment has not yet been initiated.

Anticipated Project Lead:

Village of St. Johnsville

Potential Funding Sources:

NYS Department of State Office of Planning and Development, CDBG Infrastructure Grants, NYSDEC, NYS Canal Corporation

Protect Businesses from Flooding



Flooding in Fort Plain overwhelms buildings and the local gas station (Jeff Smith)



Debris lines the sidewalk in front of businesses in Fort Plain (Flickr/NY Governor's Office)



Volunteers clean up debris on Main Street in the Town of Minden (Jeff Smith)

Project Description:

Establish a County-wide program to provide gap funding for business retrofits, relocation, and/or elevation. Funding could be in the form of low interest loans or grants and should be based on need after other funding sources are exhausted (i.e., SBA loans, private insurance, etc.). Funding levels should be based on level of risk, financial need of business and job retention and creation. The County can assist communities in identifying potential relocation sites. Funding would not exceed \$50,000 per building (i.e., based on reasonable standard set by NYSED and CDBG eligibility, and NYS Housing and Community Renewal.)

Municipality:

County-wide

Project Location:

Initial focus area are St. Johnsville businesses between NYS Rt. 5 and the Mohawk River; Canal Street/Erie Blvd in Canajoharie, and downtown Fort Plain

Cost Estimate:

\$500,000

Type of Request:

Straight-up funding

Strategy:

Implement measures to fortify and increase the resiliency of commercial centers and economic drivers.

Project Benefits:

Funding will help protect Montgomery County downtown business districts from being impacted by future flood events. Increasing the resiliency of local businesses benefits residents, businesses owners and the local and regional economy.

Anticipated Timeframe:

1 – 2 years

Project Status:

Not started

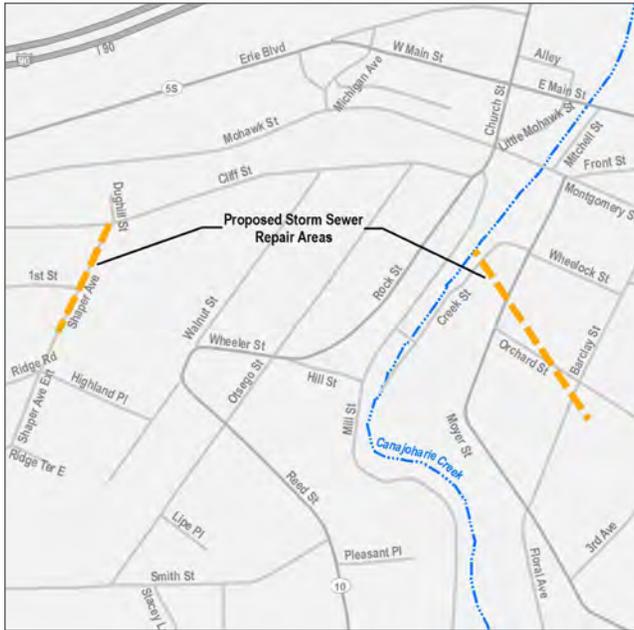
Anticipated Project Lead:

Montgomery County

Potential Funding Sources:

NYS ESD Grant Funds, Market NY, NYS HCR Main Street, Rural Area Revitalization Program, HCR CDBG Microbusiness Program, US Department of Commerce Economic Development Administration, USDA Rural Assistance, Industrial Development Agencies, FEMA HMGP

Stormwater Management System Projects



Canajoharie Storm Sewer Repair Locations

Project Description:

Stormwater management infrastructure improvements in the Villages of Canajoharie, Fonda and St. Johnsville.

Canajoharie Storm System:

The old stone storm sewers are undersized and clog easily, causing flooding in nearby neighborhoods. The sewer system needs modernizing and rightsizing.

St. Johnsville Storm Sewer System:

A portion of St. Johnsville’s storm sewer runs from the cemetery into the Village system down Averill Street to East Main Street, into a stream to Soldiers and Sailors Park. The storm drainage system is undersized and gets clogged with debris, causing flooding in the park and around East Main Street. Sewer system modification and rightsizing of the infrastructure is required.

Fonda:

This project would examine measures to mitigate instream erosion and the resulting sedimentation, which reduces the capacity of three culverts in the Village of Fonda (Village Library, Midway Alley and the culvert in the inlet upstream from Midway Alley). The project would also identify rightsizing of the culverts, where necessary.

Phase 1 of these projects, for which cost estimates have been provided, includes engineering evaluation to determine necessary improvements, which may include measures to reduce instream erosion, resizing the culverts, sewers and overall replacement with modern materials. Phase 2 would include detailed design and construction. Once Phase 1 has been complete, a cost estimate for Phase 2 can be developed, but an initiation allocation of \$250,000 per community has been identified to support implementation.

Municipality:

Villages of Canajoharie, Fonda and St. Johnsville

Project Location:

Village of Canajoharie: Shaper Ave, Orchard St, Moyer St.; Village of Fonda: Village of St. Johnsville: near the cemetery to the Mohawk River

Cost Estimate:

\$900,000 (\$50,000 each for engineering evaluation; and \$250,000 each to support implementation).

Type of Request:

Straight-up funding

Stormwater Management System Projects (continued)



St. Johnsville Storm Sewer Repair Location

Strategy:

Repair, upgrade and protect existing infrastructure assets and critical facilities from flood damage to reduce their vulnerability.

Project Benefits:

Reducing in-stream erosion and right-sizing critical stormwater management infrastructure significantly reduces flood risks in adjacent neighborhoods and protects roads, and waterways from inundation and contamination. Residents, business owners, Town and County employees and emergency service personnel benefit from the reduce risk of flooding, and inundated roadways when the communities' infrastructure is appropriately designed.

Project Status:

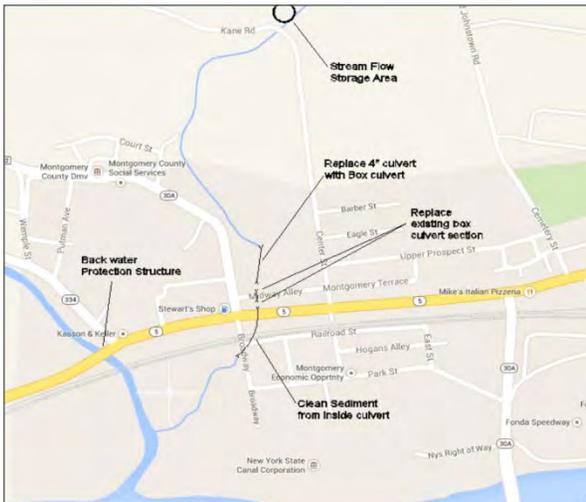
Contemplated, but no engineering or design work has been initiated

Anticipated Project Lead:

Village of Canajoharie/Village of Fonda, Village of St. Johnsville

Potential Funding Sources:

NYS CDBG Public Infrastructure program, USDA Rural Facilities, NYS Clean Water Revolving Fund, FEMA HMGP

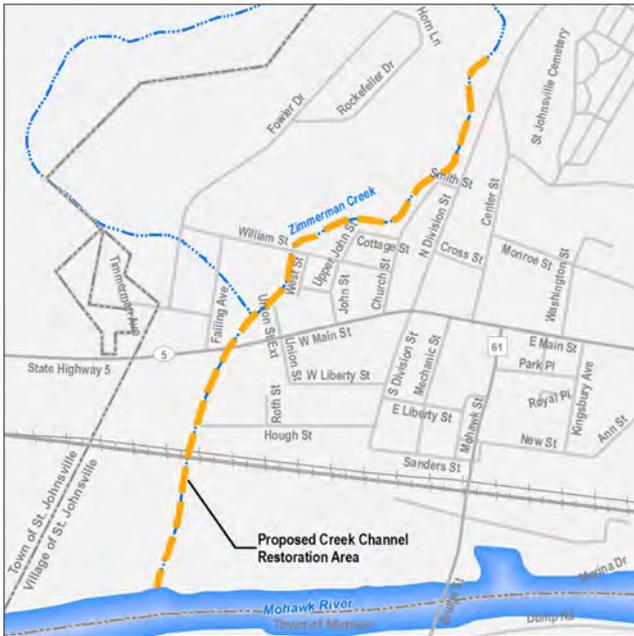


Culvert Replacement Projects in Village of Fonda

Anticipated Timeframe:

1 year – 6 months for design development and securing of permits, 6 months for construction.

Zimmerman Creek Channel Restoration



Project Description:

In the 2006 storms, Zimmerman Creek overtopped its banks causing landslides and flooding along Church Street and depositing creek debris into the downtown. Following the storms, the Village of St. Johnsville restored the Creek channel, however the channel has since filled with debris and sediment, reducing the depth and capacity of the Creek and increasing flood risk. In particular, a portion of Zimmerman Creek near North Division and Center Streets has filled with sediment resulting in reduced depth of the creek. Phase 1 of this project (for which a cost estimate has been provided) would involve an engineering evaluation to determine the necessary improvements, including hydraulic and hydrologic

modeling. Phase 2 would include identifying the optimal solutions to restore the Creek channel to an adequate depth. Note: The proposed NYS Canal Corporation Mohawk River Basin flood model (including Otsquago Creek) will provide improved understanding of the hydraulic capacity of Otsquago Creek; however, model results are not anticipated to be available this year.

Municipality:

Village of St. Johnsville

Project Location:

Near the cemetery along Mohawk River

Cost Estimate:

\$40,000 for engineering evaluation and \$1M for implementation (to be confirmed when evaluation is complete)

Type of Request:

Straight-up funding

Strategy:

Preserve and restore natural areas including floodplains, streams and wetlands to help mitigate flooding via watershed and stream restoration projects.

Project Benefits:

Sediment and debris accumulation in the streambed results in reduced hydraulic capacity in the waterway. Changes in the hydraulic capacity of the waterway may result

in changes in the shape and extent of the flood zone surrounding the stream. Removal of debris and sediment, as proposed in this project, would increase the capacity of Zimmerman Creek and could therefore reduce the risk of flooding for some areas along the restored reach of the creek. It can be expected that the flood risk would be reduced in the immediate vicinity of the project area, including two bridges, the St. Johnsville little league park, the Niagara Mohawk substation, and the Burkdorf lumber yard.

Anticipated Timeframe:

1 year – 6 months for design development and securing approvals and 6 months for construction

Project Status:

Some hydraulic and hydrologic modeling has been completed, but additional engineering and structural assessment has not yet been initiated.

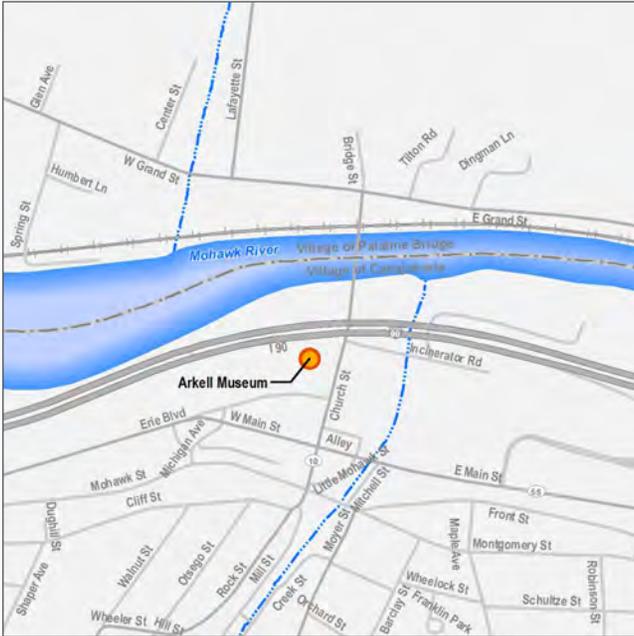
Anticipated Project Lead:

Village of St. Johnsville

Potential Funding Sources:

NYS Department of State Office of Planning and Development, CDBG Infrastructure Grants, NYSDEC, Montgomery County Soil and Water Conservation Service

Arkell Museum Artwork Protection



Project Description:

In 1927, Bartlett Arkell, the founder and first president of the Beech-Nut Packing Company funded the design and construction of an art gallery as an addition to the the Canajoharie Library and acquired art by leading American artists including: Mary Cassatt, Winslow Homer, George Inness, Childe Hassam, Robert Henri, Georgia O’Keefe and Andrew Wyeth. Paintings from this collection have served as ambassadors traveling to museums across the country and abroad to England, France and China.

The Arkell Museum has four exhibition spaces, but at any given time, the majority of the collection is in storage. This encourages visitors to return for changing exhibitions and also keeps fragile works safe from continuous exposure of light, which could cause major damage. When the 2006 storm hit, most of the fine art collection was off site in collection storage. However, the Beech-Nut and local history archives and sculpture, and a few paintings of lesser value were stored in the Library basement (an area higher and less prone to flooding water than the current fine art storage space, which had 13 feet of water in the 2006 flood). Collection storage also suffered from major water issues in 2011. Above ground storage is crucial for the care of this major collection of American art that cannot be replaced if lost. This project would fund the architectural design of and provide construction funds for an above ground

storage facility to protect this valuable cultural and historic resource.

Municipality:

Village of Canajoharie

Project Location:

Arkell Museum, 2 Erie Blvd, Canajoharie, NY 13317

Cost Estimate:

\$2,100,000

Type of Request:

Straight-up funding

Strategy:

Implement measures to fortify and increase the resiliency of commercial centers and economic drivers.

Project Benefits:

Protecting the Museum’s permanent art collection, historic archives and sculpture provides a substantial economic benefit and protection of an important tourism and cultural resource. Construction of the above ground storage area significantly reduces the risk to the resource. The Project would benefit residents and visitors to the region, and also protect the traveling art collection, which generates significant revenue to the Museum, thereby further supporting the economic and financial well being of the County.

Arkell Museum Artwork Protection (continued)



Anticipated Timeframe:

Design could start immediately if funding is allocated.

Project Status:

Preliminary construction cost estimates provided by the Museum. Detailed design work has not been initiated.

Anticipated Project Lead:

Arkell Museum

Potential Funding Sources:

NYS ESD Grant Funds, Market NY



Museum Photographs by Johnathan Hillyer

Emergency Evacuation Program and Safe Haven Plan for Large Farm Animals and Livestock



Livestock (Nina Peek)



Farm animals (Nina Peek)

Project Description:

Establish a County-wide database inventory of suppliers of feed, water and other essential materials, and establish a distribution plan for dispatching providers to farms and agricultural operations during and after storm events.

Municipality:

County-wide

Project Location:

County-wide

Cost Estimate:

\$25,000

Type of Request:

Straight-up funding

Strategy:

Upgrade, strengthen, and coordinate County-wide emergency management, communications and early warning systems.

Project Benefits:

Implementation of this low-cost project will increase emergency preparedness by providing information on critical resources both during and after substantial storm events. Continued availability of necessary food and

other farms and agricultural materials will increase the likelihood that livestock will be protected during storm events minimizing disruptions and impacts to valuable economic revenue generators County-wide.

Anticipated Timeframe:

Six months – 1 year

Project Status:

Not started

Anticipated Project Lead:

Montgomery County Emergency Management

Potential Funding Sources:

NYS Department of Agriculture & Markets, USDA

Montgomery County Fairground Improvements



Fonda Fairgrounds (Time Warner Cable/Sonia Vega)

Project Description:

Increase the seating and vendor area at the Montgomery County Fairgrounds in Fonda. The expansion proposes to increase the seating capacity of the fairgrounds to over 3,000 people in the arena making it possible to book larger entertainment events and horse shows that cannot currently be accommodated due to the lack of seating. The project is broken into two components, first: a 50 foot wide by 200 foot long lean-to expansion and, second: a 80 foot wide clear span by 50 foot long covered “warm up area” on the east side of the arena.

Municipality:

Fonda

Project Location:

21 South Bridge Street, Fonda, NY 12068

Cost Estimate:

\$691,000

Type of Request:

Cost Share

Strategy:

Implement measures to fortify and increase the resiliency of commercial centers and economic drivers.

Project Benefits:

Increasing the seating and vendor area at the Montgomery County Fairgrounds will support the continued operation of a key County tourism and revenue generator.

Anticipated Timeframe:

1 year

Project Status:

Application for CFA funding has been submitted (June 2014)

Anticipated Project Lead:

Montgomery County

Potential Funding Sources:

NYS CFA Submitted

Stream Gage Installation and Monitoring

Project Description:

Installation of a permanent County-wide stream gage system is recommended for emergency and statistical analysis. Installation of such a system would provide early warning for the Montgomery County Emergency Management Office. The NYS Canal Corporation is installing a similar system and has agreed to work with Montgomery County to integrate the tributary system with its early warning system. A preliminary list of proposed water level gage locations includes: Town of Amsterdam: Bunn Creek at Miami Avenue Extension, N. Chuctanunda Creek at Clizbe Avenue and Cranes Hollow Creek at Cranes Hollow Road; Town of Canajoharie: Canajoharie Creek at Vandeousville Road, Canajoharie Creek at NYS Route 10 and Canajoharie Creek at McEwan Road (there is a USCGS gaging station at the location, which may be incorporated); Town of Florida: S. Chuctanunga Creek at Sulpher Springs Road, Schoharie Creek at Burtonville Road Spur and Schoharie Creek at NYS Route 161 (Mill Road); Town of Glen: Auries Creek at Logtown Road; Town of Minden: Unnamed Creek at Walts Road, Otsquago Creek at Casler Road, N. Branch at Otsquago Creek at Pickle Hill Road, Otsquago Creek at Spring Street; Town of Mohawk: Cayadutta Creek near County Line; Town of Palatine: Caroga Creek at Wagners Hollow Road Near County Line; Town of Root: Flat Creek at Melick Road, East Creek at Darrow Road, Flat Creek at Flat Creek Road, and Yatesville Creek at Logtown Road; Town of St. Johnsville: E. Canada Creek at Dam, Timmerman Creek at Triumpho Road, and Zimmerman Creek

at Triumpho Road. This preliminary list will be verified in conjunction with the regional watershed modeling effort. Note: The proposed NYS Canal Corporation Mohawk River Basin flood modeling and real time Flood Warning & Mitigation Program includes additional stream gaging in the Mohawk Watershed. However, proposed stream gaging locations installed by the NYS Canal Corporation and proposed by the County will be coordinated further with respect to real time alerts and canal lock operations.

Municipality:

County-Wide

Project Location:

Tributaries to the Mohawk River throughout Montgomery County

Cost Estimate:

\$345,000

Type of Request:

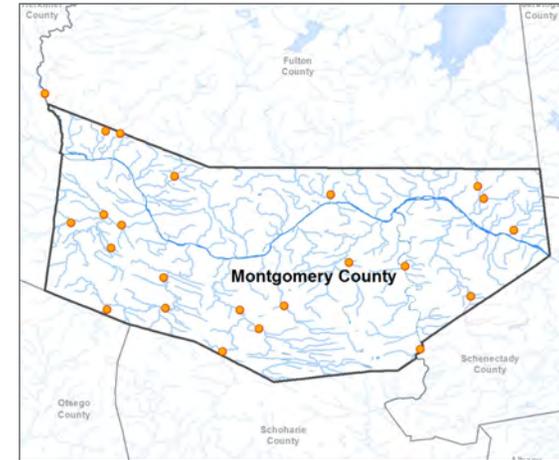
Straight-up funding

Strategy:

Upgrade, strengthen, and coordinate County-wide emergency management, communications and early warning systems.

Project Benefits:

Installation of an early warning system that monitors rising flood waters to notify emergency service providers, residents and businesses in advance of flood water inundation significantly



Proposed Stream Gage Locations

decreases the risk to all groups. The ability to pre-emptively evacuate or otherwise secure residents and facilities provides a quantifiable benefit County-wide.

Anticipated Timeframe:

1 year

Project Status:

Stream gage locations have been identified.

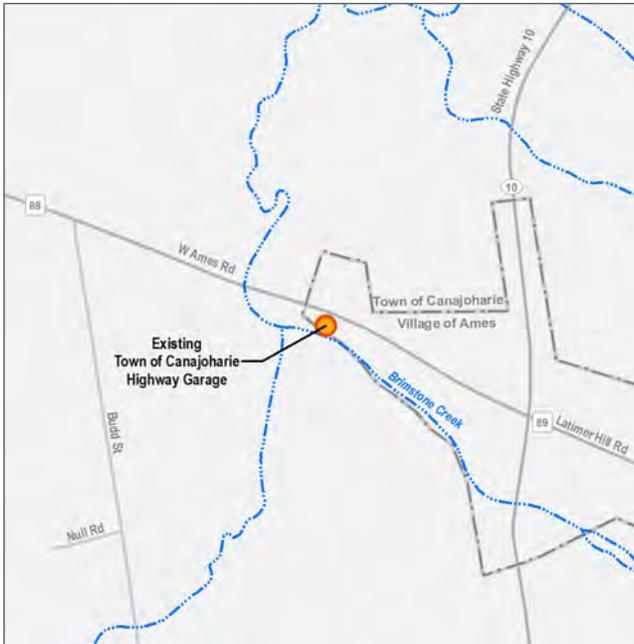
Anticipated Project Lead:

Joint Effort between the NYS Canal Corporation and the Montgomery County Office of Emergency Management

Potential Funding Sources:

National Fish and Wildlife Foundation, NYSDEC, Montgomery County Soil and Water Conservation Service

Town of Canajoharie Highway Department Garage Relocation or Replacement



Project Description:

The Town of Canajoharie Highway Department Garage, located on West Ames Road is located along the Brimstone Creek, and floods during high intensity, short duration storm events. This project would evaluate flood protection measures, including elevating the structure or potential relocation out of the flood plain.

Municipality:

Town of Canajoharie

Project Location:

West Ames Road, Canajoharie

Cost Estimate:

\$25,000

Type of Request:

Straight-up funding

Strategy:

Repair, upgrade and protect existing infrastructure assets and critical facilities from flood damage to reduce their vulnerability.

Project Benefits:

Better protection for the Town Highway Garage from flood events, would minimize vulnerability of the equipment stored in that facility, and secure necessary materials that may be required during and after storm events.

Anticipated Timeframe:

6 months

Project Status:

Not started

Anticipated Project Lead:

Town of Canajoharie Highway Department

Potential Funding Sources:

NYS CDBG Public Infrastructure program, USDA Rural Facilities, NYS Clean Water Revolving Fund, FEMA HMG

2014 NY RISING COUNTYWIDE RESILIENCY PLAN NYRCR MONTGOMERY COUNTY

Section V Implementation Schedule



LIBRARY
CLOSED



V

Schedule for Implementation

Table V-1 presents the implementation schedule for resiliency projects and actions to ensure tangible progress of the Montgomery County NYRCR Plan. The description, location, estimated cost, proposed responsible

parties, anticipated start dates and anticipated completion dates are indicators that will facilitate consistent progress reporting for NYRCR Plan implementation in the short, medium and long-term.

Table V-1
Schedule for Implementation

Project/ Action Name	Short Description	Location (Municipality)	Estimated Cost	Proposed Responsible Parties	Anticipated Start	Anticipated Completion
Access to Health Care During Storm Events	Provide real time updates for viable routes to health care providers via a Smartphone APP to ensure access to health care providers during storm events.	County-wide	\$18,000.00	Montgomery County Office of Emergency Management	Immediately following securing of funding	6 months following start
Arkell Museum Artwork Protection	Design and construction of above ground, flood proofed, and climate controlled storage areas for the Arkell Museum's permanent collection, local historic archives and sculpture.	Village of Canajoharie	\$2,100,000.00	Arkell Museum, Director	3 months within receipt of funding	6 months for design, 1 year for construction
Bulkhead Restoration	Reconstruction of the damaged bulkhead along the Mohawk River adjacent to Collect Plastics in the Village of St. Johnsville.	Village of St. Johnsville	\$15,000.00	Village of St. Johnsville and Montgomery County Department of Public Works	3 months after funding is secured	1 year from start
Canajoharie Creek Wall Restoration	Replacement of the damaged retaining wall along the Canajoharie Creek.	Village of Canajoharie	\$1M for engineering evaluation, design and construction documents with funding earmarked for implementation (to be confirmed when assessment is complete)	Village of Canajoharie, Montgomery County Department of Public Works, NYS Canal Corporation, NYSDEC.	3 months after funding is secured	1 year from start
Capital Bridge Program: Burtonsville Road Spur Bridge	Design, construction and construction inspection for the replacement of the Burtonsville Road Spur Bridge.	Town of Charleston	\$3,500,000.00	Montgomery County Department of Public Works, Support Agencies: NYSDOT	2015	2016

**Table V-1
Schedule for Implementation**

Project/ Action Name	Short Description	Location (Municipality)	Estimated Cost	Proposed Responsible Parties	Anticipated Start	Anticipated Completion
Capital Bridge Program: Corners Road Bridge	Design, construction and construction inspection for the replacement of the Brookmans Corners Road Bridge over the Otsquago Creek.	Town of Minden	\$2,430,000.00	Montgomery County Department of Public Works, Support Agencies: NYSDOT	2015	2016
Capital Bridge Program: Cranes Hollow Road Bridge	Design, construction and construction inspection for the replacement of the Cranes Hollow Road Bridge over Evans Kill.	Town of Amsterdam	\$6,394,556.00	Montgomery County Department of Public Works, Support Agencies: NYSDOT	2019 Design	2020 Construction
Capital Bridge Program: Darrow Road Bridge	Design, construction and construction inspection for the replacement of the Darrow Road Bridge over East Creek.	Town of Root	\$1,168,278.00	Montgomery County Department of Public Works, Support Agencies: NYSDOT	2018 Design	2019 Construction
Capital Bridge Program: Fort Hunter Road Bridge	Design, construction and construction inspection for the replacement of the Fort Hunter Road Bridge over South Chuctanunda Creek.	Town of Florida	\$1,628,430.00	Montgomery County Department of Public Works, Support Agencies: NYSDOT	2015 Design	2016 Construction
Capital Bridge Program: Freysbush Road Bridge	Design, construction and construction inspection for the replacement of the Freysbush Road Bridge over the South Branch of the Otsquago Creek.	Town of Minden	\$1,256,106.00	Montgomery County Department of Public Works, Support Agencies: NYSDOT	2016 Design	2017 Construction
Capital Bridge Program: McEwan Road Bridge	Design, construction and construction inspection for the replacement of the McEwan Road Bridge over Canajoharie Creek.	Town of Canajoharie	\$1,269,000.00	Montgomery County Department of Public Works, Support Agencies: NYSDOT	2014 Design	2015 Construction
Capital Bridge Program: Rappa Road Bridge	Design, construction and construction inspection for the replacement of the Rappa Road Bridge over Flat Creek.	Town of Root	\$1,692,541.00	Montgomery County Department of Public Works, Support Agencies: NYSDOT	2017 Design	2018 Construction

Table V-1
Schedule for Implementation

Project/ Action Name	Short Description	Location (Municipality)	Estimated Cost	Proposed Responsible Parties	Anticipated Start	Anticipated Completion
Capital Bridge Program: South Buel Road Bridge	Design, construction and construction inspection for the replacement of the South Buel Road Bridge over Canajoharie Creek.	Town of Canajoharie	\$792,000.00	Montgomery County Department of Public Works, Support Agencies: NYSDOT	2014 Design	2015 Construction
Capital Bridge Program: Thayer Road Bridge	Design, construction and construction inspection for the replacement of the Thayer Road Bridge over Terwilegar Creek.	Town of Florida	\$3,030,000.00	Montgomery County Department of Public Works, Support Agencies: NYSDOT	2015	2016
Consolidation and Relocation of Montgomery County Services	Consolidate and centralize various County departments and services into renovated and new space, located out of the floodplain. This phased project will significantly increase efficiency and eliminate disruption to County operations during and after flooding events.	County-Wide	Phase 1: \$100,000; Phase 2: \$11M; Phase 3: \$4.8M; Phase 4: \$7.2M; Phase 5: \$150,000; TOTAL Estimated cost: \$23,250,000	Montgomery County	January 2015	December 2019
Emergency Evacuation Program and Safe Haven Plan for Large Farm Animals and Livestock	Create a County-wide database of and distribution plan for providers of large animal/livestock supplies.	County-wide	\$25,000.00	Montgomery County Emergency Management	Immediately following securing of funding	6 months following start
Expansion of St. Johnsville Fire Department Dive Rescue and Recovery Unit	Provision of additional equipment and training for additional staffing to the St. Johnsville Fire Department Dive Rescue and Recovery Unit.	County-Wide	\$23,500 (5 Suits) Cost to outfit 1 diver = \$4,700	St. Johnsville Fire Department	Third quarter 2014	December 2014

**Table V-1
Schedule for Implementation**

Project/ Action Name	Short Description	Location (Municipality)	Estimated Cost	Proposed Responsible Parties	Anticipated Start	Anticipated Completion
Residential Relocation and Assistance Program	Support residential property owners and renters in high risk target areas to relocate to safe locations within their community.	County-wide	Cost of sites for relocation to be determined. Value of HMGP buyout packages determined through appraisal process. Typical cost for a homebuyer assistance/gap financing program under NYS housing program, is assistance up to \$40,000 per participant scaled based upon income, need and family size. Assuming assistance to 20 households, the estimated cost would be \$800,000 in direct costs with administration.	Project Sponsor likely Montgomery County or local Neighborhood/Rental Housing Corporation (NPC/RPC)	Funding for State housing assistance: October - December funding round for Low Income Housing Tax Credits and Affordable Housing Program (among others) for senior and multi-family housing. Recurring CFA round anticipated spring 2015 for Rural Area Revitalization Program and HCR State CDBG assistance (Year 1 after funding is secured)	Year 3-4
Montgomery County Fairgrounds Improvements	Improvements to, expansion of, and resiliency upgrades for the Montgomery County Fairground seating and vendor area.	Fonda	\$691,000.00	Montgomery County	Immediately following securing of funding	1 year following start
Otsquago Creek Bank and Channel Engineering Analysis and Design	Evaluate the extent of the deterioration, and prepare design and engineering analyses, cost estimates and construction documents for the Otsquago Creek bank and channel in the vicinity of the Kellogg Street Bridge.	Village of Fort Plain	\$1M	Village of Fort Plain, Montgomery County Department of Public Works, NYS Canal Corporation, NYSDEC.	3 months after funding is secured	1.5 years from start
Protect Businesses from Flooding	Provide gap funding to businesses to complete retrofits, elevate, or relocate.	County-wide	\$500,000.00	Montgomery County	Immediately following securing of funding	1 year following funding

Table V-1
Schedule for Implementation

Project/ Action Name	Short Description	Location (Municipality)	Estimated Cost	Proposed Responsible Parties	Anticipated Start	Anticipated Completion
Stormwater Management System Projects	Evaluate and mitigate causes of in-stream erosion, and replace damaged and undersized storm sewer infrastructure in the Villages of Canajoharie, Fonda and St. Johnsville.	Village of Canajoharie Village of Fonda Village of St. Johnsville	\$900,000 (\$50,000.00 each for engineering evaluation; and \$250,000 each to support implementation).	Village of Canajoharie, Village of Fonda and Village of St. Johnsville	Immediately upon securing of funding	1 year
Stream Gage Installation and Monitoring	Installation of additional stream gages at 23 locations along the tributaries to the Mohawk River. The proposed gage locations and operational considerations will be fully integrated with the similar initiatives underway by the NYS Canal Corporation.	County-Wide	\$345,000.00	Montgomery County Department of Public Works coordinated with NYS Canal Corporation	Coordination with NYS Canal system could begin immediately.	1 year
Town of Canajoharie Highway Department Garage Relocation or Replacement	Evaluate flood protection measures for the Town of Canajoharie Highway Department Garage, located on West Ames Road.	Town of Canajoharie	\$25,000.00	Town of Canajoharie Highway Department	January 2015	June 2015
VHF - High Band Frequency Simulcast Dispatch/ Transmitting System	Installation of and upgrades to the County's emergency communication infrastructure so that fire, police, Town and County DPW personnel are all communicating via a coordinated VHF high band frequency system. Back-up power generators will also be installed to ensure uninterrupted communication during power outages.	County-Wide	\$2,918,700.	Montgomery County Office of Emergency Management	2015	2016

**Table V-1
Schedule for Implementation**

Project/ Action Name	Short Description	Location (Municipality)	Estimated Cost	Proposed Responsible Parties	Anticipated Start	Anticipated Completion
Zimmerman Creek Channel Restoration	Phase 1: Hydraulic and hydrologic modeling to identify needed improvements to and Phase 2: provide construction funding for restoration of the Creek Channel.	Village of St. Johnsville	\$40,000.00 for engineering analysis and \$1M for implementation	Village of St. Johnsville and Montgomery County Department of Public Works	3 months after funding is secured	1 year from start
Zoning Code Revisions	Revise and update local zoning ordinances to improve resiliency of projects within the 100 and 500 year floodplain.	County-wide	Between \$15,000 and \$25,000 per community depending on level of need.	Individual Community	Immediately following securing of funding	Varies by community

2014 NY RISING COUNTYWIDE RESILIENCY PLAN NYRCR MONTGOMERY COUNTY

Section VI Additional Materials





A. Public Engagement Process

The NY Rising Community Reconstruction Program is fundamentally a grass-roots initiative. Community participation, and in depth collaboration, were essential to successful recovery and resiliency efforts. The NYRCR Plan directly impacts those that live and work throughout Montgomery County, making broad public engagement integral to the development of a plan meaningful to residents spread out throughout the County. The public engagement strategy was designed to achieve broad-based participation that ensured the opportunity for Montgomery County residents, business owners, and other key stakeholders to drive all phases of the planning process. The engagement components are outlined below.

1. Montgomery County NYRCR Committee

A countywide Montgomery County NYRCR Planning Committee was formed comprising a cross section of 13 community residents - representatives from businesses, civic and religious organizations, education, local and regional government, and emergency service providers. The NYRCR Committee worked closely with the Consultant Team and state representatives throughout the planning process. The primary role of the NYRCR Committee was to develop the elements of the NYRCR Plan, which serves as a guide for making flood-related decisions to ensure a more sustainable and resilient future for the County.

The NYRCR Committee met bi-weekly between March and July 2014. In advance of each meeting, the NYRCR Committee received notification about upcoming meetings and agendas and any relevant worksheets, asset and project lists for review and preparation in anticipation of meetings.



3.26.14 First Public Engagement Meeting (Susan Rivers)

The general format of the NYRCR Committee meetings involved group discussions and activities to accomplish specific NYRCR Program tasks including mapping, discussion of vision, needs and opportunities, asset identification, project identification and refinement. Guest speakers spoke on topics such as ideas for resilient housing recovery and the New York State Canal Flood Warning and Optimization System. Several group meetings were held with Red Cross personnel and with the County's Local Emergency Planning Committee. All NYRCR Committee meetings were open to the public and advertised on the County's NYRCR webpage at: <http://stormrecovery.ny.gov/nyrcr>.

Table VI-1 outlines the topics of discussion and activities accomplished at each NYRCR Committee meeting.

**Table VI-1
Montgomery County NYRCR Planning Committee Meetings**

Meeting #	Meeting Date	Activity
1	March 6, 2014	<ul style="list-style-type: none"> • Review the NY Rising Community Reconstruction Program • Discuss Local and Regional Issues and Assets • Review Project Schedule • Early Identification of Recovery Projects
2	March 20, 2014	<ul style="list-style-type: none"> • Overview of Key Project Components • Project Schedule including Timeline and Deliverables Focusing on March 31, 2014 • Discuss Public Engagement Meeting #1 • Discuss Recovery Projects • Discuss Process for Committee Review of Recovery Projects
3	March 27, 2014	<ul style="list-style-type: none"> • Discuss Results of Public Engagement Meeting #1 • Committee Confirmation of Recovery Projects • Overview of Next Steps: Planning for Resiliency
4	April 16, 2014	<ul style="list-style-type: none"> • Finalize List of Recovery Projects • Preliminary Discussion of Asset Inventory and worksheets
5	May 1, 2014	<ul style="list-style-type: none"> • Identification of Planning Area and Focus Communities • Asset Inventory Discussion • Visioning Exercise • Preliminary Discussion of Needs and Opportunities
6	May 15, 2014	<ul style="list-style-type: none"> • Finalize Asset Inventory Mapping • Finalize Vision Statement • Needs and Opportunities Exercise • Initial Resiliency Project Identification • Discussion of Public Engagement Meeting #2
7	May 29, 2014	<ul style="list-style-type: none"> • Finalize Asset Inventory Mapping • Discussion of Draft List of Resiliency Projects • Guest Presentation on Ideas for Resilient Housing Recovery from Sidney and Prattsville, NY
8	June 19, 2014	<ul style="list-style-type: none"> • Summary of Public Engagement Meeting #2 • Combined Meeting with Local Emergency Planning Committee • Discussion of Preliminary Survey Results • Overview of Final Asset Mapping and Risk Assessment • Guest Presentation on the New York State Canal Flood Warning and Optimization System • Review of List of Resiliency Projects
9	July 2014	<ul style="list-style-type: none"> • Review Final NYRCR Resiliency Plan • Prepare for Public Engagement Meeting #3

2. Public Engagement Events

Citizen participation is critical to understand the damage and reconstruction efforts that have already occurred and identify the initiatives that are required to help the community recover and rebuild. The outreach efforts engaged members of the public, residents, business owners, and others who have a stake in addressing flood risk in Montgomery County.

Public Engagement Meeting 1 (March 26, 2014)

The first public engagement event was held on the evening of Wednesday, March 26, 2014 at Fort Plain Junior & Senior High School. The event was organized for residents and other stakeholders to learn about the recovery projects proposed by the NYRCR Committee, and to encourage their input.

The meeting was advertised to the community by means of flyers and a media release. Members of the NYRCR Committee also circulated the flyers to their friends, neighbors, and constituency groups. The Montgomery County Executive's Office tweeted about the meeting, issued a press release and also posted the meeting notice and flyer on the County's website.

The meeting agenda included a brief presentation of the components of and timeline for the NY Rising Community Reconstruction Program. The preliminary list of storm recovery projects was presented to the community, and community members were asked to rate their support for the projects as high, medium or low. Community input was summarized and recovery projects were refined and finalized into the March 2014 Montgomery County Storm Recovery Plan.

Public Engagement Meeting 2 (June 5, 2014)

The second public engagement event was held on June 5, 2014 at the Arkell Museum in Canajoharie. The meeting events included a presentation of the final vision statement, needs & opportunities, and asset inventory mapping. Attendees were divided into workstations. NYRCR Committee and Consultant Team members led the group in assessing storm

damage, reviewing asset mapping, completing needs and opportunities worksheets, and generating potential resiliency projects, programs, strategies and actions. The output of the public engagement meeting was critical in supplementing existing information and in moving forward to formulate the Draft Resiliency Plan.

Public Engagement Meeting 3 (August 2014)

The third and final public engagement event will be held in July to solicit feedback on the Draft Montgomery County NYRCR Countywide Resiliency Plan.

3. Media Outreach

A key to a successful broad based outreach strategy is connecting directly with residents and business owners who were impacted by the various storm events. To ensure that community residents that were not on the NYRCR Committee were involved in the planning process, information related to the NYRCR Program and Plan was posted to the Montgomery County NYRCR webpage (<http://stormrecovery.ny.gov/nyrcr/community/montgomery-county-communities>). This website also provided a section for public feedback and comment. The website was updated regularly throughout the planning process and included details on the NYRCR Program, NYRCR Committee meetings, public engagement meetings,



*Montgomery County NYRCR Planning Committee Meeting, 3.27.14
(Jaclyn Hakes)*

committee contacts, other news and announcements, and various meeting materials.

Outreach for the public engagement meetings included a media alert, e-mail blasts, distribution of printed materials, and postings on County and municipal websites and County Twitter feeds. Meeting notices were provided to the NYSDOS Team, and the Montgomery County Executive’s office for distribution to media contacts. Notification was provided for all public meetings via announcements, press releases to approved local print, broadcast, and online media outlets and e-mail notices.

4. Survey

An online survey was created to provide an opportunity for those unable to attend community meetings to participate in the NYRCR Planning Process and provide their valuable input. The survey was composed of nine questions that focused on identifying storm damage issues and recovery challenges, determining critical community needs and developing flood mitigation project ideas. The survey was posted and available to the public on the Montgomery County

website (www.co.ny.montgomery.us) from May 30 to June 23, 2014.

Fifty-nine residents participated in the survey. Of the 21 municipalities in Montgomery County, 15 are represented in the survey. Seventy-seven percent of respondents identified homes and residential neighborhoods as the hardest hit by storms, followed by streets (50.94%) and business districts (35.85%). More specifically, when asked to identify critical areas that require protection from future damage, survey participants listed specific roads, business districts, historical sites, and residences along the river. Route 5 leading toward St. Mary’s hospital and the hospital itself were highlighted as an area that needs protection. Respondents identified building damage, disrupted routines due to road closures, loss of power and other utilities and increasing flood insurance costs to be major challenges associated with such regular storm events.

Survey participants identified “Repairing and protecting identified infrastructure assets (roads, bridges, culverts etc.)” as a very important need to their community. Table VI-2 indicates potential community

Table VI-2
Survey Responses: Please indicate how important each of the following needs are to your community.

Need	Very Important	Important	Unimportant or Very Unimportant	No Opinion	Total Number of Responses*
Repairing and protecting identified infrastructure assets (roads, bridges, culverts, etc.)	81.0%	17.3%	0.0%	1.7%	58
Debris cleanup in waterways and stream restoration	63.2%	31.6%	3.51%	1.75%	57
Homeowners assistance programs to rebuild, relocate, and flood proof	63.2%	26.3%	5.3%	5.3%	57
Improving emergency communications systems	58.9%	26.8%	8.9%	5.4%	56
Improving storm drainage systems and stormwater management	52.7%	40.4%	3.5%	3.5%	57
Protecting key health care and social services from future flooding and ensuring continued access during storms	49.1%	38.6%	8.8%	3.5%	57
Providing business assistance for flood recovery	32.7%	54.6%	7.3%	5.45%	55

Notes: *Total number of responses varies for each need since participants were not required to respond to this question.

needs and their ranking from very important to very unimportant. Over 85 percent of survey participants marked the “all of the listed needs” as “important” or “very important” for their community.

The survey also provided participants the opportunity to recommend specific actions or projects that they thought would be helpful in mitigating future flooding and preventing storm damage. A recurring response called for better management of the local waterways, specifically the canal and flood gates, and improved communication for better flood detection and early warning systems. Many other ideas focused on infrastructure projects such as: increasing the size of culverts and bridges along roadways so that they may better handle flood waters, improving pavement on roads to prevent erosion, relocating critical infrastructure, removing sediment build-up under bridges and in Canajoharie Creek and improving drainage systems along roadways. Furthermore, residents highlighted the importance of such improvements to prevent flooding so that they may access critical resources and travel to work or school.

This public outreach method enabled the Consultant Team to incorporate the perspectives of a diverse group of residents in Montgomery County that may not have been able to voice their opinion at Public Engagement Meetings. The results from the survey confirmed that although some respondents did not



Meeting in Fort Plain (Sue Rivers)

suffer from direct storm damage to their personal property, Montgomery County residents have been very much affected by flooding and stormwater management issues on a recurring basis and embrace the idea of proactive resiliency projects related to storm preparedness, response and recovery.

B. Community Asset Inventory and Risk Assessment

Risk Assessment Tool Supporting Information

Exposure

In the risk assessment tool, exposure is based on both the risk area within which an asset or asset group is located, and the local topographic/geographic conditions of its surroundings, which is termed its “landscape attributes”. Once both the risk area and landscape attributes are determined, an exposure score is calculated. Both risk area and landscape attribute determination are further described below.

Risk Area

Maps of the 100- and 500-year Montgomery County Flood Zones, obtained from the U.S. Federal Emergency Management Agency’s Preliminary Flood Insurance Rate Map (FIRM) Database, were used to identify areas of high and moderate risk, respectively. It is important to note that the current analysis uses preliminary data recently provided by FEMA, which represents the best and most recently determined base flood elevations available at this time, but may be subject to slight revision.

An asset’s risk area was then determined by overlaying maps of assets on maps of the flood risk areas. In order to elucidate which assets are located in an area of even greater risk, assets that have historically been subject to frequent flooding were designated as being located in an extreme risk area. The determination of which assets are subject to frequent flooding was made through discussion with officials from

Montgomery County Emergency Management and the Montgomery County Department of Public Works.

Only those assets located within the preliminary 100-year flood zone (high risk area) or identified as subject to repeat flooding (extreme risk area) were included in the risk assessment process. As identified in NYRCR program guidance, this focus on assets at the highest risk serves to prioritize focus on those assets deserving of priority attention.

Landscape Attributes

Montgomery County assets are subject to riverine flood risks, meaning that they are at risk of flooding from the overflow of non-tidally influenced streams and rivers, rather than from tidal water bodies like bays and estuaries (i.e., tidal environments are the other major setting for flood risk). There are six landscape attributes considered for riverine assets when evaluating an asset's exposure. Cumulatively, the nature, condition, and presence or absence of these landscape attributes defines the degree of exposure of a geographic location.

Assets within the high and extreme risk areas that have similar landscape characteristics were grouped in order to evaluate multiple assets at once. Assets whose landscape characteristics were not sufficiently similar to those of others nearby were considered individually. Data sources used for landscape attribute determinations include national and state mapping resources, preliminary FEMA BFE data, and aerial and site imagery.

Vulnerability

The vulnerability score for an asset is intended to serve as a numerical representation of “an expression of the capacity of an asset to return to service after a storm, taking into account its material strength relative to the flood hazard as well its regenerative

capacity.” Vulnerability scores range from 1 to 5, with a score of 1 corresponding to assets that experienced limited or no outages of significant duration following historic storms, and a score of 5 corresponding to assets that experienced permanent or prolonged outages following historic flooding. A description of the vulnerability scores for each asset class can be found in Table 3 of the NYRCR document entitled *Guidance for Community Reconstruction Plans* (2013).

Vulnerability scores were determined for the assets identified on the inventory through discussions with officials from Montgomery County Emergency Management and the Montgomery County Department of Public Works. The performance of each asset during historic storms was correlated to the appropriate score using Table II-A as shown above.

Hazard

The hazard score is based on the likelihood that a flooding event will occur and the destructive capacity of that event. Likelihood is derived from the storm recurrence interval within the selected time frame, or how many times in a given time period such a storm is likely to occur. For the purposes of this evaluation, as per NYRCR guidelines, the hazard score corresponding to a 100-year storm event, or the storm with a 1 percent annual chance of occurrence, was used to characterize the hazard to identified assets.

**Table VI-3
Community Asset Inventory**

Recovery Support Function	Municipality	Asset Name	Risk Area	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
Economic Development	Town of Canajoharie	Curtis Lumber	High	3	3	3	27
Economic Development	Town of Mohawk	Keymark Corp	High	3	3.5	3	32
Economic Development	Town of St. Johnsville	Schuurman Auto Dealer	High	3	3	3	27
Economic Development	Village of Canajoharie	Former Beech-Nut Factory	Extreme	3	4.5	3	41
Economic Development	Village of Canajoharie	Manufacturers along Canajoharie Creek	High	3	3	3	27
Economic Development	Village of Canajoharie	Richardson Brands Co.	Extreme	3	4.5	4	54
Economic Development	Village of Canajoharie	Village of Canajoharie Commercial Corridor	Extreme	3	4.5	4	54
Economic Development	Village of Canajoharie	Village of Canajoharie Downtown Businesses	Extreme	3	4.5	4	54
Economic Development	Village of Fonda	Dollar General	High	3	3.5	3	32
Economic Development	Village of Fonda	Fonda Fairgrounds / Speedway	Extreme	3	4.5	4	54
Economic Development	Village of Fonda	Kasson & Keller, Inc.	High	3	3.5	3	32
Economic Development	Village of Fonda	Village of Fonda Downtown Businesses	High	3	3.5	3	32
Economic Development	Village of Fonda	Village of Fonda Park Street Businesses	Extreme	3	4.5	3	41
Economic Development	Village of Fort Johnson	Caprara Auto Service	High	3	3.5	3	32
Economic Development	Village of Fort Johnson	Fort Johnson Stewart's Shops	Moderate	0	0	0	0
Economic Development	Village of Fort Johnson	Vertucci Garage	N/A	0	0	0	0
Economic Development	Village of Fort Plain	Dominion Transmission Inc.	Extreme	3	4.5	3	41
Economic Development	Village of Fort Plain	Nice N Easy	Extreme	3	4	4	48
Economic Development	Village of Fort Plain	Save-A-Lot	Extreme	3	5	4	60

Table VI-3
Community Asset Inventory

Recovery Support Function	Municipality	Asset Name	Risk Area	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
Economic Development	Village of Fort Plain	Village of Fort Plain Commercial Corridor	Extreme	3	5	4	60
Economic Development	Village of Fort Plain	Village of Fort Plain Downtown Businesses	Moderate	0	0	0	0
Economic Development	Village of Fultonville	Betz, Rossi, Bellinger & Stewart (BRBS) Family Funeral Home	Extreme	3	4	3	36
Economic Development	Village of Fultonville	Key Bank	Extreme	3	4	2	24
Economic Development	Village of Fultonville	LD Terra Corp.	Extreme	3	5	3	45
Economic Development	Village of Fultonville	Macek's Garage	High	3	3	3	27
Economic Development	Village of Fultonville	Mohawk River Leather, Inc.	Extreme	3	5	3	45
Economic Development	Village of Fultonville	Travel Centers of America at Fultonville	High	3	3	3	27
Economic Development	Village of Fultonville	Village of Fultonville Commercial Corridor	High	3	3	3	27
Economic Development	Village of St. Johnsville	Cellect Plastics	Extreme	3	4.5	3	41
Economic Development	Village of St. Johnsville	CH Burkdorf & Son Lumber	Moderate	0	0	0	0
Economic Development	Village of St. Johnsville	Gehring Tricot Corp at Hough St.	Moderate	0	0	0	0
Economic Development	Village of St. Johnsville	Gehring Tricot Corp at Lion Ave	Extreme	3	4.5	3	41
Economic Development	Village of St. Johnsville	Village of St. Johnsville Downtown Businesses	N/A	0	0	0	0
Health and Social Services	Hamlet of Burtonsville	Burtonsville Fire Station	Extreme	3	4.5	3	41
Health and Social Services	City of Amsterdam	Cardiology Associates of Schenectady	N/A	0	0	0	0
Health and Social Services	City of Amsterdam	St. Mary's Hospital	N/A	0	0	0	0
Health and Social Services	City of Amsterdam	St. Mary's Hospital Surgical Health Center	Moderate	0	0	0	0
Health and Social Services	Town of Glen	State Police Barracks	N/A	0	0	0	0

**Table VI-3
Community Asset Inventory**

Recovery Support Function	Municipality	Asset Name	Risk Area	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
Health and Social Services	Town of Minden	South Minden Fire Station	N/A	0	0	0	0
Health and Social Services	Town of Minden	Town of Minden DPW	Extreme	3	5	4	60
Health and Social Services	Town of Mohawk	Fonda-Fultonville Central School	N/A	0	0	0	0
Health and Social Services	Town of St. Johnsville	St. Johnsville Rehabilitation & Nursing Center	N/A	0	0	0	0
Health and Social Services	Town of St. Johnsville	Town of St. Johnsville DPW	Moderate	0	0	0	0
Health and Social Services	Village of Canajoharie	Arkell Hall	N/A	3	4.5	1	0
Health and Social Services	Village of Canajoharie	Bassett Healthcare Center of Canajoharie	N/A	0	0	0	0
Health and Social Services	Village of Canajoharie	Canajoharie Fire Station	Extreme	3	4.5	4	54
Health and Social Services	Village of Canajoharie	Canajoharie High School	N/A	0	0	0	0
Health and Social Services	Village of Canajoharie	Canajoharie Middle School	N/A	0	0	0	0
Health and Social Services	Village of Canajoharie	Canajoharie Municipal Hall	N/A	0	0	0	0
Health and Social Services	Village of Canajoharie	Canajoharie Police Department	Extreme	3	4.5	4	54
Health and Social Services	Village of Canajoharie	Canajoharie Post Office	Extreme	3	4.5	4	54
Health and Social Services	Village of Canajoharie	East Hill Elementary School	N/A	0	0	0	0
Health and Social Services	Village of Canajoharie	NYSARC Professional Building	Extreme	3	4.5	4	54
Health and Social Services	Village of Canajoharie	NYS DOT Canajoharie Facility	High	3	3.5	3	32
Health and Social Services	Village of Canajoharie	St. Mary's Family Health Center of Canajoharie	Extreme	3	4.5	4	54
Health and Social Services	Village of Canajoharie	Village of Canajoharie Offices	Extreme	3	4.5	4	54
Health and Social Services	Village of Canajoharie	Village of Canajoharie Volunteer Firefighters	Extreme	3	4.5	3	41
Health and Social Services	Village of Fonda	Fonda Fire Station	Extreme	3	4.5	2	27
Health and Social Services	Village of Fonda	Fonda Post Office	Extreme	3	4.5	2	27

**Table VI-3
Community Asset Inventory**

Recovery Support Function	Municipality	Asset Name	Risk Area	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
Health and Social Services	Village of Fonda	Haven of Hope Food Pantry	N/A	0	0	0	0
Health and Social Services	Village of Fonda	Montgomery County Annex	Extreme	3	4.5	4	54
Health and Social Services	Village of Fonda	Montgomery County DPW	Extreme	3	4.5	4	54
Health and Social Services	Village of Fonda	Montgomery County Offices at Broadway	N/A	0	0	0	0
Health and Social Services	Village of Fonda	Montgomery County Offices at Park St	Extreme	3	4.5	4	54
Health and Social Services	Village of Fonda	Town of Mohawk DPW	Extreme	3	4.5	3	41
Health and Social Services	Village of Fonda	Village of Fonda Municipal Building	Extreme	3	4.5	2	27
Health and Social Services	Village of Fort Johnson	Fort Johnson Fire Station 1	High	3	3.5	2	21
Health and Social Services	Village of Fort Johnson	Fort Johnson Post Office	High	3	3.5	3	32
Health and Social Services	Village of Fort Johnson	Village of Fort Johnson DPW	High	3	3.5	2	21
Health and Social Services	Village of Fort Johnson	Village of Fort Johnson Municipal Hall	High	3	3.5	2	21
Health and Social Services	Village of Fort Plain	Access Transportation	Extreme	3	5	4	60
Health and Social Services	Village of Fort Plain	Fort Plain Central School	N/A	0	0	0	0
Health and Social Services	Village of Fort Plain	Fort Plain Elementary School	N/A	0	0	0	0
Health and Social Services	Village of Fort Plain	Fort Plain Fire Station	High	3	4	3	36
Health and Social Services	Village of Fort Plain	Fort Plain Medical Foundation Offices	Extreme	3	5	4	60
Health and Social Services	Village of Fort Plain	Fort Plain Police Department	Extreme	3	5	4	60
Health and Social Services	Village of Fort Plain	Fort Plain Post Office	Extreme	3	4.5	3	41
Health and Social Services	Village of Fort Plain	Fulmont Community Action Agency Food Pantry	High	3	4	3	36
Health and Social Services	Village of Fort Plain	Village of Fort Plain Municipal Hall	High	3	4	3	36
Health and Social Services	Village of Fultonville	Fultonville Fire Station	N/A	0	0	0	0

**Table VI-3
Community Asset Inventory**

Recovery Support Function	Municipality	Asset Name	Risk Area	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
Health and Social Services	Village of Fultonville	Fultonville Post Office	Extreme	0	0	0	0
Health and Social Services	Village of Fultonville	Town of Glen Municipal Building	N/A	0	0	0	0
Health and Social Services	Village of Fultonville	Village of Fultonville Fire Station	N/A	0	0	0	0
Health and Social Services	Village of Fultonville	Village of Fultonville Municipal Offices	N/A	0	0	0	0
Health and Social Services	Village of St. Johnsville	Basset Healthcare of St. Johnsville	N/A	0	0	0	0
Health and Social Services	Village of St. Johnsville	St. Johnsville Central School	N/A	0	0	0	0
Health and Social Services	Village of St. Johnsville	St. Johnsville Fire Station	N/A	0	0	0	0
Health and Social Services	Village of St. Johnsville	St. Johnsville High School	N/A	0	0	0	0
Health and Social Services	Village of St. Johnsville	St. Johnsville Police Department	N/A	0	0	0	0
Health and Social Services	Village of St. Johnsville	St. Johnsville Volunteer Ambulance Corps.	N/A	0	0	0	0
Health and Social Services	Village of St. Johnsville	Village of St. Johnsville DPW	Extreme	3	4.5	3	41
Health and Social Services	Village of St. Johnsville	Village of St. Johnsville Municipal Hall	N/A	0	0	0	0
Housing	Hamlet of Burtonsville	Burtonsville Residences at Risk near Colyer St	Extreme	3	4.5	4	54
Housing	Hamlet of Burtonsville	Burtonsville Residences at Risk near Island Road	Extreme	3	4.5	4	54
Housing	Town of Minden	Town of Minden Residences at Risk	Extreme	3	4.5	3	41
Housing	Town of St. Johnsville	Town of St. Johnsville Residences at Risk	High	3	3	3	27
Housing	Village of Canajoharie	Village of Canajoharie Residences at Risk	Extreme	3	4.5	3	41
Housing	Village of Fonda	Village of Fonda Residences at Risk near Cayadutta St	High	3	3.5	3	32

**Table VI-3
Community Asset Inventory**

Recovery Support Function	Municipality	Asset Name	Risk Area	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
Housing	Village of Fonda	Village of Fonda Residences at Risk near Hogans Alley	Extreme	3	4.5	3	41
Housing	Village of Fort Johnson	Village of Fort Johnson Residences at Risk near Fort Johnson Ave	High	3	3	3	27
Housing	Village of Fort Johnson	Village of Fort Johnson Residences at Risk near Prospect St	High	3	3.5	3	32
Housing	Village of Fort Plain	Village of Fort Plain Residences at Risk near Abbott St	Extreme	3	4	4	48
Housing	Village of Fort Plain	Village of Fort Plain Residences at Risk near Canal St	High	3	4	3	36
Housing	Village of Fort Plain	Village of Fort Plain Residences at Risk near Hancock St	High	3	3	3	27
Housing	Village of Fort Plain	Village of Fort Plain Residences at Risk near Reid St	Extreme	3	4.5	4	54
Housing	Village of Fort Plain	Village of Fort Plain Residences at Risk near Willett St	Extreme	3	5	4	60
Housing	Village of Fultonville	Village of Fultonville Residences at Risk	Extreme	3	4	3	36
Housing	Village of St. Johnsville	Village of St. Johnsville Residences at Risk	Extreme	3	4.5	3	41
Infrastructure	Hamlet of Burtonsville	Burtonsville Road Bridge over Schoharie Creek	Extreme	3	4.5	4	54
Infrastructure	City of Amsterdam	Niagara Mohawk Substation - Amsterdam	Moderate	0	0	0	0
Infrastructure	Town of Glen	Thruway I-90 Bridge (Mile Point 182.17)	Moderate	0	0	0	0
Infrastructure	Town of Manheim	Beardslee Hydroelectric Facility	High	3	3	3	27
Infrastructure	Town of Manheim	East Canada Lake Dam	High	0	0	0	0
Infrastructure	Town of Minden	Bridge - Route 80 over Otsquago Creek	Extreme	3	4.5	4	54

**Table VI-3
Community Asset Inventory**

Recovery Support Function	Municipality	Asset Name	Risk Area	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
Infrastructure	Town of Minden	Bridge - Route 80 over Otsquene Creek	High	3	2.5	2	15
Infrastructure	Town of Minden	Bridge - Route 80 over Slate Creek	N/A	0	0	0	0
Infrastructure	Town of Minden	Bridge - Brookmans Corners Rd over Otsquago Creek	High	3	3	2	18
Infrastructure	Town of Minden	Bridge - Casler Road over Otsquago Creek	High	3	3.5	2	21
Infrastructure	Town of Minden	Bridge – H. Moyer Road over Otsquago Creek	High	3	3.5	3	32
Infrastructure	Town of Minden	Bridge - Spring Street over Otsquago Creek	Extreme	3	4.5	3	41
Infrastructure	Town of Minden	Montgomery County IDA Elec-Gas Facility	N/A	0	0	0	0
Infrastructure	Town of Minden	State Highway 80 - Vulnerable Area in Town of Minden	Extreme	3	4.5	3	41
Infrastructure	Town of Minden / Town of St. Johnsville	Bridge - CR 61 (Bridge St over Erie Canal)	High	3	2	2	12
Infrastructure	Town of Mohawk	National Grid Substation - Mohawk	N/A	0	0	0	0
Infrastructure	Town of St. Johnsville	Bridge - Route 5 Crum Creek	N/A	0	0	0	0
Infrastructure	Town of St. Johnsville	Bridge - Route 5 over E Canada Creek	High	3	2	2	12
Infrastructure	Town of St. Johnsville	Bridge - Route 5 over Timmerman Creek	N/A	0	0	0	0
Infrastructure	Town of St. Johnsville	NYSDOT Critical Large Culvert	Moderate	0	0	0	0
Infrastructure	Town of St. Johnsville	Railroad - Vulnerable Area in T. St. Johnsville	High	3	3.5	3	32
Infrastructure	Town of St. Johnsville	State Highway 5 - Vulnerable Area in T. St. Johnsville	High	3	3.5	3	32

**Table VI-3
Community Asset Inventory**

Recovery Support Function	Municipality	Asset Name	Risk Area	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
Infrastructure	Town of St. Johnsville / Village of St. Johnsville	Thumb Road / Crumb Creek Road Vulnerable Area	Extreme	3	4	4	48
Infrastructure	Village of Canajoharie	Bridge - Route 5S over Canajoharie Cree	Extreme	3	4.5	3	41
Infrastructure	Village of Canajoharie	Bridge - Exit Ramp over I90	Moderate	0	0	0	0
Infrastructure	Village of Canajoharie	Bridge – I90 over Route 10	Extreme	3	4.5	2	27
Infrastructure	Village of Canajoharie	Bridge – I90 over Incinerator Road	Extreme	3	4.5	3	41
Infrastructure	Village of Canajoharie	Bridge - Incinerator Road over Canajoharie Creek	Extreme	3	4.5	3	41
Infrastructure	Village of Canajoharie	Frontier Communications Building	Extreme	3	4.5	4	54
Infrastructure	Village of Canajoharie	I90 - Vulnerable Area in V. Canajoharie	Extreme	3	4.5	3	41
Infrastructure	Village of Canajoharie	Lock E-14 Dam at Canajoharie	Extreme	0	0	0	0
Infrastructure	Village of Canajoharie	Niagara Mohawk Substation - Canajoharie	Extreme	3	4.5	3	41
Infrastructure	Village of Canajoharie	State Highway 5S - Vulnerable Area in V. Canajoharie	High	3	3.5	3	32
Infrastructure	Village of Canajoharie	Thruway Exit 29 – I90 & NY5S	High	3	3.5	3	32
Infrastructure	Village of Canajoharie	Thruway Exit 29 Toll Building	Moderate	0	0	0	0
Infrastructure	Village of Canajoharie	Thruway I-90 Bridge (Mp194.1)	Moderate	0	0	0	0
Infrastructure	Village of Canajoharie	Village of Canajoharie Sewage Treatment Plant	Extreme	3	4	4	48
Infrastructure	Village of Canajoharie / Village of Palatine Bridge	Bridge - Route 10 over Mohawk River	Extreme	3	4.5	2	27
Infrastructure	Village of Fonda	Bridge - Route 30A over CSX Transportation/ Amtrak	Extreme	3	4.5	2	27
Infrastructure	Village of Fonda	Bridge - Route 5 over Cayadutta Creek	High	3	3.5	2	21

**Table VI-3
Community Asset Inventory**

Recovery Support Function	Municipality	Asset Name	Risk Area	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
Infrastructure	Village of Fonda	Citizens Telecom Building - Fonda	High	3	3.5	3	32
Infrastructure	Village of Fonda	CSX Fonda Freight Station	Extreme	3	4.5	3	41
Infrastructure	Village of Fonda	Fonda-Fultonville Sewer Treatment Plant	Extreme	3	4.5	2	27
Infrastructure	Village of Fonda	National Grid Substation - Fonda	High	3	3.5	3	32
Infrastructure	Village of Fonda	NYS Canal Corp Facilities	Extreme	3	4.5	4	54
Infrastructure	Village of Fonda	Railroad - Vulnerable Area in V. Fonda	Extreme	3	4.5	3	41
Infrastructure	Village of Fonda	State Highway 5 - Vulnerable Area in V. Fonda	High	3	3.5	3	32
Infrastructure	Village of Fonda / Village of Fultonville	Bridge - Route 30A over Erie Canal	Extreme	3	3	4	36
Infrastructure	Village of Fort Johnson	Bridge - Route 67 over Kayaderosseras Creek	High	3	3	2	18
Infrastructure	Village of Fort Johnson	Bridge - Route 5 over Kayaderosseras Creek	Extreme	3	4.5	3	41
Infrastructure	Village of Fort Johnson	Railroad - Vulnerable Area in V. Fort Johnson	High	3	3.5	3	32
Infrastructure	Village of Fort Johnson	State Highway 5 - Vulnerable Area in V. Fort Johnson	High	3	3.5	3	32
Infrastructure	Village of Fort Johnson	State Highways 5 / 67 Intersection	Extreme	3	4.5	3	41
Infrastructure	Village of Fort Plain	Bridge - Route 80 over Otsquago Creek	Extreme	3	4.5	4	27
Infrastructure	Village of Fort Plain	Bridge - I90 over Canalway Trail	Extreme	3	4.5	2	27
Infrastructure	Village of Fort Plain	Bridge - Route 163 over Otsquago Creek	Extreme	3	4	3	36
Infrastructure	Village of Fort Plain	Bridge - Route 5S over Otsquago Creek	Extreme	3	3.5	3	32

**Table VI-3
Community Asset Inventory**

Recovery Support Function	Municipality	Asset Name	Risk Area	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
Infrastructure	Village of Fort Plain	Bridge - Canalway Trail over 5S	High	3	3	5	45
Infrastructure	Village of Fort Plain	Bridge – I90 over 80	Extreme	3	4.5	2	27
Infrastructure	Village of Fort Plain	Bridge – I90 over Otsquago Creek	Extreme	3	3.5	4	42
Infrastructure	Village of Fort Plain	Fort Plain Water Works Drinking Water Treatment Plant/Well	Extreme	3	5	4	60
Infrastructure	Village of Fort Plain	I90 - Vulnerable Area in V. Fort Plain	Moderate	0	0	0	0
Infrastructure	Village of Fort Plain	Lock E-15 Dam at Fort Plain	Extreme	0	0	0	0
Infrastructure	Village of Fort Plain	State Highway 80 - Vulnerable Area in V. Fort Plain	Extreme	3	5	4	60
Infrastructure	Village of Fort Plain	State Highway 80 - Vulnerable Area in V. Fort Plain	Extreme	3	5	4	41
Infrastructure	Village of Fort Plain	Willett St Storm Sewer	Extreme	3	5	4	60
Infrastructure	Village of Fort Plain / Village of Nelliston	Bridge - Route 80 over Erie Canal	Extreme	3	3.5	2	21
Infrastructure	Village of Fultonville	I90 - Vulnerable Area in V. Fultonville	High	3	3	3	27
Infrastructure	Village of Fultonville	State Highway 920P - Vulnerable Area in V. Fultonville	High	3	3	3	27
Infrastructure	Village of Fultonville	Thruway Exit 28 - I90 & NY30A	N/A	0	0	0	0
Infrastructure	Village of Fultonville	Thruway Exit 28 - I90 & NY920P	High	3	3	3	27
Infrastructure	Village of Nelliston	Montgomery County Sewer Treatment Plant	Moderate	0	0	0	0
Infrastructure	Village of St. Johnsville	Bridge - Route 5 over Zimmerman Creek	N/A	0	0	0	0
Infrastructure	Village of St. Johnsville	Bridge - William Street over Zimmerman Creek	N/A	0	0	0	0
Infrastructure	Village of St. Johnsville	Bridge Street Bridge over Railroad	Extreme	0	0	0	0

Table VI-3
Community Asset Inventory

Recovery Support Function	Municipality	Asset Name	Risk Area	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
Infrastructure	Village of St. Johnsville	CSX Transportation St. Johnsville Freight Station	Extreme	3	4.5	3	41
Infrastructure	Village of St. Johnsville	Niagara Mohawk Substation - St. Johnsville	High	3	3.5	3	32
Infrastructure	Village of St. Johnsville	Railroad - Vulnerable Area in V. St. Johnsville	High	3	3.5	3	32
Infrastructure	Village of St. Johnsville	St. Johnsville Village Water Works WTP	N/A	0	0	0	0
Infrastructure	Village of St. Johnsville	St. Johnsville Village Water Works Drinking Water Treatment Plant/ Well	N/A	0	0	0	0
Infrastructure	Village of St. Johnsville	Village of St. Johnsville Sewer Treatment Plant	Extreme	3	4.5	2	27
Infrastructure	Village of St. Johnsville	Walrath Cell Tower	N/A	0	0	0	0
Natural and Cultural Resources	Town of Minden	Revelation Ministry	High	3	3	3	27
Natural and Cultural Resources	Village of Canajoharie	Arkell Museum	Extreme	3	4.5	4	54
Natural and Cultural Resources	Village of Canajoharie	Canajoharie Community Youth Center	Extreme	3	4.5	3	41
Natural and Cultural Resources	Village of Canajoharie	Canajoharie Public Library	Extreme	3	4.5	4	54
Natural and Cultural Resources	Village of Canajoharie	Canajoharie United Methodist Church	Extreme	3	4.5	3	41
Natural and Cultural Resources	Village of Canajoharie	Fraternal Order of Eagles	Extreme	3	4.5	3	41
Natural and Cultural Resources	Village of Canajoharie	NYS Canal Corp Park	Extreme	3	4.5	4	54

**Table VI-3
Community Asset Inventory**

Recovery Support Function	Municipality	Asset Name	Risk Area	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
Natural and Cultural Resources	Village of Canajoharie	St. John's & St. Mark's Lutheran Church	Extreme	3	4.5	4	54
Natural and Cultural Resources	Village of Fonda	Fonda Reformed Church	High	3	3.5	3	32
Natural and Cultural Resources	Village of Fonda	Frothingham Library	N/A	0	0	0	0
Natural and Cultural Resources	Village of Fonda	St Cecelia Parsonage	High	3	3.5	3	32
Natural and Cultural Resources	Village of Fonda	Village of Fonda Recreation Park	Extreme	3	4.5	4	54
Natural and Cultural Resources	Village of Fort Johnson	Montgomery County Historical Society	Extreme	3	4.5	3	41
Natural and Cultural Resources	Village of Fort Johnson	St. Mary's Church Cemetery	N/A	0	0	0	0
Natural and Cultural Resources	Village of Fort Johnson	Village of Fort Johnson Brant Ave Municipal Park	High	3	3.5	3	32
Natural and Cultural Resources	Village of Fort Johnson	Village of Fort Johnson Fort Johnson Ave Municipal Park	High	3	3	3	27
Natural and Cultural Resources	Village of Fort Plain	Canalway Trail - Vulnerable Area in V. Fort Plain	Extreme	3	5	4	60
Natural and Cultural Resources	Village of Fort Plain	Community Bible Church	Extreme	3	4.5	3	41
Natural and Cultural Resources	Village of Fort Plain	Fort Plain Reformed Church	High	3	4	3	36
Natural and Cultural Resources	Village of Fort Plain	Fort Plain Senior Center	Moderate	0	0	0	0
Natural and Cultural Resources	Village of Fort Plain	Fort Plain United Methodist Church	Moderate	0	0	0	0
Natural and Cultural Resources	Village of Fort Plain	Fort Plain VFW	Extreme	3	5	4	60

Table VI-3
Community Asset Inventory

Recovery Support Function	Municipality	Asset Name	Risk Area	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
Natural and Cultural Resources	Village of Fort Plain	Grandview Baptist Church	Moderate	0	0	0	0
Natural and Cultural Resources	Village of Fort Plain	St. James Catholic Church	Extreme	3	4	3	41
Natural and Cultural Resources	Village of Fort Plain	The Church of Jesus Christ of Latter-Day Saints	Extreme	3	5	4	60
Natural and Cultural Resources	Village of Fort Plain	Veteran Memorial Park	Extreme	3	3.5	4	42
Natural and Cultural Resources	Village of Fort Plain	Williams Memorial Library	Extreme	3	5	4	60
Natural and Cultural Resources	Village of Fultonville	Fonda-Fultonville United Methodist Church	Extreme	3	4	3	36
Natural and Cultural Resources	Village of Fultonville	Village of Fultonville Municipal Park	Extreme	3	4	3	36
Natural and Cultural Resources	Village of St. Johnsville	St. Johnsville Little League Park	High	3	3.5	3	32
Natural and Cultural Resources	Village of St. Johnsville	Veteran's Park	Extreme	3	4.5	3	41
Natural and Cultural Resources	Village of St. Johnsville	Village of St. Johnsville Marina / RV Park	Extreme	3	4.5	4	54

C. Storm Recovery Projects

Risk Reduction Analysis and Project Profiles

As previously summarized in Section II.C, mitigated risk analyses were prepared for all Storm Recovery Projects. The risk assessment tool is used to evaluate the risk reduction benefits of the proposed Storm Recovery Projects and the “mitigated” risk scores reflect the degree to which a mitigation project may reduce risk to assets.

Mitigated risk scores were prepared only for assets identified on the asset inventory that are located within the (preliminary) 100-year flood zone or otherwise identified as subject to repeat flooding (a full description of the methodology can be found in Section II.C). Determining the relative risk reduction potential of the identified Storm Recovery Projects involves comparing the risk mitigation effects of the projects to one another and to the baseline conditions. The mitigated risk score for each project demonstrates the anticipated reduction in flood risk for all of the assets that the project would likely affect. Comparison of these mitigated risk scores to one another or to the baseline “unmitigated” risk scores provides insight into some of the relative advantages of the storm recovery projects.

Mitigated risk scores are determined by estimating the changes in exposure and/or vulnerability factors for assets that would likely result from a mitigation project. Then, these factors are updated in the risk assessment tool to reflect the mitigation benefits of the project.

For example, the levee modification project proposed near downtown Fort Plain provides defensive flood protection for nearby assets by creating a barrier between the flood source and the asset locations, which reduces their exposure to flooding. Alternatively, the flood-proofing measures proposed under the Fort Plain business district revitalization project

improve the ability of the relevant assets to withstand and recover from flooding (i.e., return to business operations), which reduces their vulnerability. These changes in exposure and vulnerability are captured in the risk assessment tool, and risk scores are then re-calculated assuming mitigation projects are in place. The changes that were made for each project’s mitigated risk score are highlighted in the Risk Reduction Analysis spreadsheets below. The reasoning and assumptions for making those changes in the risk assessment tool are also identified for each project.

When reviewing the mitigated risk scores for the storm recovery projects, it should be kept in mind that the reduction in the risk scores for particular assets is based on a number of planning-level assumptions about how mitigation actions will affect asset exposure, vulnerability, and other factors. These analyses were not based on engineering analysis; the planning level analysis should be supplemented by further engineering evaluation as projects progress towards implementation.

Business District Revitalization



Debris along Sidewalk in Business District (Flickr/NYS Governor's Office)

Project Description:

Businesses in downtown Fort Plain are still in need of recovery - many businesses have been unable to open and commercial property owners have not been able to rent their storefront space due to the extent of the physical flood damage. This project would support rebuilding and floodproofing of commercial buildings, targeting those that are still vacant due to the 2013 floods.

Project Location:

Village of Fort Plain

Cost Estimate:

\$300,000

Cost Estimate Source:

Preliminary, order of magnitude cost estimate for planning purposes only.

Project Benefits:

Business assistance to reopen vacant storefronts.

Cost Benefit Analysis:

Providing assistance to business owners to reopen vacant provides several key benefits. First, the assistance would allow much-needed local grocery stores and assorted goods providers, which are the only resource for some local residents, to reopen; Second a strong local businesses district supports the local economy, making the community more resilient; and third the financial and construction support would allow the businesses to build back in a more resilient way, thereby reducing their vulnerability from severe flooding caused by storm events.

The potential benefits of these projects are believed to outweigh the financial investment of project implementation.

Anticipated Timeframe:

Immediate (0-6 months)

Project Status:

Some businesses have been restored but additional resources are needed.

Anticipated Project Lead:

Village of Fort Plain

Risk Reduction Analysis

Project: Business District Revitalization

Municipality: Fort Plain

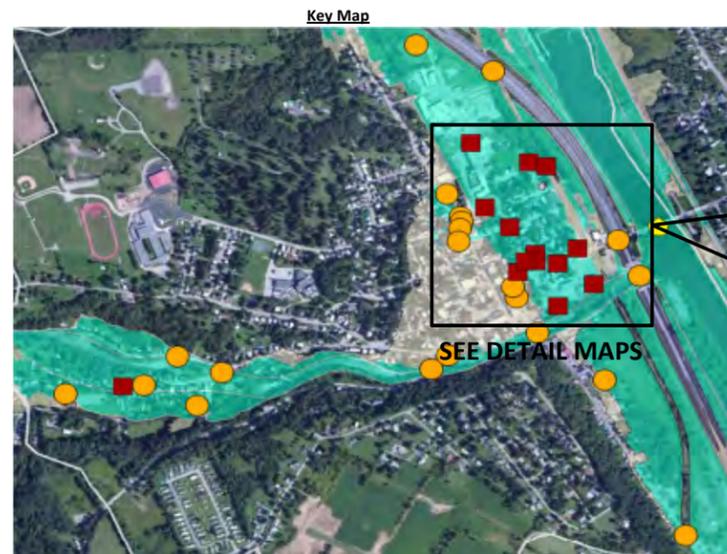
Note: The assets listed below are all of those identified on the community Asset Inventory that are located within the 100-year flood plain. Those assets affected by the project listed above are highlighted in light gray. Any hazard, exposure, and/or vulnerability scores that would change as a result of project implementation are shown in dark gray shaded cells.

Asset Information							Risk Assessment						
Asset	Asset ID	Risk Area	Asset Class	Asset Sub-category	Socially Vulnerable Populations	Critical Facility	Community Value	Hazard Score	Exposure Score	Vulnerability Score	New Risk Score (Mitigated)	Previous Risk Score (Unmitigated)	Change in Risk Score*
FORT PLAIN WATER WORKS DWTP/WELL	MCRA001	Extreme	Infrastructure_Systems	Water Supply	No	Yes, FEMA	High	3	5.00	4	60	60	0
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS	MCRA026	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	5.00	4	60	60	0
SAVE-A-LOT	MCRA098	Extreme	Economic	Grocery/Food Suppliers	Yes	No, Locally Significant	Medium	3	5.00	3	45	60	15
FORT PLAIN POLICE DEPARTMENT	MCRA110	Extreme	Health_and_Social_Services	Emergency Operations/Response	No	Yes, FEMA	High	3	5.00	4	60	60	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR WILLETT ST	MCRA112	Extreme	Housing	Single-Family Residence	No	No, Locally Significant	High	3	5.00	4	60	60	0
VILLAGE OF FORT PLAIN COMMERCIAL CORRIDOR	MCRA130	Extreme	Economic	Industrial, Warehousing and Manufacturing	No	No	Medium	3	5.00	3	45	60	15
ACCESS TRANSPORTATION	MCRA132	Extreme	Health_and_Social_Services	Government and Administrative Services	Yes	Yes, FEMA	Medium	3	5.00	4	60	60	0
FORT PLAIN MEDICAL FOUNDATION OFFICES	MCRA195	Extreme	Health_and_Social_Services	Healthcare Facilities	Yes	No	High	3	5.00	4	60	60	0
WILLIAMS MEMORIAL LIBRARY	MCRA196	Extreme	Natural_and_Cultural_Resources	Libraries	No	No	Low	3	5.00	4	60	60	0
FORT PLAIN VFW	MCRA197	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	5.00	4	60	60	0
CANALWAY TRAIL - VULNERABLE AREA IN V. FORT PLAIN	MCRA201	Extreme	Natural_and_Cultural_Resources	Parks and Recreation	No	No	Low	3	5.00	4	60	60	0
STATE HIGHWAY 80 - VULNERABLE AREA IN V. FORT PLAIN	MCRA202	Extreme	Infrastructure_Systems	Transportation	No	No, Locally Significant	High	3	5.00	4	60	60	0
WILLETT STREET STORM SEWER	MCRA212	Extreme	Infrastructure_Systems	Stormwater	No	No, Locally Significant	High	3	5.00	4	60	60	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR REID ST	MCRA190	Extreme	Housing	Single-Family Residence	No	No, Locally Significant	High	3	4.50	4	54	54	0
NICE N EASY	MCRA099	Extreme	Economic	Grocery/Food Suppliers	Yes	No, Locally Significant	Medium	3	4.00	4	48	48	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR ABBOTT ST	MCRA220	Extreme	Housing	Single-Family Residence	No	No, Locally Significant	High	3	4.00	4	48	48	0
BRIDGE - CANALWAY TRAIL OVER 55	MCRA081	High	Infrastructure_Systems	Transportation	No	No	Low	3	3.00	5	45	45	0
BRIDGE - 190 OVER OTSQUAGO CREEK	MCRA079	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	4	42	42	0
VETERAN MEMORIAL PARK	MCRA200	Extreme	Natural_and_Cultural_Resources	Parks and Recreation	No	No	Low	3	3.50	4	42	42	0
DOMINION TRANSMISSION INC	MCRA008	Extreme	Economic	Small Business	No	No	Medium	3	4.50	2	27	41	14
FORT PLAIN POST OFFICE	MCRA091	Extreme	Health_and_Social_Services	Government and Administrative Services	No	No	Low	3	4.50	3	41	41	0
COMMUNITY BIBLE CHURCH	MCRA189	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	4.50	3	41	41	0
STATE HIGHWAY 80 - VULNERABLE AREA IN V. FORT PLAIN	MCRA191	Extreme	Infrastructure_Systems	Transportation	No	No, Locally Significant	High	3	4.50	3	41	41	0
ST JAMES CATHOLIC CHURCH	MCRA027	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	4.00	3	36	36	0
BRIDGE - 163 OVER OTSQUAGO CREEK	MCRA068	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.00	3	36	36	0
FORT PLAIN FIRE STATION	MCRA013	High	Health_and_Social_Services	Emergency Operations/Response	No	Yes, FEMA	High	3	4.00	3	36	36	0
VILLAGE OF FORT PLAIN MUNICIPAL HALL	MCRA043	High	Health_and_Social_Services	Government and Administrative Services	No	Yes, FEMA	High	3	4.00	3	36	36	0
FULMONT COMMUNITY ACTION AGENCY FOOD PANTRY	MCRA133	High	Health_and_Social_Services	Government and Administrative Services	Yes	No, Locally Significant	Medium	3	4.00	3	36	36	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR CANAL ST	MCRA198	High	Housing	Single-Family Residence	No	No, Locally Significant	High	3	4.00	3	36	36	0
FORT PLAIN REFORMED CHURCH	MCRA199	High	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	4.00	3	36	36	0
BRIDGE - 55 OVER OTSQUAGO CREEK	MCRA075	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	3	32	32	0
BRIDGE - 80 OVER OTSQUAGO CREEK	MCRA067	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.00	3	27	27	0
BRIDGE - 190 OVER CANALWAY TRAIL	MCRA080	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.50	2	27	27	0
BRIDGE - 190 OVER 80	MCRA085	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.50	2	27	27	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR HANCOCK ST	MCRA194	High	Housing	Single-Family Residence	No	No, Locally Significant	High	3	3.00	3	27	27	0
BRIDGE - 80 OVER ERIE BARGE CANAL	MCRA087	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	2	21	21	0

Risk Categories
Residual (<6)
Moderate (6-23)
High (24-53)
Severe (>53)

* All values reported for New Risk Score, Previous Risk Score, and Change in Risk Score are rounded to the nearest whole number. This may result in some mathematical discrepancies in the reported Change in Risk Score.

- LEGEND
- Asset - Moderate Risk
 - Asset - High Risk
 - Asset - Severe Risk
 - 100-year Flood Zone



SUMMARY

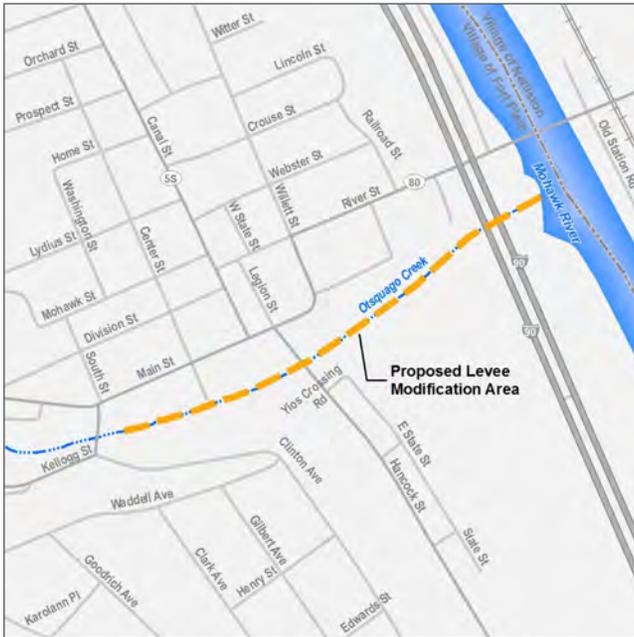
This project supports the rebuilding and flood-proofing of commercial buildings in downtown Fort Plain.

Flood-proofing typically reduces the vulnerability of assets by improving their ability to withstand damage due to flooding, thereby limiting the time an asset is out of service after a storm. To reflect this effect, the vulnerability score was reduced by 1 point for each of the downtown business assets in high risk areas identified on the asset inventory.

IMPORTANT NOTES

No engineering analysis has been performed as part of this risk reduction analysis. Further, detailed study is necessary prior to project implementation. Actual flood-proofing measures have not yet been determined.

Evaluate Levee Modification near Fort Plain Downtown



Project Description:

The Fort Plain Village center, which has a levee near the Mohawk River, was affected by the backwaters of the River. There is little action that can be taken within the Otsquago Creek corridor to mitigate flooding short of modifying the levee to fully contain the 100-year or higher flood. A modified levee would need to encompass the entire area of flooding in this reach, be at least three to four feet higher than the existing levee, and would likely require stormwater pumping stations and other controls. The levee should be carefully evaluated in comparison to leaving the area at risk for periodic flooding.

Project Location:

Village of Fort Plain

Cost Estimate:

\$50,000

Cost Estimate Source:

This estimate is based on preliminary cost estimates contained in a watershed assessment plan currently being prepared by an engineering firm under contract with NYS DOT in cooperation with NYS DEC.

Project Benefits:

Protect economic center in Village of Fort Plain

Cost Benefit Analysis:

The goal of this project is to evaluate whether modifying the levee to fully contain the 100 year of higher flood. It is anticipated that the evaluation would consider other measures that may be incorporated in conjunction with or as an alternative to modifying the levee. Ultimately, the goal is to mitigate flooding long term and protect the economic center in the Village of Fort Plain.

Additional analysis is required to determine the full complement of initiatives that would be incorporated into this project.

Anticipated Timeframe:

Short Term (0-12 months)

Project Status:

The project is in the conceptual/planning phase and would require engineering design, permits and approvals.

Anticipated Project Lead:

Village of Fort Plain

Risk Reduction Analysis

Project: Levee Modification near Fort Plain Downtown

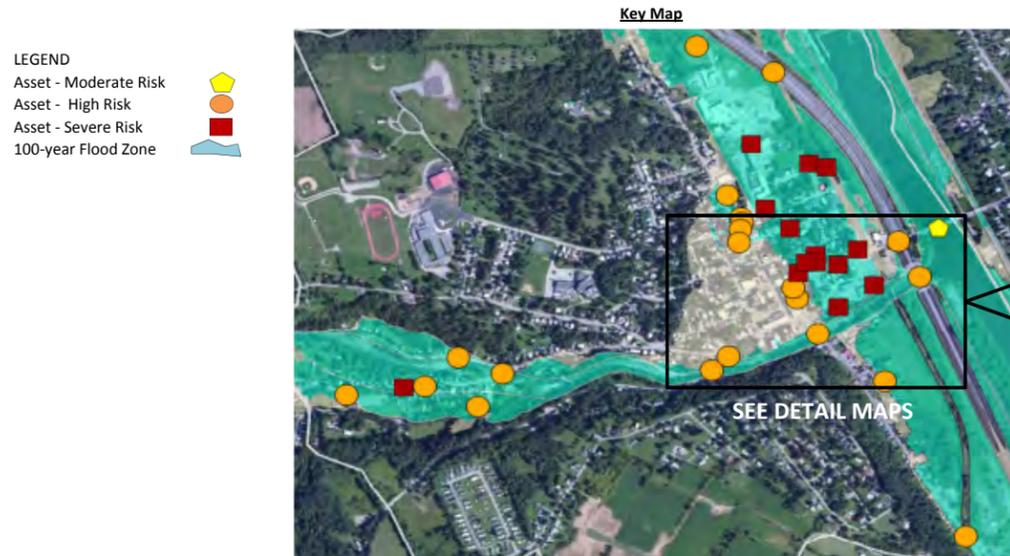
Municipality: Fort Plain

Note: The assets listed below are all of those identified on the community Asset Inventory that are located within the 100-year flood plain. Those assets affected by the project listed above are highlighted in light gray. Any hazard, exposure, and/or vulnerability scores that would change as a result of project implementation are shown in dark gray shaded cells.

Asset Information							Risk Assessment						
Asset	Asset ID	Risk Area	Asset Class	Asset Sub-category	Socially Vulnerable Populations	Critical Facility	Community Value	Hazard Score	Exposure Score	Vulnerability Score	New Risk Score (Mitigated)	Previous Risk Score (Unmitigated)	Change in Risk Score*
FORT PLAIN WATER WORKS DWTP/WELL	MCRA001	Extreme	Infrastructure_Systems	Water Supply	No	Yes, FEMA	High	3	5.00	4	60	60	0
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS	MCRA026	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	4.50	4	54	60	6
SAVE-A-LOT	MCRA098	Extreme	Economic	Grocery/Food Suppliers	Yes	No, Locally Significant	Medium	3	4.50	4	54	60	6
FORT PLAIN POLICE DEPARTMENT	MCRA110	Extreme	Health_and_Social_Services	Emergency Operations/Response	No	Yes, FEMA	High	3	5.00	4	60	60	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR WILLETT ST	MCRA112	Extreme	Housing	Single-Family Residence	No	No, Locally Significant	High	3	5.00	4	60	60	0
VILLAGE OF FORT PLAIN COMMERCIAL CORRIDOR	MCRA130	Extreme	Economic	Industrial, Warehousing and Manufacturing	No	No	Medium	3	5.00	4	60	60	0
ACCESS TRANSPORTATION	MCRA132	Extreme	Health_and_Social_Services	Government and Administrative Services	Yes	Yes, FEMA	Medium	3	4.50	4	54	60	6
FORT PLAIN MEDICAL FOUNDATION OFFICES	MCRA195	Extreme	Health_and_Social_Services	Healthcare Facilities	Yes	No	High	3	4.50	4	54	60	6
WILLIAMS MEMORIAL LIBRARY	MCRA196	Extreme	Natural_and_Cultural_Resources	Libraries	No	No	Low	3	4.50	4	54	60	6
FORT PLAIN VFW	MCRA197	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	4.50	4	54	60	6
CANALWAY TRAIL - VULNERABLE AREA IN V. FORT PLAIN	MCRA201	Extreme	Natural_and_Cultural_Resources	Parks and Recreation	No	No	Low	3	5.00	4	60	60	0
STATE HIGHWAY 80 - VULNERABLE AREA IN V. FORT PLAIN	MCRA202	Extreme	Infrastructure_Systems	Transportation	No	No, Locally Significant	High	3	4.50	4	54	60	6
WILLETT STREET STORM SEWER	MCRA212	Extreme	Infrastructure_Systems	Stormwater	No	No, Locally Significant	High	3	4.50	4	54	60	6
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR REID ST	MCRA190	Extreme	Housing	Single-Family Residence	No	No, Locally Significant	High	3	4.50	4	54	54	0
NICE N EASY	MCRA099	Extreme	Economic	Grocery/Food Suppliers	Yes	No, Locally Significant	Medium	3	3.50	4	42	48	6
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR ABBOTT ST	MCRA220	Extreme	Housing	Single-Family Residence	No	No, Locally Significant	High	3	4.00	4	48	48	0
BRIDGE - CANALWAY TRAIL OVER 55	MCRA081	High	Infrastructure_Systems	Transportation	No	No	Low	3	3.00	5	45	45	0
BRIDGE - 190 OVER OTSQUAGO CREEK	MCRA079	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	4	42	42	0
VETERAN MEMORIAL PARK	MCRA200	Extreme	Natural_and_Cultural_Resources	Parks and Recreation	No	No	Low	3	3.50	4	42	42	0
DOMINION TRANSMISSION INC	MCRA008	Extreme	Economic	Small Business	No	No	Medium	3	4.00	3	36	41	5
FORT PLAIN POST OFFICE	MCRA091	Extreme	Health_and_Social_Services	Government and Administrative Services	No	No	Low	3	4.00	3	36	41	5
COMMUNITY BIBLE CHURCH	MCRA189	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	4.50	3	41	41	0
STATE HIGHWAY 80 - VULNERABLE AREA IN V. FORT PLAIN	MCRA191	Extreme	Infrastructure_Systems	Transportation	No	No, Locally Significant	High	3	4.50	3	41	41	0
ST JAMES CATHOLIC CHURCH	MCRA027	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	4.00	3	36	36	0
BRIDGE - 163 OVER OTSQUAGO CREEK	MCRA068	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	3	32	36	5
FORT PLAIN FIRE STATION	MCRA013	High	Health_and_Social_Services	Emergency Operations/Response	No	Yes, FEMA	High	3	4.00	3	36	36	0
VILLAGE OF FORT PLAIN MUNICIPAL HALL	MCRA043	High	Health_and_Social_Services	Government and Administrative Services	No	Yes, FEMA	High	3	4.00	3	36	36	0
FULMONT COMMUNITY ACTION AGENCY FOOD PANTRY	MCRA133	High	Health_and_Social_Services	Government and Administrative Services	Yes	No, Locally Significant	Medium	3	4.00	3	36	36	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR CANAL ST	MCRA198	High	Housing	Single-Family Residence	No	No, Locally Significant	High	3	4.00	3	36	36	0
FORT PLAIN REFORMED CHURCH	MCRA199	High	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	4.00	3	36	36	0
BRIDGE - 55 OVER OTSQUAGO CREEK	MCRA075	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.00	3	27	32	5
BRIDGE - 80 OVER OTSQUAGO CREEK	MCRA067	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.00	3	27	27	0
BRIDGE - 190 OVER CANALWAY TRAIL	MCRA080	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.50	2	27	27	0
BRIDGE - 190 OVER 80	MCRA085	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.50	2	27	27	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR HANCOCK ST	MCRA194	High	Housing	Single-Family Residence	No	No, Locally Significant	High	3	3.00	3	27	27	0
BRIDGE - 80 OVER ERIE BARGE CANAL	MCRA087	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	2	21	21	0

Risk Categories
 Residual (<6)
 Moderate (6-23)
 High (24-53)
 Severe (>53)

* All values reported for New Risk Score, Previous Risk Score, and Change in Risk Score are rounded to the nearest whole number. This may result in some mathematical discrepancies in the reported Change in Risk Score.



SUMMARY

There is an existing levee along the Otsquago Creek corridor in downtown Fort Plain, but due to its low top-of-wall elevation relative to the base flood elevation (BFE), it does not provide any defensive flood protection to nearby assets. This project proposes to repair the levee along Otsquago Creek from the Kellogg St. bridge to the Mohawk River to a height at least at or above the BFE.

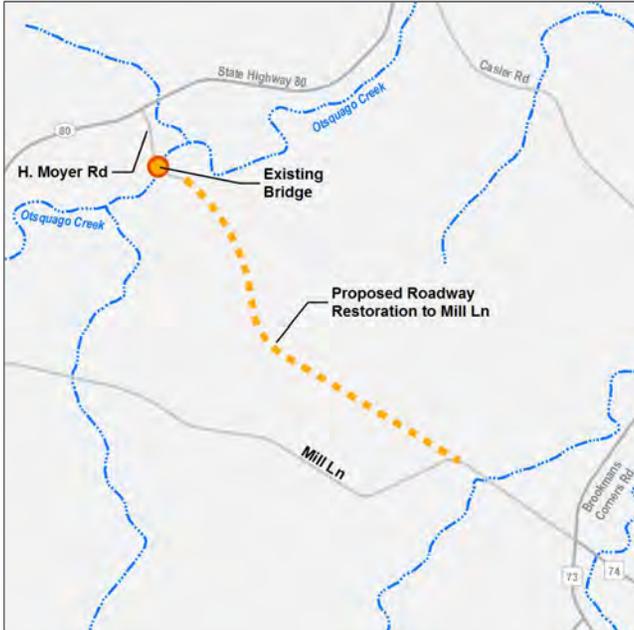
By constructing the levee at or above the BFE and providing effective, regular maintenance to ensure its integrity, this project would provide a defensive flood protection measure to those assets in downtown Fort Plain that are subject to flooding from Otsquago Creek. This reduces the exposure score by 0.5 for the assets in the 100-year Otsquago flood zone within the project area.

IMPORTANT NOTES

It is important to note that this project does not mitigate the risk of flooding from the Mohawk River, so many downtown assets are still not protected. Absent detailed modeling, it is impossible to ascertain precisely which assets are subject to flooding from the Mohawk or Otsquago sources, and thus an approximate boundary was delineated for this mitigated risk scoring based on proximity to Otsquago Creek. Detailed modeling is necessary to determine exactly which assets would be protected by this project.

No engineering analysis has been performed as part of this risk reduction analysis. Further, detailed study is necessary prior to project implementation.

H. Moyer Road Feasibility Study and Implementation



Project Description:

H. Moyer Road is currently a dead end. The 1884-constructed, three-ton bridge was flooded in 2013 and cut off residents. Emergency service providers (fire trucks) cannot use the bridge due to weight restrictions and because the bridge is not wide enough to accommodate these vehicles. This project would examine the feasibility of closing the bridge and, as alternative access, restoring the abandoned road along the existing Town right-of-way to Mill Lane. \$25,000 has been allocated for the planning study, and \$250,000 has been earmarked for implementation.

Project Location:

Town of Minden

Cost Estimate:

\$275,000

Cost Estimate Source:

Preliminary costs for planning purposes were developed by the Consultant Team technical staff, with direct input from the local municipalities and the Planning Committee, utilizing NYSDOT Pay Item Catalog and from unit price indexes and regional adjustments using the 2012 RS Means: Site Work & Landscape Cost Data book, both widely relied upon and accepted estimating sources for projects funded through federal and state aid.

Project Benefits:

Provide safe access to residents

Cost Benefit Analysis:

Properly functioning roadways would benefit the community by decreasing potential flood damages to infrastructure, adjacent land, homes, and businesses and interruptions of traffic flow. Economic benefits would be realized through uninterrupted access to the County for emergency vehicles and decreased costs for reconstruction and rehabilitation of roadways and facilities after severe weather and flooding.

The potential benefits of these projects are believed to outweigh the financial investment of project implementation.

Anticipated Timeframe:

Short Term (0-12 months)

Project Status:

Planning Stage: The Town is currently evaluating the legal aspects of closing the bridge and restoring the road.

Anticipated Project Lead:

Town of Minden

This page intentionally left blank

Honey Hill Road Outfall Channel Restoration



Honey Hill Road Outfall (George Capece)

Project Description:

An outfall from the culvert near Honey Hill and Beck Street discharges into the Otsquago Creek under Route 80. The discharge area, near the St. James Church, is impacted during acute storm events, flooding nearby homes. To provide a delineated area for flow path and avoid future flood damage of the church and other properties, this drainage channel will be restored and upgraded.

Project Location:

Village of Fort Plain

Cost Estimate:

\$150,000

Cost Estimate Source:

Preliminary costs for planning purposes were developed by the Consultant Team technical staff, with direct input from the local municipalities and the Planning Committee, utilizing NYSDOT Pay Item Catalog and from unit price indexes and regional adjustments using the 2012 RS Means: Site Work & Landscape Cost Data book, both widely relied upon and accepted estimating sources for projects funded through federal and state aid.

Project Benefits:

Alleviate flooding of discharge area

Cost Benefit Analysis:

Properly functioning culverts benefit the community by decreasing potential flood damages to infrastructure, adjacent land, homes, and businesses and roads and interruptions of traffic flow. Economic benefits will be realized through reduction in damages resulting in cost reduction or diminish repair costs.

The potential benefits of these projects are believed to outweigh the financial investment of project implementation.

Anticipated Timeframe:

Short Term (0-12 months)

Project Status:

The project is in the conceptual/planning phase and would require engineering design, permits and approvals.

Anticipated Project Lead:

Village of Fort Plain



Honey Hill Road Outfall (George Capece)

Risk Reduction Analysis

Project: Honey Hill Road Outfall Channel Restoration

Municipality: Fort Plain

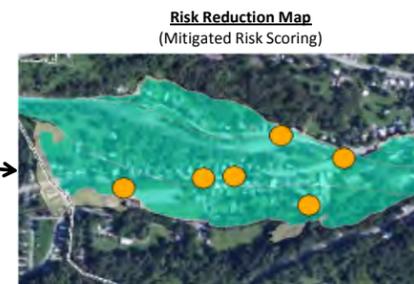
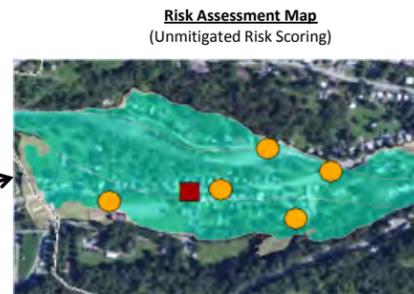
Note: The assets listed below are all of those identified on the community Asset Inventory that are located within the 100-year flood plain. Those assets affected by the project listed above are highlighted in light gray. Any hazard, exposure, and/or vulnerability scores that would change as a result of project implementation are shown in dark gray shaded cells.

Asset Information							Risk Assessment						
Asset	Asset ID	Risk Area	Asset Class	Asset Sub-category	Socially Vulnerable Populations	Critical Facility	Community Value	Hazard Score	Exposure Score	Vulnerability Score	New Risk Score (Mitigated)	Previous Risk Score (Unmitigated)	Change in Risk Score*
FORT PLAIN WATER WORKS DWTP/WELL	MCRA001	Extreme	Infrastructure_Systems	Water Supply	No	Yes, FEMA	High	3	5.00	4	60	60	0
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS	MCRA026	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	5.00	4	60	60	0
SAVE-A-LOT	MCRA098	Extreme	Economic	Grocery/Food Suppliers	Yes	No, Locally Significant	Medium	3	5.00	4	60	60	0
FORT PLAIN POLICE DEPARTMENT	MCRA110	Extreme	Health_and_Social_Services	Emergency Operations/Response	No	Yes, FEMA	High	3	5.00	4	60	60	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR WILLETT ST	MCRA112	Extreme	Housing	Single-Family Residence	No	No, Locally Significant	High	3	5.00	4	60	60	0
VILLAGE OF FORT PLAIN COMMERCIAL CORRIDOR	MCRA130	Extreme	Economic	Industrial, Warehousing and Manufacturing	No	No	Medium	3	5.00	4	60	60	0
ACCESS TRANSPORTATION	MCRA132	Extreme	Health_and_Social_Services	Government and Administrative Services	Yes	Yes, FEMA	Medium	3	5.00	4	60	60	0
FORT PLAIN MEDICAL FOUNDATION OFFICES	MCRA195	Extreme	Health_and_Social_Services	Healthcare Facilities	Yes	No	High	3	5.00	4	60	60	0
WILLIAMS MEMORIAL LIBRARY	MCRA196	Extreme	Natural_and_Cultural_Resources	Libraries	No	No	Low	3	5.00	4	60	60	0
FORT PLAIN VFW	MCRA197	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	5.00	4	60	60	0
CANALWAY TRAIL - VULNERABLE AREA IN V. FORT PLAIN	MCRA201	Extreme	Natural_and_Cultural_Resources	Parks and Recreation	No	No	Low	3	5.00	4	60	60	0
STATE HIGHWAY 80 - VULNERABLE AREA IN V. FORT PLAIN	MCRA202	Extreme	Infrastructure_Systems	Transportation	No	No, Locally Significant	High	3	5.00	4	60	60	0
WILLETT STREET STORM SEWER	MCRA212	Extreme	Infrastructure_Systems	Stormwater	No	No, Locally Significant	High	3	5.00	4	60	60	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR REID ST	MCRA190	Extreme	Housing	Single-Family Residence	No	No, Locally Significant	High	3	4.00	4	48	54	6
NICE N EASY	MCRA099	Extreme	Economic	Grocery/Food Suppliers	Yes	No, Locally Significant	Medium	3	4.00	4	48	48	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR ABBOTT ST	MCRA220	Extreme	Housing	Single-Family Residence	No	No, Locally Significant	High	3	4.00	4	48	48	0
BRIDGE - CANALWAY TRAIL OVER 55	MCRA081	High	Infrastructure_Systems	Transportation	No	No	Low	3	3.00	5	45	45	0
BRIDGE - 190 OVER OTSQUAGO CREEK	MCRA079	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	4	42	42	0
VETERAN MEMORIAL PARK	MCRA200	Extreme	Natural_and_Cultural_Resources	Parks and Recreation	No	No	Low	3	3.50	4	42	42	0
DOMINION TRANSMISSION INC	MCRA008	Extreme	Economic	Small Business	No	No	Medium	3	4.50	3	41	41	0
FORT PLAIN POST OFFICE	MCRA091	Extreme	Health_and_Social_Services	Government and Administrative Services	No	No	Low	3	4.50	3	41	41	0
COMMUNITY BIBLE CHURCH	MCRA189	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	4.00	3	36	41	5
STATE HIGHWAY 80 - VULNERABLE AREA IN V. FORT PLAIN	MCRA191	Extreme	Infrastructure_Systems	Transportation	No	No, Locally Significant	High	3	4.00	3	36	41	5
ST JAMES CATHOLIC CHURCH	MCRA027	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	3.50	3	32	36	5
BRIDGE - 163 OVER OTSQUAGO CREEK	MCRA068	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.00	3	36	36	0
FORT PLAIN FIRE STATION	MCRA013	High	Health_and_Social_Services	Emergency Operations/Response	No	Yes, FEMA	High	3	4.00	3	36	36	0
VILLAGE OF FORT PLAIN MUNICIPAL HALL	MCRA043	High	Health_and_Social_Services	Government and Administrative Services	No	Yes, FEMA	High	3	4.00	3	36	36	0
FULMONT COMMUNITY ACTION AGENCY FOOD PANTRY	MCRA133	High	Health_and_Social_Services	Government and Administrative Services	Yes	No, Locally Significant	Medium	3	4.00	3	36	36	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR CANAL ST	MCRA198	High	Housing	Single-Family Residence	No	No, Locally Significant	High	3	4.00	3	36	36	0
FORT PLAIN REFORMED CHURCH	MCRA199	High	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	4.00	3	36	36	0
BRIDGE - 55 OVER OTSQUAGO CREEK	MCRA075	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	3	32	32	0
BRIDGE - 80 OVER OTSQUAGO CREEK	MCRA067	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.00	3	27	27	0
BRIDGE - 190 OVER CANALWAY TRAIL	MCRA080	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.50	2	27	27	0
BRIDGE - 190 OVER 80	MCRA085	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.50	2	27	27	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR HANCOCK ST	MCRA194	High	Housing	Single-Family Residence	No	No, Locally Significant	High	3	3.00	3	27	27	0
BRIDGE - 80 OVER ERIE BARGE CANAL	MCRA087	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	2	21	21	0

Risk Categories
Residual (<6)
Moderate (6-23)
High (24-53)
Severe (>53)

* All values reported for New Risk Score, Previous Risk Score, and Change in Risk Score are rounded to the nearest whole number. This may result in some mathematical discrepancies in the reported Change in Risk Score.

- LEGEND
- Asset - Moderate Risk
 - Asset - High Risk
 - Asset - Severe Risk
 - 100-year Flood Zone



SUMMARY

This project intends to improve the stormwater outfall at Honey Hill Road and Beck Street at Otsquago Creek. Under current conditions, this stormwater system discharge location causes flooding of nearby homes, churches, and other assets.

By restoring and upgrading the stormwater discharge channel, the additional risk of flooding due to stormwater would be mitigated for nearby assets. To reflect this, the response for stormwater discharge was changed for the surrounding assets, resulting in a reduction in exposure score of 0.5 for each of the nearby assets.

IMPORTANT NOTES

No engineering analysis has been performed as part of this risk reduction analysis. Further, detailed study is necessary prior to project implementation.

Housing Rehabilitation Program



Damaged Home in Fort Plain (Jacklyn Hakes)



Damaged Home in Fort Plain (Jacklyn Hakes)



Damaged Home (Jacklyn Hakes)

Project Description:

While some homeowners received assistance to recover from the 2013 flooding, there is still considerable need in Fort Plain in particular, where there are a significant number of residential properties that are still uninhabitable due to flood damage. This program would not only address the remaining need for total rebuilds, first floor reconstruction, foundation reconstruction, HVAC, sheetrock, siding, porches, and other rehabilitation projects; but also it will support mitigation measures such as elevation of structures and utilities that would make the residential properties less likely to experience severe damage as a result of future flood events.

Project Location:

Village of Fort Plain

Cost Estimate:

\$500,000

Cost Estimate Source:

Preliminary costs for planning purposes were developed by the Consultant Team technical staff, with direct input from the local municipalities and the Planning Committee, utilizing NYSDOT Pay Item Catalog and from unit price indexes and regional adjustments using the 2012 RS Means: Site Work & Landscape Cost Data book, both widely relied upon and accepted estimating sources for projects funded through federal and state aid.

Project Benefits:

Continued housing rehabilitation assistance to an underserved population.

Cost Benefit Analysis:

The primary benefit of providing financial and construction assistance to residents is to move a primarily underserved population back into their homes and keep them in the community, which supports the tax base. Elevating the structures, and utilities, would improve the resiliency of these structures, reducing their vulnerability from severe flooding caused by storm events.

The potential benefits of these projects are believed to outweigh the financial investment of project implementation.

Anticipated Timeframe:

Immediate (0-6 months)

Project Status:

Some homes have been rehabilitated, but additional resources are needed.

Anticipated Project Lead:

Village of Fort Plain



View of Abbott St. from Otsquago Creek (Jacklyn Hakes)

Risk Reduction Analysis

Project: Housing Rehabilitation Program

Municipality: Fort Plain

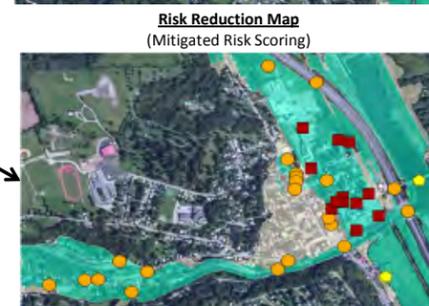
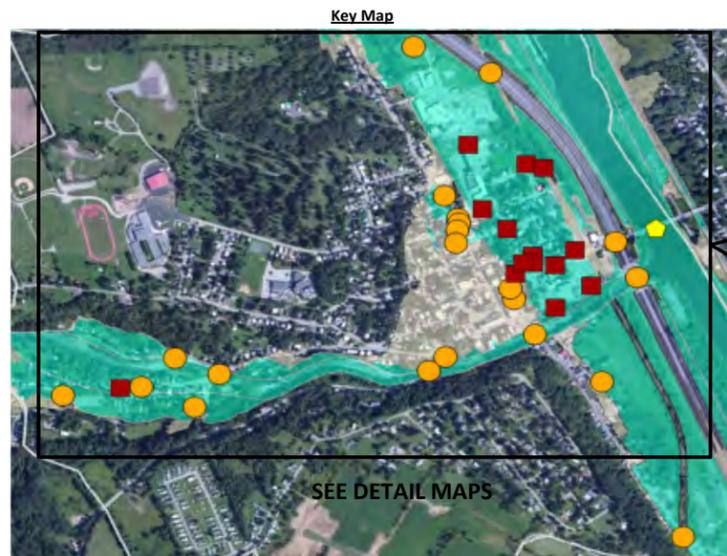
Note: The assets listed below are all of those identified on the community Asset Inventory that are located within the 100-year flood plain. Those assets affected by the project listed above are highlighted in light gray. Any hazard, exposure, and/or vulnerability scores that would change as a result of project implementation are shown in dark gray shaded cells.

Asset Information								Risk Assessment					
Asset	Asset ID	Risk Area	Asset Class	Asset Sub-category	Socially Vulnerable Populations	Critical Facility	Community Value	Hazard Score	Exposure Score	Vulnerability Score	New Risk Score (Mitigated)	Previous Risk Score (Unmitigated)	Change in Risk Score*
FORT PLAIN WATER WORKS DWTP/WELL	MCRA001	Extreme	Infrastructure_Systems	Water Supply	No	Yes, FEMA	High	3	5.00	4	60	60	0
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS	MCRA026	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	5.00	4	60	60	0
SAVE-A-LOT	MCRA098	Extreme	Economic	Grocery/Food Suppliers	Yes	No, Locally Significant	Medium	3	5.00	4	60	60	0
FORT PLAIN POLICE DEPARTMENT	MCRA110	Extreme	Health_and_Social_Services	Emergency Operations/Response	No	Yes, FEMA	High	3	5.00	4	60	60	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR WILLETT ST	MCRA112	Extreme	Housing	Single-Family Residence	No	No, Locally Significant	High	3	4.00	4	48	60	12
VILLAGE OF FORT PLAIN COMMERCIAL CORRIDOR	MCRA130	Extreme	Economic	Industrial, Warehousing and Manufacturing	No	No	Medium	3	5.00	4	60	60	0
ACCESS TRANSPORTATION	MCRA132	Extreme	Health_and_Social_Services	Government and Administrative Services	Yes	Yes, FEMA	Medium	3	5.00	4	60	60	0
FORT PLAIN MEDICAL FOUNDATION OFFICES	MCRA195	Extreme	Health_and_Social_Services	Healthcare Facilities	Yes	No	High	3	5.00	4	60	60	0
WILLIAMS MEMORIAL LIBRARY	MCRA196	Extreme	Natural_and_Cultural_Resources	Libraries	No	No	Low	3	5.00	4	60	60	0
FORT PLAIN VFW	MCRA197	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	5.00	4	60	60	0
CANALWAY TRAIL - VULNERABLE AREA IN V. FORT PLAIN	MCRA201	Extreme	Natural_and_Cultural_Resources	Parks and Recreation	No	No	Low	3	5.00	4	60	60	0
STATE HIGHWAY 80 - VULNERABLE AREA IN V. FORT PLAIN	MCRA202	Extreme	Infrastructure_Systems	Transportation	No	No, Locally Significant	High	3	5.00	4	60	60	0
WILLETT STREET STORM SEWER	MCRA212	Extreme	Infrastructure_Systems	Stormwater	No	No, Locally Significant	High	3	5.00	4	60	60	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR REID ST	MCRA190	Extreme	Housing	Single-Family Residence	No	No, Locally Significant	High	3	3.50	4	42	54	12
NICE N EASY	MCRA099	Extreme	Economic	Grocery/Food Suppliers	Yes	No, Locally Significant	Medium	3	4.00	4	48	48	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR ABBOTT ST	MCRA220	Extreme	Housing	Single-Family Residence	No	No, Locally Significant	High	3	3.00	4	36	48	12
BRIDGE - CANALWAY TRAIL OVER 55	MCRA081	High	Infrastructure_Systems	Transportation	No	No	Low	3	3.00	5	45	45	0
BRIDGE - 190 OVER OTSQUAGO CREEK	MCRA079	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	4	42	42	0
VETERAN MEMORIAL PARK	MCRA200	Extreme	Natural_and_Cultural_Resources	Parks and Recreation	No	No	Low	3	3.50	4	42	42	0
DOMINION TRANSMISSION INC	MCRA008	Extreme	Economic	Small Business	No	No	Medium	3	4.50	3	41	41	0
FORT PLAIN POST OFFICE	MCRA091	Extreme	Health_and_Social_Services	Government and Administrative Services	No	No	Low	3	4.50	3	41	41	0
COMMUNITY BIBLE CHURCH	MCRA189	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	4.50	3	41	41	0
STATE HIGHWAY 80 - VULNERABLE AREA IN V. FORT PLAIN	MCRA191	Extreme	Infrastructure_Systems	Transportation	No	No, Locally Significant	High	3	4.50	3	41	41	0
ST JAMES CATHOLIC CHURCH	MCRA027	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	4.00	3	36	36	0
BRIDGE - 163 OVER OTSQUAGO CREEK	MCRA068	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.00	3	36	36	0
FORT PLAIN FIRE STATION	MCRA013	High	Health_and_Social_Services	Emergency Operations/Response	No	Yes, FEMA	High	3	4.00	3	36	36	0
VILLAGE OF FORT PLAIN MUNICIPAL HALL	MCRA043	High	Health_and_Social_Services	Government and Administrative Services	No	Yes, FEMA	High	3	4.00	3	36	36	0
FULMONT COMMUNITY ACTION AGENCY FOOD PANTRY	MCRA133	High	Health_and_Social_Services	Government and Administrative Services	Yes	No, Locally Significant	Medium	3	4.00	3	36	36	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR CANAL ST	MCRA198	High	Housing	Single-Family Residence	No	No, Locally Significant	High	3	3.00	3	27	36	9
FORT PLAIN REFORMED CHURCH	MCRA199	High	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	4.00	3	36	36	0
BRIDGE - 55 OVER OTSQUAGO CREEK	MCRA075	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	3	32	32	0
BRIDGE - 80 OVER OTSQUAGO CREEK	MCRA067	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.00	3	27	27	0
BRIDGE - 190 OVER CANALWAY TRAIL	MCRA080	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.50	2	27	27	0
BRIDGE - 190 OVER 80	MCRA085	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.50	2	27	27	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR HANCOCK ST	MCRA194	High	Housing	Single-Family Residence	No	No, Locally Significant	High	3	2.00	3	18	27	9
BRIDGE - 80 OVER ERIE BARGE CANAL	MCRA087	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	2	21	21	0

Risk Categories
Residual (<6)
Moderate (6-23)
High (24-53)
Severe (>53)

* All values reported for New Risk Score, Previous Risk Score, and Change in Risk Score are rounded to the nearest whole number. This may result in some mathematical discrepancies in the reported Change in Risk Score.

- LEGEND
- Asset - Moderate Risk
 - Asset - High Risk
 - Asset - Severe Risk
 - 100-year Flood Zone



SUMMARY

This project seeks to implement restorative and protective measures at homes throughout Fort Plain. Protective flood mitigation measures proposed include elevation of structures and utilities.

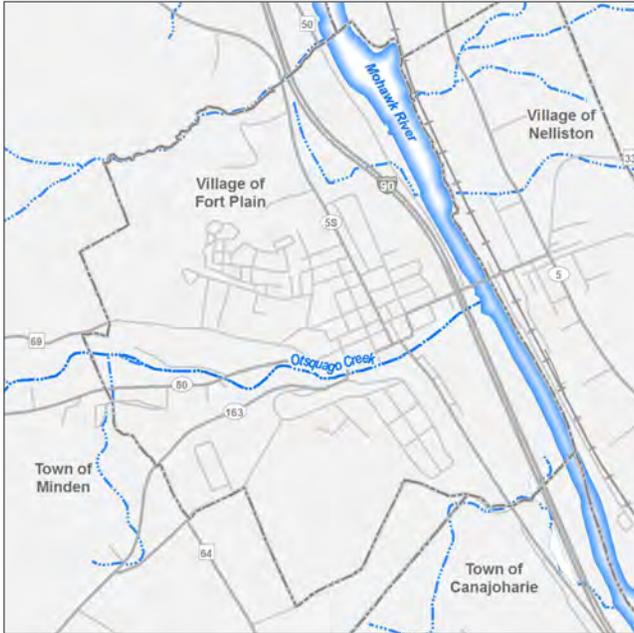
As the individual measures to be implemented at each home have not yet been determined, it is assumed, for the purposes of evaluating the risk reduction capacity of the project, that all homes in the identified residential areas would be elevated to at least 2 feet above the base flood elevation (BFE). This results in a change in landscape attribute responses for elevation and freeboard, thereby reducing the exposure score by 1 point for each asset.

IMPORTANT NOTES

The actual measures to be implemented under this project have not yet been determined. Elevation of homes to at least 2 feet above the BFE is assumed.

No engineering analysis has been performed as part of this risk reduction analysis. Further, detailed study is necessary prior to project implementation.

Install and Monitor Stream Gauges



Project Description:

There are currently no stream gauges on Otsuago Creek. These are also lacking on many other tributaries to the Mohawk River/ NYS Canal System. Installation of a permanent county-wide stream gauge system is recommended for emergency and statistical analysis. Installation of such a system would provide early warning for the Montgomery County Emergency Management Office of potential and actual flood events and allow the community to be better prepared for flooding. The NYS Canal Corp is installing a similar system along the canal mainstem and will work with Montgomery County to ensure compatibility and to integrate the tributary monitoring system with its early warning system.

Project Location:

Town of Minden, Village of Fort Plain, and throughout Montgomery County

Cost Estimate:

\$300,000

Cost Estimate Source:

Costs derived based on experience from other NYRCR communities and is based on range of 15 - 20 stream systems.

Project Benefits:

Flood protection for homes and businesses through the use of an early warning system.

Cost Benefit Analysis:

The goal of this project is to provide early warning systems to emergency service providers so that they may be better prepared to evacuate or implement other preparedness measures in advance of severe storm events. Improved preparedness increases a community's resiliency and sustainability. It is anticipated these improvements would provide significant savings in municipal expenditures.

The potential benefits of these projects are believed to outweigh the financial investment of project implementation.

Anticipated Timeframe:

Short Term (0-12 months)

Project Status:

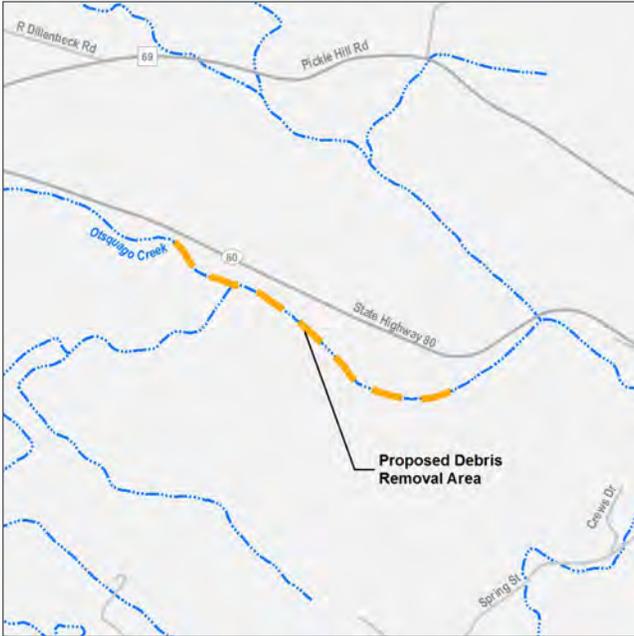
The project is in the conceptual/planning phase and would require engineering design, permits and approvals.

Anticipated Project Lead:

Town of Minden, Village of Fort Plain, and Montgomery County

This page intentionally left blank

Otsquago Creek Debris Removal



Creek Debris Removal (George Capece)

Project Description:

To quickly address the immediate need to move floodwaters out of Fort Plain, NYS DOT and the National Guard bermed the debris in the Otsquago Creek to its side banks after the 2013 flood. While this did serve the immediate purpose, the remaining debris is constricting flow and Creek capacity, resulting in stream flow back-up and ice jams. This project would provide for the restoration and debris removal of approximately 4,000 LF of the Creek that was impacted. As a result, the Creek will be stabilized and normal flow returned thereby providing long term resiliency.

Project Location:

Town of Minden - west of footbridge/west of Spring Street/south of Route 80

Cost Estimate:

\$200,000

Cost Estimate Source:

Preliminary costs for planning purposes were developed by the Consultant Team technical staff, with direct input from the local municipalities and the Planning Committee, utilizing NYS DOT Pay Item Catalog and from unit price indexes and regional adjustments using the 2012 RS Means: Site Work & Landscape Cost Data book, both widely relied upon and accepted estimating sources for projects funded through federal and state aid.

Project Benefits:

Removal of debris and sedimentation would increase the volume of water the channel can allow to pass within its banks.

Cost Benefit Analysis:

The primary benefit of removing debris and sedimentation is increasing the volume of water than the channel can allow passing through its banks, which when combined with other measures can mitigate flooding along stream corridors, increasing resiliency and sustainability. The anticipated functional life of flood mitigation measures is a period of 10 to 20 years. Flood mitigation would help improve access for emergency services, reduce potential damage at various local facilities, and reduce the cost of reconstruction and rehabilitation after storm events. It is anticipated these improvements would provide significant savings in municipal expenditures.

The potential benefits of these projects are believed to outweigh the financial investment of project implementation.

Anticipated Timeframe:

Immediate (0-6 months)

Project Status:

The project is in the conceptual/planning phase and would require engineering design, permits and approvals.

Anticipated Project Lead:

Town of Minden

Risk Reduction Analysis

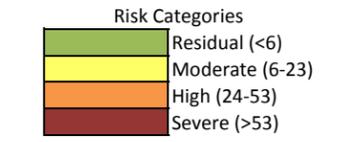
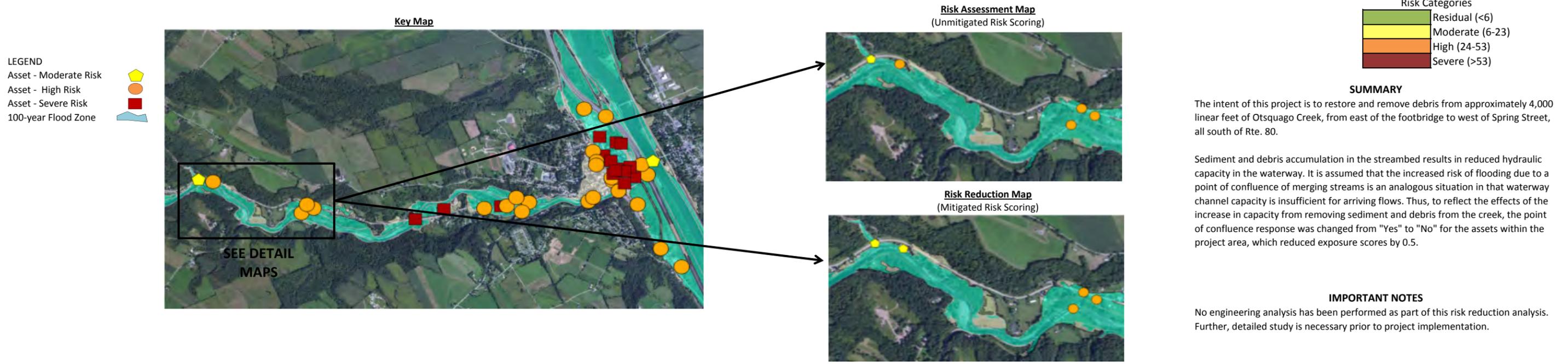
Project: Otsquago Creek Debris Removal

Municipality: Minden

Note: The assets listed below are all of those identified on the community Asset Inventory that are located within the 100-year flood plain. Those assets affected by the project listed above are highlighted in light gray. Any hazard, exposure, and/or vulnerability scores that would change as a result of project implementation are shown in dark gray shaded cells.

Asset Information								Risk Assessment					
Asset	Asset ID	Risk Area	Asset Class	Asset Sub-category	Socially Vulnerable Populations	Critical Facility	Community Value	Hazard Score	Exposure Score	Vulnerability Score	New Risk Score (Mitigated)	Previous Risk Score (Unmitigated)	Change in Risk Score*
TOWN OF MINDEN DPW	MCRA042	Extreme	Health_and_Social_Services	Public Works Facilities	No	Yes, FEMA	High	3	5.00	4	60	60	0
BRIDGE - 80 OVER OTSQUAGO CREEK	MCRA057	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.50	4	54	54	0
BRIDGE - SPRING STREET OVER OTSQUAGO CREEK	MCRA062	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.00	3	36	41	5
TOWN OF MINDEN RESIDENCES AT RISK	MCRA113	Extreme	Housing	Single-Family Residence	No	No, Locally Significant	High	3	4.50	3	41	41	0
STATE HIGHWAY 80 - VULNERABLE AREA IN T. MINDEN	MCRA204	Extreme	Infrastructure_Systems	Transportation	No	No, Locally Significant	High	3	4.00	3	36	41	5
BRIDGE - H MOYER ROAD OVER OTSQUAGO CREEK	MCRA069	High	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	3	32	32	0
REVELATION MINISTRY	MCRA156	High	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	2.50	3	23	27	5
BRIDGE - CASLER ROAD OVER OTSQUAGO CREEK	MCRA060	High	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	2	21	21	0
BRIDGE - BROOKMANS CORNERS RD OVER OTSQUAGO CREEK	MCRA061	High	Infrastructure_Systems	Transportation	No	No	Low	3	3.00	2	18	18	0
BRIDGE - 80 OVER OTSQUAGUE CREEK	MCRA066	High	Infrastructure_Systems	Transportation	No	No	Low	3	2.00	2	12	15	3
BRIDGE - CR 61 (BRIDGE STR OVER MOHAWK RIVER BARGE)	MCRA083	High	Infrastructure_Systems	Transportation	No	No	Low	3	2.00	2	12	12	0

* All values reported for New Risk Score, Previous Risk Score, and Change in Risk Score are rounded to the nearest whole number. This may result in some mathematical discrepancies in the reported Change in Risk Score.



SUMMARY

The intent of this project is to restore and remove debris from approximately 4,000 linear feet of Otsquago Creek, from east of the footbridge to west of Spring Street, all south of Rte. 80.

Sediment and debris accumulation in the streambed results in reduced hydraulic capacity in the waterway. It is assumed that the increased risk of flooding due to a point of confluence of merging streams is an analogous situation in that waterway channel capacity is insufficient for arriving flows. Thus, to reflect the effects of the increase in capacity from removing sediment and debris from the creek, the point of confluence response was changed from "Yes" to "No" for the assets within the project area, which reduced exposure scores by 0.5.

IMPORTANT NOTES

No engineering analysis has been performed as part of this risk reduction analysis. Further, detailed study is necessary prior to project implementation.

Sediment Management Plan and Implementation for the Unnamed Tributary



Project Description:

An unnamed tributary that discharges into Otsquago Creek is a major source of gravel and cobble sediment. The sediment transport process is very difficult to mitigate. Development of a sediment management plan is recommended. This may involve the creation of a designated sediment settling area that will be subject to regular maintenance, in conjunction with a targeted sediment management plan. The project budget includes \$50,000 for the plan plus \$200,000 toward implementation of identified projects.

Project Location:

Town of Minden

Cost Estimate:

\$250,000

Cost Estimate Source:

This estimate is based on preliminary cost estimates contained in a watershed assessment plan currently being prepared by an engineering firm under contract with NYS DOT in cooperation with NYS DEC.

Project Benefits:

Alleviate flooding in the Otsquago Creek from this tributary

Cost Benefit Analysis:

The primary benefit of removing debris and sedimentation is increasing the volume of water than the channel can allow passing through its banks, which when combined with other measures can mitigate flooding along stream corridors, increasing resiliency and sustainability. The anticipated functional life of flood mitigation measures is a period of 10 to 20 years. Flood mitigation would help improve access for emergency services, reduce potential damage at various local facilities, and reduce the cost of reconstruction and rehabilitation after storm events. It is anticipated these improvements would provide significant savings in municipal expenditures.

The potential benefits of these projects are believed to outweigh the financial investment of project implementation.

Anticipated Timeframe:

Short Term (0-12 months)

Project Status:

The project is in conceptual/planning phase and would require engineering design, construction documents and necessary permits and approvals would need to be secured.

Anticipated Project Lead:

Town of Minden

Risk Reduction Analysis

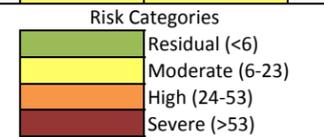
Project: Sediment Management for Unnamed Tributary

Municipality: Minden

Note: The assets listed below are all of those identified on the community Asset Inventory that are located within the 100-year flood plain. Those assets affected by the project listed above are highlighted in light gray. Any hazard, exposure, and/or vulnerability scores that would change as a result of project implementation are shown in dark gray shaded cells.

Asset Information								Risk Assessment					
Asset	Asset ID	Risk Area	Asset Class	Asset Sub-category	Socially Vulnerable Populations	Critical Facility	Community Value	Hazard Score	Exposure Score	Vulnerability Score	New Risk Score (Mitigated)	Previous Risk Score (Unmitigated)	Change in Risk Score*
TOWN OF MINDEN DPW	MCRA042	Extreme	Health_and_Social_Services	Public Works Facilities	No	Yes, FEMA	High	3	4.50	4	54	60	6
BRIDGE - 80 OVER OTSQUAGO CREEK	MCRA057	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.00	4	48	54	6
BRIDGE - SPRING STREET OVER OTSQUAGO CREEK	MCRA062	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.50	3	41	41	0
TOWN OF MINDEN RESIDENCES AT RISK	MCRA113	Extreme	Housing	Single-Family Residence	No	No, Locally Significant	High	3	4.50	3	41	41	0
STATE HIGHWAY 80 - VULNERABLE AREA IN T. MINDEN	MCRA204	Extreme	Infrastructure_Systems	Transportation	No	No, Locally Significant	High	3	4.50	3	41	41	0
BRIDGE - H MOYER ROAD OVER OTSQUAGO CREEK	MCRA069	High	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	3	32	32	0
REVELATION MINISTRY	MCRA156	High	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	3.00	3	27	27	0
BRIDGE - CASLER ROAD OVER OTSQUAGO CREEK	MCRA060	High	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	2	21	21	0
BRIDGE - BROOKMANS CORNERS RD OVER OTSQUAGO CREEK	MCRA061	High	Infrastructure_Systems	Transportation	No	No	Low	3	3.00	2	18	18	0
BRIDGE - 80 OVER OTSQUENE CREEK	MCRA066	High	Infrastructure_Systems	Transportation	No	No	Low	3	2.50	2	15	15	0
BRIDGE - CR 61 (BRIDGE STR OVER MOHAWK RIVER BARGE)	MCRA083	High	Infrastructure_Systems	Transportation	No	No	Low	3	2.00	2	12	12	0

* All values reported for New Risk Score, Previous Risk Score, and Change in Risk Score are rounded to the nearest whole number. This may result in some mathematical discrepancies in the reported Change in Risk Score.



LEGEND
 Asset - Moderate Risk
 Asset - High Risk
 Asset - Severe Risk
 100-year Flood Zone



Risk Assessment Map



Risk Reduction Map



SUMMARY

An unnamed tributary waterway that discharges into Otsquago Creek between two bridge crossings of Highway 80 in the Town of Minden is contributing a significant amount of gravel and sediment to the Otsquago Creek cross-section, resulting in a loss of stream capacity. This project would develop a sediment management plan, aiming to create a designated sedimentation area and provide regular maintenance to prevent the accumulation of excess sediment.

This reduction in waterway capacity at the merging of the tributary is reflected by the point of confluence landscape attribute. To model the risk mitigation resulting from effective management of the tributary and sedimentation area, the point of confluence response was changed for both assets within 1,000 feet of the tributary, which reduced exposure score by 0.5 for each asset.

IMPORTANT NOTES

No engineering analysis has been performed as part of this risk reduction analysis. Further, detailed study is necessary prior to project implementation. A specific sediment management plan has not yet been developed for this location.

Spring Street Guide Rail Installation



Spring Street Guide Rail (Jeff Smith)

Project Description:

Following the 2013 floods, New York State Department of Transportation (NYSDOT) emergency crews replaced or installed nearly 80 percent of the guard rail along the NYS owned portion of Spring Street. When the State-owned section of Spring Street located in the Town was rebuilt following the 2013 Storm, the reconstruction of the road to highway road standards warranted the installation of a guard rail, however the guard rail has not yet been installed. This portion of Spring Street has many curves and a dangerously steep drop into the Osquago Creek. This project would involve the installation of approximately 1000 LF of new guard rail along the Town owned portion of Spring Street to ensure safe movement of vehicles.

Project Location:

Spring Street, Town of Minden

Cost Estimate:

\$35,000

Cost Estimate Source:

Preliminary costs for planning purposes were developed by the Consultant Team technical staff, with direct input from the local municipalities and the Planning Committee, utilizing NYSDOT Pay Item Catalog and from unit price indexes and regional adjustments using the 2012 RS Means: Site Work & Landscape Cost Data book, both widely relied upon and accepted estimating sources for projects funded through federal and state aid.

Project Benefits:

Installation of guard rails will enhance safety

Cost Benefit Analysis:

Installation of the guard rail would benefit the community by supporting safe passage along a roadway with difficult topography, thereby increasing the safety for County emergency vehicles and residents and decreased costs for reconstruction and rehabilitation of roadways and facilities after severe weather and flooding.

The potential benefits of these projects are believed to outweigh the financial investment of project implementation.

Anticipated Timeframe:

Immediate (0-6 months)

Project Status:

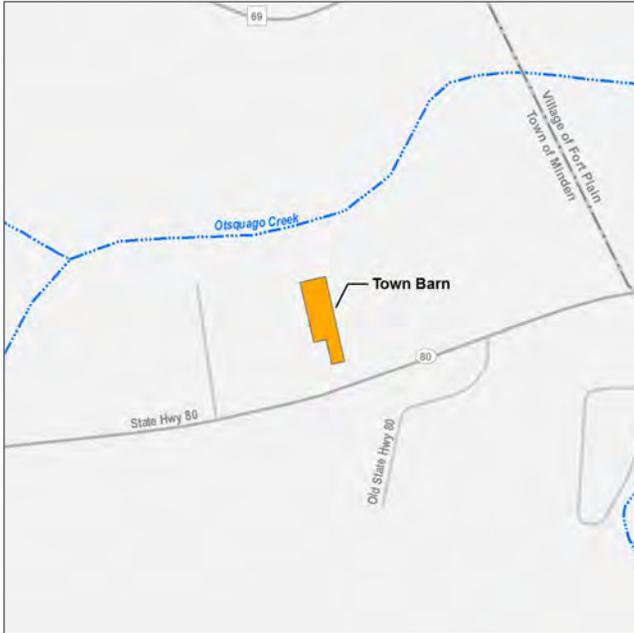
NYSDOT has completed 80 percent of the installation on the portion of Spring Street that is a NYS Road. Installation of new guard rail on the Town portion of the road is in the planning stage.

Anticipated Project Lead:

Town of Minden

This page intentionally left blank

Town Barn 2nd Floor Expansion to Create Records Room



Project Description:

The Town Barn located on Route 80 was severely damaged during the 2013 floods. Many public records and court records, which were kept on the lower floors, were lost in the flooding. This project would involve expansion of the second floor to allow for safe storage of public records, and addressing building code issues, including HVAC & Fire Protection. The new records room would be in compliance with the NYS Court record keeping protocols.

Project Location:

Village of Fort Plain

Cost Estimate:

\$200,000

Cost Estimate Source:

Preliminary costs for planning purposes were developed by the Consultant Team technical staff, with direct input from the local municipalities and the Planning Committee, utilizing NYSDOT Pay Item Catalog and from unit price indexes and regional adjustments using the 2012 RS Means: Site Work & Landscape Cost Data book, both widely relied upon and accepted estimating sources for projects funded through federal and state aid.

Project Benefits:

Protect public records

Cost Benefit Analysis:

The primary benefit of this project is to provide safe storage for vitally important Town records. This project would benefit the community by ensuring long term fiscal and economic well-being, and proper functioning of the municipal operations.

The potential benefits of these projects are believed to outweigh the financial investment of project implementation.

Anticipated Timeframe:

Short Term (0-12 months)

Project Status:

The Town is in the planning phase of this project and has identified preliminary needs. Additional engineering design would be required and necessary permits would need to be secured.

Anticipated Project Lead:

Town of Minden

This page intentionally left blank

Town Office/Barn Drainage Improvements and Landscaping Improvements



Project Description:

The Town Barn located on Route 80 was severely damaged during the 2013 floods and structural and equipment damage occurred. The damage was caused by runoff from the Town Park, which is at a higher elevation. Improvements would include the construction of a dry channel between the Town Barn and the Park to divert runoff during a storm event. The Project includes design and permitting for the dry channel, and installation of additional landscaping.

Project Location:

Village of Fort Plain

Cost Estimate:

\$50,000

Cost Estimate Source:

Preliminary costs for planning purposes were developed by the Consultant Team technical staff, with direct input from the local municipalities and the Planning Committee, utilizing NYSDOT Pay Item Catalog and from unit price indexes and regional adjustments using the 2012 RS Means: Site Work & Landscape Cost Data book, both widely relied upon and accepted estimating sources for projects funded through federal and state aid.

Project Benefits:

Protect the Town Barn and critical Town equipment and assets.

Cost Benefit Analysis:

The primary benefit of this project would be the diversion of stormwater runoff that currently floods critical Town infrastructure to areas where it can be more readily absorbed. Properly functioning drainage systems would benefit the community by decreasing potential flood damages to infrastructure. Economic benefits would be realized through decreased costs for reconstruction and rehabilitation of roadways and facilities after severe weather and flooding.

The potential benefits of these projects are believed to outweigh the financial investment of project implementation.

Anticipated Timeframe:

Short Term (0-12 months)

Project Status:

The project is in the conceptual/planning phase and would require engineering design, permits and approvals.

Anticipated Project Lead:

Town of Minden

Risk Reduction Analysis

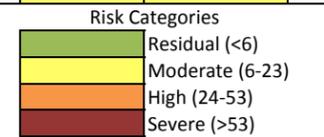
Project: Town Office/Barn Drainage & Landscaping Improvements

Municipality: Minden

Note: The assets listed below are all of those identified on the community Asset Inventory that are located within the 100-year flood plain. Those assets affected by the project listed above are highlighted in light gray. Any hazard, exposure, and/or vulnerability scores that would change as a result of project implementation are shown in dark gray shaded cells.

Asset Information								Risk Assessment					
Asset	Asset ID	Risk Area	Asset Class	Asset Sub-category	Socially Vulnerable Populations	Critical Facility	Community Value	Hazard Score	Exposure Score	Vulnerability Score	New Risk Score (Mitigated)	Previous Risk Score (Unmitigated)	Change in Risk Score*
TOWN OF MINDEN DPW	MCRA042	Extreme	Health_and_Social_Services	Public Works Facilities	No	Yes, FEMA	High	3	4.50	4	54	60	6
BRIDGE - 80 OVER OTSQUAGO CREEK	MCRA057	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.50	4	54	54	0
BRIDGE - SPRING STREET OVER OTSQUAGO CREEK	MCRA062	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.50	3	41	41	0
TOWN OF MINDEN RESIDENCES AT RISK	MCRA113	Extreme	Housing	Single-Family Residence	No	No, Locally Significant	High	3	4.50	3	41	41	0
STATE HIGHWAY 80 - VULNERABLE AREA IN T. MINDEN	MCRA204	Extreme	Infrastructure_Systems	Transportation	No	No, Locally Significant	High	3	4.50	3	41	41	0
BRIDGE - H MOYER ROAD OVER OTSQUAGO CREEK	MCRA069	High	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	3	32	32	0
REVELATION MINISTRY	MCRA156	High	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	3.00	3	27	27	0
BRIDGE - CASLER ROAD OVER OTSQUAGO CREEK	MCRA060	High	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	2	21	21	0
BRIDGE - BROOKMANS CORNERS RD OVER OTSQUAGO CREEK	MCRA061	High	Infrastructure_Systems	Transportation	No	No	Low	3	3.00	2	18	18	0
BRIDGE - 80 OVER OTSQUAGUE CREEK	MCRA066	High	Infrastructure_Systems	Transportation	No	No	Low	3	2.50	2	15	15	0
BRIDGE - CR 61 (BRIDGE STR OVER MOHAWK RIVER BARGE)	MCRA083	High	Infrastructure_Systems	Transportation	No	No	Low	3	2.00	2	12	12	0

* All values reported for New Risk Score, Previous Risk Score, and Change in Risk Score are rounded to the nearest whole number. This may result in some mathematical discrepancies in the reported Change in Risk Score.



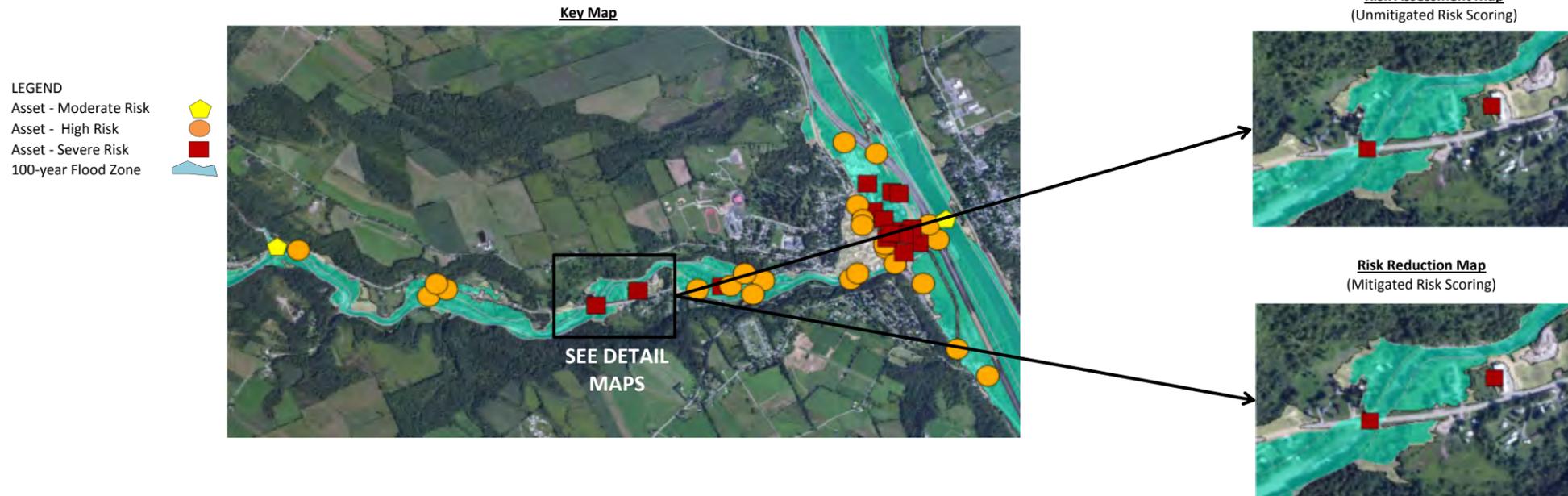
SUMMARY

The Town Barn, designated as the Town of Minden DPW in the table above, is currently subject to additional flood risk from storm water runoff from the nearby town park. This project proposes to construct a dry channel between the park and the asset to divert runoff from the park to the nearby Otsquago Creek during storm events.

To reflect the mitigation of flood risk due to storm water, the response for the storm water landscape attribute was changed for the Town Barn. This resulted in a reduction in exposure score of 0.5.

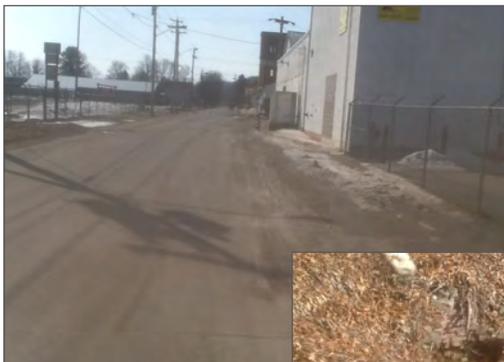
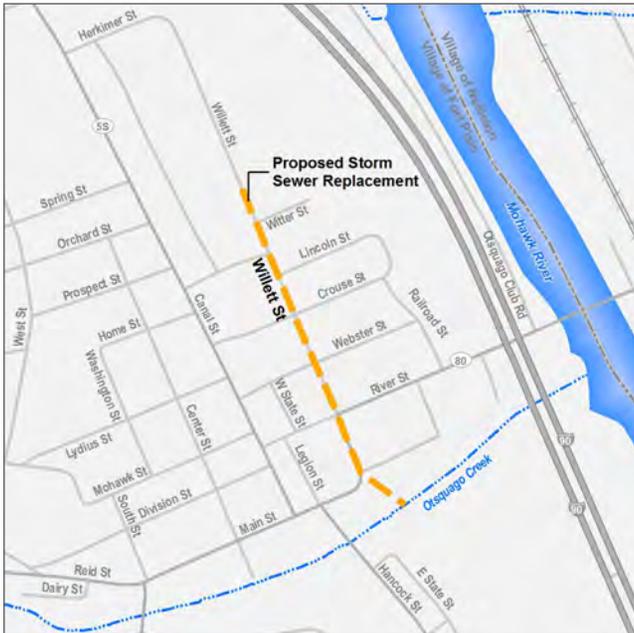
IMPORTANT NOTES

No engineering analysis has been performed as part of this risk reduction analysis. Further, detailed study is necessary prior to project implementation.



LEGEND
 Asset - Moderate Risk
 Asset - High Risk
 Asset - Severe Risk
 100-year Flood Zone

Willett Street Storm Sewer Upgrade and Green Infrastructure Improvements



Willett Street Storm Sewer
(George Capece)



Willett Street Outfall (George Capece)

Project Description:

Design and construct approximately 1,400 LF of storm sewer. The existing 12-inch storm line is undersized. The existing outfall configuration also creates issues during acute storm events. The Otsquago Creek currently impedes discharge from the outfall and the outfall pipe needs to be reconfigured. Green Infrastructure practices will also be used to reduce the quantity of runoff into the storm sewer system where possible.

Project Location:

Village of Fort Plain

Cost Estimate:

\$1,000,000

Cost Estimate Source:

Preliminary costs for planning purposes were developed by the Consultant Team technical staff, with direct input from the local municipalities and the Planning Committee, utilizing NYSDOT Pay Item Catalog and from unit price indexes and regional adjustments using the 2012 RS Means: Site Work & Landscape Cost Data book, both widely relied upon and accepted estimating sources for projects funded through federal and state aid.

Project Benefits:

Alleviate future flooding and increase resiliency of the Village of Fort Plain.

Cost Benefit Analysis:

Properly functioning storm sewers would benefit the community by decreasing potential flood damages to infrastructure, adjacent land, homes, and businesses and roads and interruptions of traffic flow. Economic benefits will be realized through reduction in damages resulting in cost reduction or diminish repair costs. Implementing green infrastructure improvements, would decrease impervious surfaces, allow for better absorption of stormwater runoff.

The potential benefits of these projects are believed to outweigh the financial investment of project implementation.

Anticipated Timeframe:

Immediate (0-6 months)

Project Status:

The project is in the conceptual/planning phase and would require engineering design, permits and approvals.

Anticipated Project Lead:

Village of Fort Plain

Risk Reduction Analysis

Project: Willet Street Storm Sewer Upgrade & Green Infrastructure

Municipality: Fort Plain

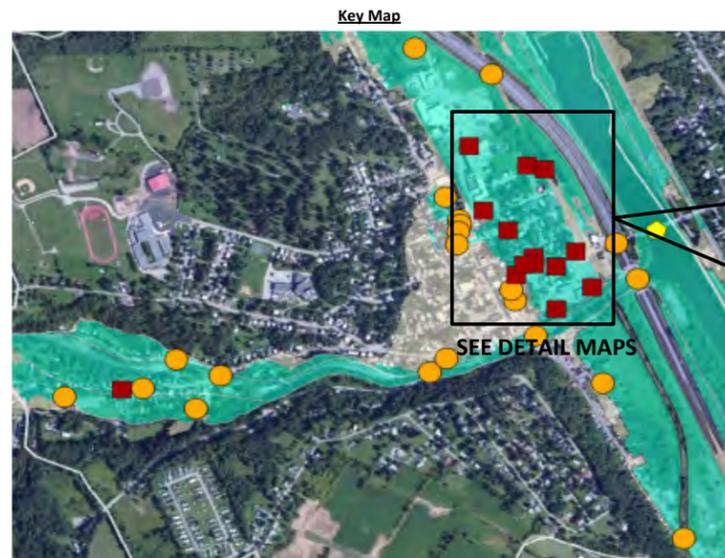
Note: The assets listed below are all of those identified on the community Asset Inventory that are located within the 100-year flood plain. Those assets affected by the project listed above are highlighted in light gray. Any hazard, exposure, and/or vulnerability scores that would change as a result of project implementation are shown in dark gray shaded cells.

Asset Information								Risk Assessment					
Asset	Asset ID	Risk Area	Asset Class	Asset Sub-category	Socially Vulnerable Populations	Critical Facility	Community Value	Hazard Score	Exposure Score	Vulnerability Score	New Risk Score (Mitigated)	Previous Risk Score (Unmitigated)	Change in Risk Score*
FORT PLAIN WATER WORKS DWTP/WELL	MCRA001	Extreme	Infrastructure_Systems	Water Supply	No	Yes, FEMA	High	3	4.50	4	54	60	6
THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS	MCRA026	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	4.50	4	54	60	6
SAVE-A-LOT	MCRA098	Extreme	Economic	Grocery/Food Suppliers	Yes	No, Locally Significant	Medium	3	4.50	4	54	60	6
FORT PLAIN POLICE DEPARTMENT	MCRA110	Extreme	Health_and_Social_Services	Emergency Operations/Response	No	Yes, FEMA	High	3	4.50	4	54	60	6
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR WILLETT ST	MCRA112	Extreme	Housing	Single-Family Residence	No	No, Locally Significant	High	3	4.50	4	54	60	6
VILLAGE OF FORT PLAIN COMMERCIAL CORRIDOR	MCRA130	Extreme	Economic	Industrial, Warehousing and Manufacturing	No	No	Medium	3	4.50	4	54	60	6
ACCESS TRANSPORTATION	MCRA132	Extreme	Health_and_Social_Services	Government and Administrative Services	Yes	Yes, FEMA	Medium	3	4.50	4	54	60	6
FORT PLAIN MEDICAL FOUNDATION OFFICES	MCRA195	Extreme	Health_and_Social_Services	Healthcare Facilities	Yes	No	High	3	4.50	4	54	60	6
WILLIAMS MEMORIAL LIBRARY	MCRA196	Extreme	Natural_and_Cultural_Resources	Libraries	No	No	Low	3	4.50	4	54	60	6
FORT PLAIN VFW	MCRA197	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	4.50	4	54	60	6
CANALWAY TRAIL - VULNERABLE AREA IN V. FORT PLAIN	MCRA201	Extreme	Natural_and_Cultural_Resources	Parks and Recreation	No	No	Low	3	4.50	4	54	60	6
STATE HIGHWAY 80 - VULNERABLE AREA IN V. FORT PLAIN	MCRA202	Extreme	Infrastructure_Systems	Transportation	No	No, Locally Significant	High	3	4.50	4	54	60	6
WILLETT STREET STORM SEWER	MCRA212	Extreme	Infrastructure_Systems	Stormwater	No	No, Locally Significant	High	3	4.50	4	54	60	6
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR REID ST	MCRA190	Extreme	Housing	Single-Family Residence	No	No, Locally Significant	High	3	4.50	4	54	54	0
NICE N EASY	MCRA099	Extreme	Economic	Grocery/Food Suppliers	Yes	No, Locally Significant	Medium	3	4.00	4	48	48	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR ABBOTT ST	MCRA220	Extreme	Housing	Single-Family Residence	No	No, Locally Significant	High	3	4.00	4	48	48	0
BRIDGE - CANALWAY TRAIL OVER 55	MCRA081	High	Infrastructure_Systems	Transportation	No	No	Low	3	3.00	5	45	45	0
BRIDGE - 190 OVER OTSQUAGO CREEK	MCRA079	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	4	42	42	0
VETERAN MEMORIAL PARK	MCRA200	Extreme	Natural_and_Cultural_Resources	Parks and Recreation	No	No	Low	3	3.50	4	42	42	0
DOMINION TRANSMISSION INC	MCRA008	Extreme	Economic	Small Business	No	No	Medium	3	4.50	3	41	41	0
FORT PLAIN POST OFFICE	MCRA091	Extreme	Health_and_Social_Services	Government and Administrative Services	No	No	Low	3	4.50	3	41	41	0
COMMUNITY BIBLE CHURCH	MCRA189	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	4.50	3	41	41	0
STATE HIGHWAY 80 - VULNERABLE AREA IN V. FORT PLAIN	MCRA191	Extreme	Infrastructure_Systems	Transportation	No	No, Locally Significant	High	3	4.50	3	41	41	0
ST JAMES CATHOLIC CHURCH	MCRA027	Extreme	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	4.00	3	36	36	0
BRIDGE - 163 OVER OTSQUAGO CREEK	MCRA068	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.00	3	36	36	0
FORT PLAIN FIRE STATION	MCRA013	High	Health_and_Social_Services	Emergency Operations/Response	No	Yes, FEMA	High	3	3.50	3	32	36	5
VILLAGE OF FORT PLAIN MUNICIPAL HALL	MCRA043	High	Health_and_Social_Services	Government and Administrative Services	No	Yes, FEMA	High	3	3.50	3	32	36	5
FULMONT COMMUNITY ACTION AGENCY FOOD PANTRY	MCRA133	High	Health_and_Social_Services	Government and Administrative Services	Yes	No, Locally Significant	Medium	3	3.50	3	32	36	5
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR CANAL ST	MCRA198	High	Housing	Single-Family Residence	No	No, Locally Significant	High	3	3.50	3	32	36	5
FORT PLAIN REFORMED CHURCH	MCRA199	High	Natural_and_Cultural_Resources	Cultural or Religious Establishments	No	No	Low	3	3.50	3	32	36	5
BRIDGE - 55 OVER OTSQUAGO CREEK	MCRA075	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	3	32	32	0
BRIDGE - 80 OVER OTSQUAGO CREEK	MCRA067	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.00	3	27	27	0
BRIDGE - 190 OVER CANALWAY TRAIL	MCRA080	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.50	2	27	27	0
BRIDGE - 190 OVER 80	MCRA085	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	4.50	2	27	27	0
VILLAGE OF FORT PLAIN RESIDENCES AT RISK NEAR HANCOCK ST	MCRA194	High	Housing	Single-Family Residence	No	No, Locally Significant	High	3	3.00	3	27	27	0
BRIDGE - 80 OVER ERIE BARGE CANAL	MCRA087	Extreme	Infrastructure_Systems	Transportation	No	No	Low	3	3.50	2	21	21	0

Risk Categories
Residual (<6)
Moderate (6-23)
High (24-53)
Severe (>53)

* All values reported for New Risk Score, Previous Risk Score, and Change in Risk Score are rounded to the nearest whole number. This may result in some mathematical discrepancies in the reported Change in Risk Score.

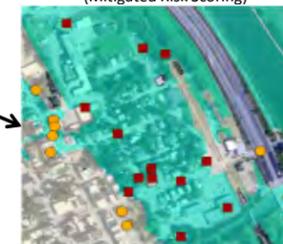
- LEGEND
- Asset - Moderate Risk
 - Asset - High Risk
 - Asset - Severe Risk
 - 100-year Flood Zone



Risk Assessment Map
(Unmitigated Risk Scoring)



Risk Reduction Map
(Mitigated Risk Scoring)



SUMMARY

The Willett Street Storm Sewer is currently a contributing cause to flooding during storm events. This project intends to reconstruct 1,400 linear feet of storm sewer to increase the capacity of the storm sewer and reconfigure the outfall. The project will also incorporate green infrastructure practices where possible to reduce the amount of runoff entering the storm water system.

The additional flood risk from storm water system discharge and back-up results in a higher exposure score for assets in this area. To evaluate the risk reduction potential of this project, the response for stormwater discharge for all of the assets in the Willett Street area was changed, which reduced the exposure score for each asset by 0.5.

IMPORTANT NOTES

No engineering analysis has been performed as part of this risk reduction analysis. Further, detailed study is necessary prior to project implementation. The assumed extents of the risk mitigation effects of the project are approximate and can only be definitively assessed based on detailed engineering analysis of the storm sewer system.

D. End Notes

Photo Credits

Cover Page

Pedestrian/Bicycle Bridge over the Otsquago Creek – Village of Fort Plain (Jeff Smith)

Dividers:

Section I

View of Abbott Street from across Otsquago Creek (Jacklyn Hakes)

Damaged roof lies between two homes (Flickr/N.Y. Governor's Office)

Flooded Residential Properties, Abbott and Reid Streets, Village of Fort Plain – June 2013 Storm (Jeff Smith)

State Hwy 80 or Spring Street, Town of Minden (Jeff Smith)

Section II

Damaged home and debris along river (Flickr/N.Y. Governor's Office)

Debris on sidewalk (Flickr/N.Y. Governor's Office)

Reid Street Flooding, June 2013 Storm – Village of Fort Plain (Jeff Smith)

Aerial Photo of Village (Jacklyn Hakes)

Section III

Governor Andrew M. Cuomo delivers a briefing on flooding in the Mohawk Valley at the Village of Fort Plain Department of Public Works in July 2013 (Flickr/N.Y. Governor's Office)

Destroyed Home on Abbott Street (Jacklyn Hakes)

Muddy debris lines the sidewalk in the Village of Fort Plain (Flickr/N.Y. Governor's Office)

Flooding in Fort Plain, June 2013 Storm (Jeff Smith)

Section IV

5.1.14 Planning Committee Meeting (Susan Rivers)

Debris outside home (Flickr/N.Y. Governor's Office)

House on Abbott (Jacklyn Hakes)

Spring Street Guiderail – Town of Minden (Jeff Smith)

Section V

Meeting with the Town of Minden Highway Department (Sue Rivers)

A crane removes debris from the river in the Mohawk Valley after the 2013 flood (Flickr/N.Y. Governor's Office)

Spring Street Guiderail – Town of Minden (Jeff Smith)

Flood Causes Library Closure (Diane Fornsberg)

Section VI

Debris on sidewalk (Flickr/N.Y. Governor's Office)

Moyer Road Bridge - Town of Minden (Jeff Smith)

Condemned Home on Abbott St (Jacklyn Hakes)

Flooded Residential Properties, Abbott Street, Village of Fort Plain – June 2013 Storm (Jeff Smith)

Sources

- American FactFinder. “2008-2012 American Community Survey 5-year Estimates.” *American FactFinder*. Web. 19 May 2014. <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>
- Cudmoe, Bob. “Hidden History of the Mohawk Valley: The Baseball Oracle, the Mohawk Encampment and More.” *Google Books*. History Press. October 2013. Web. 27 May 2014. <http://books.google.com/books?id=ZFQA40UyZukC&pg=PA184&lpg=PA184&dq=fultonville+flooding+june+2013&source=bl&ots=wmSGcGLXT8&sig=UGlhLqllcynP4xEgMGXFVLbOaJE&hl=en&sa=X&ei=Sa57U7SrO7TQsQTW8oC4Cw&ved=0CGUQ6AEwCQ#v=onepage&q=fultonville%20flooding%20june%202013&f=false>
- Delaney, Ryan. “Barge Traffic Increases Along Erie Canal”. *NPR*. 25 June 2013. Web. 19 May 2014. <http://www.npr.org/2013/06/25/195426326/commercial-shipping-revived-along-erie-canal>
- Jeffords, Russell M. *The Ground-Water Resources of Montgomery County, New York*. U.S. Geological Survey, Water and Power Control Commission. Bulletin GW-23, Albany, New York. 1950.
- Milone and MacBroom, Inc. *Water Basin Assessment and Flood Hazard Mitigation Alternatives*, Otsquago Creek. March 2014.
- Munger, Edward. “FLOOD: More than 100 seek shelter in Fort Plain.” *The Daily Gazette*. 28 June 2013. Web. 27 May 2014. <http://www.dailygazette.com/news/2013/jun/28/more-100-seek-shelter-fort-plain/>
- Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/>. Accessed June 2014.
- New York Rising Community Reconstruction Plan. “New York Rising Community Reconstruction Plan: City of Amsterdam, Town of Amsterdam, and Town of Florida.” *New York Rising Community Reconstruction Program*. March 2014. Web. 19 May 2014. <http://stormrecovery.ny.gov/nyrcr/final-plans#3>
- New York State Department of Environmental Conservation (NYSDEC). Environmental Resource Mapper. Available online at: <http://www.dec.ny.gov/imsmaps/ERM/viewer.htm>. Accessed June 2014.
- New York State Department of Environmental Conservation. “Mohawk River Watershed.” *New York State Department of Environmental Conservation*. Web. 19 May 2014. <http://www.dec.ny.gov/lands/48041.html>
- Official Website of Montgomery County. “Montgomery County NY.” *Official Website of Montgomery County Government in New York State*. Web. 19 May 2014. <https://www.co.montgomery.ny.us/web/>
- The Daily Gazette. “Mohawk Valley Flooding.” *The Daily Gazette*. 28 June 2013. Web. 27 May 2014. <http://www.dailygazette.com/photos/galleries/2013/jun/28/mohawk-valley-flooding/>
- The Times. “Flood-affected homeowners not eligible for individual assistance.” *The Times*. 15 July 2013. Web. 27 May 2014. <http://www.littlefallstimes.com/article/20130715/News/307159912#ixzz32we0hoKg>

U.S. Geological Survey (USGS). Mineral Resources On-Line Spatial Data, Montgomery County, New York. U.S. Department of the Interior. Available online at: <http://mrdata.usgs.gov/geology/state/fips-unit.php?code=f36057>. April 2014. Accessed June 2014.

Visit Montgomery County. "Montgomery County New York." *Visit Montgomery County, New York*. Web. 19 May 2014. <http://www.visitmontgomerycountyny.com>

E. Glossary

AKRF	AKRF, Inc.
BFE	Base Flood Elevation
CBA	Cost Benefit Analysis
CDBG-DR	Community Development Block Grant – Disaster Recovery
CDM	CDM Smith
Consultant Team	The AKRF Team Assigned to Montgomery County
CPCB	Community Planning and Capacity Building
ELAN	Nagle, Tatich, Cranston LLC d/b/a Elan.3 Consulting (E.3)
FEMA	Federal Emergency Management Agency
FIRMS	Flood Insurance Rate Maps
GIS	Geographic Information System
HSS	Health and Social Services
HUD	U.S. Department of Housing and Urban Development
LWRP	Local Waterfront Revitalization Program
MJE	MJ Engineering and Land Surveying, PC
NCR	Natural and Cultural Resources
NDRF	National Disaster Recovery Framework
NFIP	National Flood Insurance Program
NYRCR Committee	Montgomery County NYRCR Planning Committee
NYRCR Program	NY Rising Community Reconstruction Program
NYRCR Plan	NY Rising Countywide Resiliency Plan

NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOS	New York State Department of State
NYSDOS Lead Planner	Sarah Crowell
NYSDOS Planners	Jaime Ethier, John Wimbush
NYSDOT	New York State Department of Transportation
RSFs	Recovery Support Function
USACE	United States Army Corps of Engineers
USEPA	United State Environmental Protection Agency
USFWS	United States Fish and Wildlife Service