



# Towns of Shandaken and Hardenburgh New York Rising Community Reconstruction Plan

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*Conceptual Plan*

Presented by the Shandaken-Hardenburgh Planning Committee  
October 31, 2013



This document was developed by the Shandaken-Hardenburgh Planning Committee as part of the NY Rising Community Reconstruction (NYRCR) Program within the Governor's Office of Storm Recovery. The NYRCR Program is supported by NYS Homes and Community Renewal, NYS Department of State, and NYS Department of Transportation.

Assistance was provided by the following consulting firm:

Tetra Tech, Inc.





## FOREWORD

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The New York Rising Community Reconstruction (NYRCR) program was established by Governor Andrew M. Cuomo to provide additional rebuilding and revitalization assistance to communities damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. This program empowers communities to prepare locally-driven recovery plans to identify innovative reconstruction projects and other needed actions to allow each community not only to survive, but also to thrive in an era when natural risks will become increasingly common.

The NYRCR program is managed by the Governor's Office of Storm Recovery in conjunction with New York State Homes and Community Renewal and the Department of State. The NYRCR program consists of both planning and implementation phases, to assist communities in making informed recovery decisions.

The development of this conceptual plan is the result of innumerable hours of effort from volunteer planning committee members, members of the public, municipal employees, elected officials, state employees, and planning consultants. Across the state, over 102 communities are working together to build back better and stronger.

This conceptual plan is a snapshot of the current thoughts of the community and planning committee. The plans will evolve as communities analyze the risk to their assets, their needs and opportunities, the potential costs and benefits of projects and actions, and their priorities. As projects are more fully defined, the potential impact on neighboring municipalities or the region as a whole may lead to further modifications.

In the months ahead, communities will develop ways to implement additional strategies for economic revitalization, human services, housing, infrastructure, natural and cultural resources, and the community's capacity to implement changes.

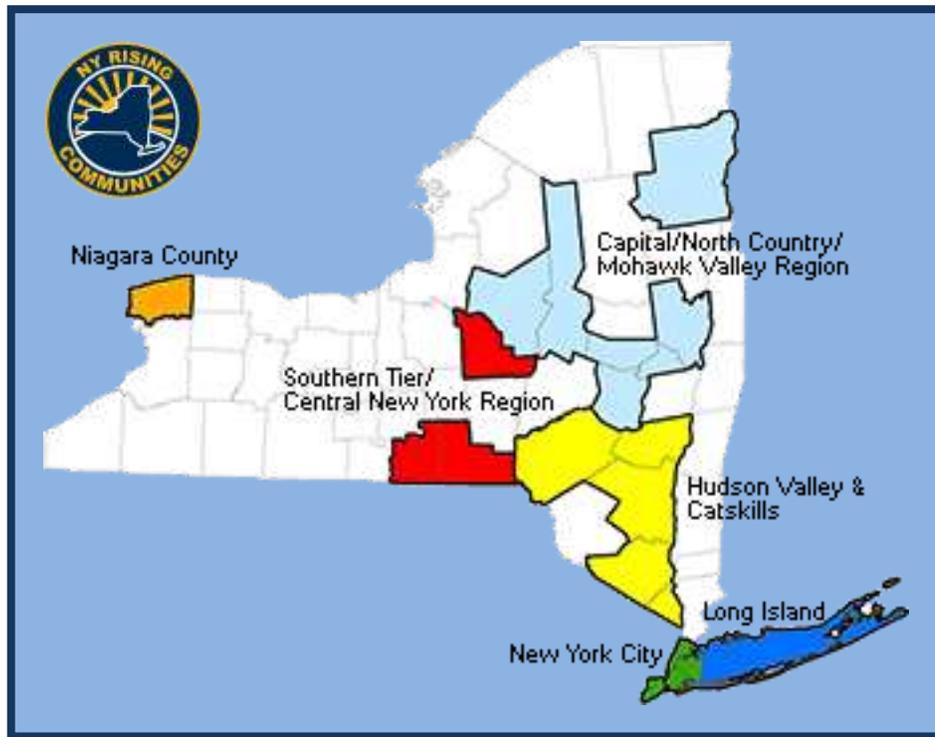
Implementation of the proposed projects and actions found in this conceptual plan is subject to applicable federal, state, and local laws and regulations. Inclusion of a project or action in this conceptual plan does not guarantee that a particular project or action will be eligible for Community Development Block Grant – Disaster Recovery (CDBG-DR) funding. Proposed projects or actions may be eligible for other state or federal funding, or could be accomplished with municipal, nonprofit or private investment.

Each NYRCR Community will continue to engage the public as they develop a final plan for community reconstruction. Events will be held to receive feedback on the conceptual plan, to provide an understanding of risk to assets, and to gather additional ideas for strategies, projects and actions.

October 31, 2013



# New York Rising Communities



Find out more at:

[StormRecovery.ny.gov/Community-Reconstruction-Program](http://StormRecovery.ny.gov/Community-Reconstruction-Program)



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# Introduction

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In fall 2011, back-to-back storms Hurricane Irene and Tropical Storm Lee became the most recent in a long history of flood events in the Towns of Shandaken and Hardenburgh, New York. The impacts and challenges caused by these storms and resultant flooding were significant and affected the lives of all segments of the local community and the region at large. Despite extensive collaboration between the community and agency partners to use available response and recovery resources, including inspired local volunteer efforts, considerable unmet recovery needs remain more than 2 years after the flood.

To address the significant lasting impacts from current and past flood events and to establish long-term community health and resiliency, the Towns of Shandaken and Hardenburgh have undertaken the important task of collaborating for the development of a New York Rising Community Reconstruction (NYRCR) Plan. Under the guidance and funding of the NYRCR Program, the completed NYRCR Plan will aim to address the most critical needs and impacts from Hurricane Irene and Tropical Storm Lee while also identifying strategies and priorities for future resiliency, increased quality of life, community vibrancy, and economic growth.

The Towns of Shandaken and Hardenburgh are in the initial stages of the NYRCR Plan development process. Driven by stakeholder input, a local planning committee (Committee) will manage the planning process with support from the State of New York and an assigned consultant team. Over the next 8 months, the Committee will actively engage and work with all segments of the community to develop a comprehensive recovery and reconstruction strategy. The strategy will include a community-developed vision for the future of both Towns, and a set of goals, actions, and prioritized projects to realize that vision. Priority projects identified in the NYRCR Plan will be eligible for funding and implementation through the NYRCR Program. Additional funding opportunities for individual projects will be carefully evaluated and vetted throughout the process to ensure a high degree of confidence for successful implementation.

This Conceptual Plan represents the culmination of the initial step in the NYRCR Plan development process and presents the established community vision, goals, and overall direction for the final plan. In addition, the following sections also include the results of preliminary public outreach; community analysis; identification of issues, needs, and opportunities; and a review of upcoming procedures for identifying and prioritizing strategies and projects for implementation. The final plan will build upon this initial work to present recommended priority projects and initiatives for recovery, resiliency, and community development supported by in-depth technical analysis and additional stakeholder input.

## 1.0 New York Rising Community Reconstruction Program and Planning Process

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### 1.1 Program Overview

The NYRCR Program was established to provide additional rebuilding and revitalization assistance to communities severely damaged by Hurricane Sandy, Hurricane Irene, and Tropical Storm Lee. The program enables communities to identify resilient and innovative reconstruction projects and other needed actions based on community-driven plans that consider current damage, future threats, and the community's economic opportunities. Communities successfully completing a recovery plan will be eligible



to receive funds to support the implementation of projects and activities identified in the plan. Each NYRCR community has a planning committee that includes a representative from the county, town, or village; elected legislative representatives; local residents; and leaders of other organizations and businesses in the community.

## 1.2 Process Overview

This focused planning process is guided by a steering committee consisting of local residents, business owners, and community leaders. The Steering Committee is working with an assigned team of consultants to collaboratively manage all components of the final NYRCR Plan. Consultant partners provide technical expertise in all areas of planning, recovery, and development and will support the Committee in developing materials, conducting public outreach, performing detailed analyses, and identifying and prioritizing projects for implementation. Throughout the entire process, the Committee will also be supported by New York Department of State (NY DOS) planning staff and representatives from the NYRCR Program.

As an implementation-focused program, the NYRCR Program planning process will use and build upon existing plans and studies to leverage prior work and push forward the recovery process. An initial, thorough review of existing planning documents has been conducted to identify both areas of completed planning work and those in need of additional analysis and effort. Plan components, supporting analysis, and subsequent recommendations will focus on the six Recovery Support Functions as defined by the NYRCR Program. The six functions are:

- Community Planning and Capacity Building
- Economic Development
- Health and Social Services
- Housing
- Infrastructure
- Natural and Cultural Resources

The Steering Committee conducts regular meetings with the Consultant Team, NY DOS planning staff, and the regional NYRCR Program lead. These meetings will provide the venue for managing the overall process, assigning tasks, determining the direction of the plan, and ultimately selecting projects for prioritization.

The NYRCR Planning Process will incorporate at minimum the following steps:

- **Public engagement and outreach** – Public input will be solicited and incorporated into the planning process through diverse and continuous methods to ensure maximum engagement.
- **Review of existing plans and studies** – The planning process will leverage existing plans and studies to accelerate recovery, allow for informed decision-making, and place a greater focus on implementation.
- **Inventory of critical community facilities** – All community facilities will be identified and inventoried to ensure that s' essential community assets are incorporated into the plan's goals and direction.
- **Risk assessment for critical assets** – Critical community assets will be evaluated to determine the potential risk for damage or loss as a result of future disaster events.



- **Development of community vision and goals** – The Towns of Shandaken and Hardenburgh will develop an overarching vision for their future, and will generate a set of goals to guide the NYRCR Plan’s development and support the realization of the vision.
- **Identification of key issues, needs, and opportunities** – The NYRCR Plan will identify the full range of issues, needs, and project opportunities necessary to be addressed to achieve resiliency and community health and vibrancy. These will include flood mitigation, damage and recovery needs, housing needs, economic development and business needs, and infrastructure needs among others.
- **Identification of potential projects** – An initial list of potential projects to will be developed based on public input, community vision, key needs and opportunities, and preliminary community analysis.
- **Project analysis** – All identified projects will be fully vetted through a series of detailed assessments including feasibility, cost-benefit, market, and highest-and-best-use analyses (among others) to verify the merit of each project and assist in prioritizing for implementation.
- **Detailed implementation strategy** – After identifying and selecting priority projects, a detailed implementation strategy will be developed to determine the appropriate steps, timelines, responsible entities, and potential funding opportunities to complete each project.

## 2.0 NYRCR Committee

The NYRCR Plan Committee consists of a group of residents representing diverse segments of Shandaken/Hardenburgh communities. Co-chairs of the committee provide leadership and facilitate communication with the NYRCR regional planner, NY DOS staff planners, the planning consultant, and the other members of the committee. A list of committee members and their affiliations are provided in the table below.

Shandaken/Hardenberg NYRCR Committee	
Name	Affiliation
Joan Lawrence-Bauer*	Director, Communications & Resource Dev. @ RUPCO, Inc.
Doris Nieves*	Partner, NWD (contract Design Firm)
William Scholl*	Chair, Hardenburgh Planning Board
Jerry Fairbairn*	Former Supervisor, Town of Hardenburgh
Bernadette Beyea	Hardenburgh Resident
Donald Brewer	Owner, Brewer's Land Surveying
Sally Fairbairn	Hardenburgh Resident, Board Member Watershed Agricultural Council (WAC)
Al Frisenda	Flood Plain Manager, Shandaken
Eric Hofmiester	Superintendent, Shandaken Highway Dept.
Amanda LaValle	Director, Ulster County Dept. of the Environment
Mark Loete	Shandaken Resident
Rich Muellerle	Chief, Shandaken Ambulance
Paul Ohsberg	Supervisor, Town of Hardenburgh
Patricia Rudge	Resident, Former DEC employee
Robert Stanley	Supervisor, Town of Shandaken



<b>Shandaken/Hardenberg NYRCR Committee</b>	
<b>Name</b>	<b>Affiliation</b>
Faye Storms	Resident, Real Estate Agent, Save Our Shandaken founder
Jane Todd	Shandaken Resident, Former Exec. Dir, SHARP Committee
Linda Utter	Owner, Turnwood General Store, Hardenburgh
Leslie Zucker	Program Leader, Cornell Cooperative Ext. Ulster County

**\*co-chair**

### 3.0 Geographic Scope of the Plan

The Committee reviewed the initial planning area, which consisted only of the region within the municipal boundaries of the Towns of Shandaken and Hardenburgh. Based on a review of past events, the source of historical flooding, and the location of critical facilities impacted by flooding, the Committee agreed to maintain the initial planning area. Maps of the planning area are provided on the following pages.



Town of Shandaken-Hamlet of Allaben



**Town of Shandaken  
Ulster County  
New York**

Big Indian

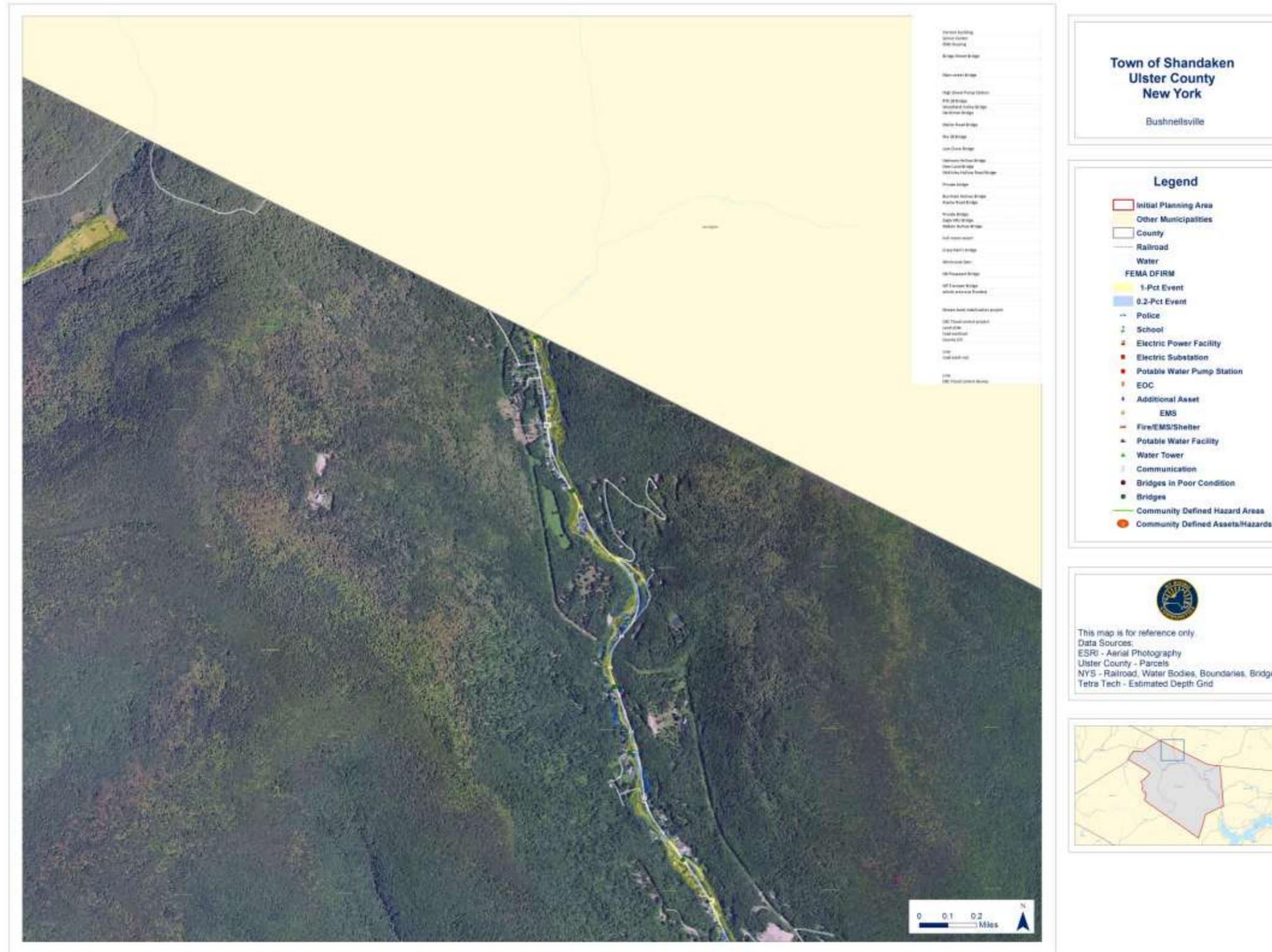
**Legend**

- Initial Planning Area
- Other Municipalities
- County
- Railroad
- Water
- 1-Pct Event
- 0.2-Pct Event
- Police
- School
- Electric Power Facility
- Electric Substation
- Potable Water Pump Station
- EOC
- + Additional Asset
- + EMS
- + Fire/EMS/Shelter
- ▲ Potable Water Facility
- + Water Tower
- + Communication
- Bridges
- Bridges Poor
- Community Defined Hazard Areas
- Community Defined Assets/Hazards

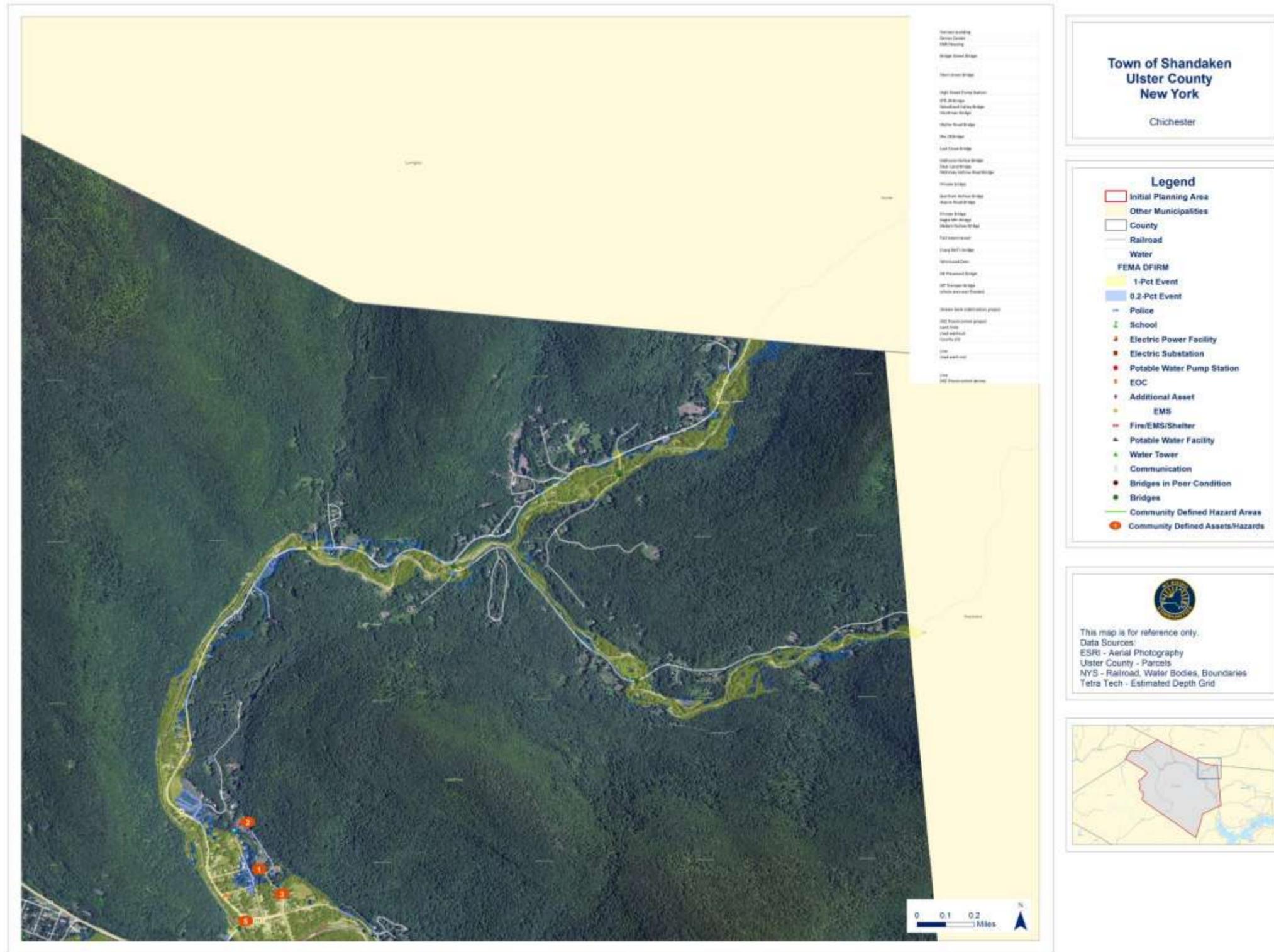
This map is for reference only.  
Data Sources:  
ESRI - Aerial Photography  
Ulster County - Parcels  
NYS - Railroad, Water Bodies, Boundaries  
Tetra Tech - Estimated Depth Grid



Town of Shandaken-Hamlet of Big Indian

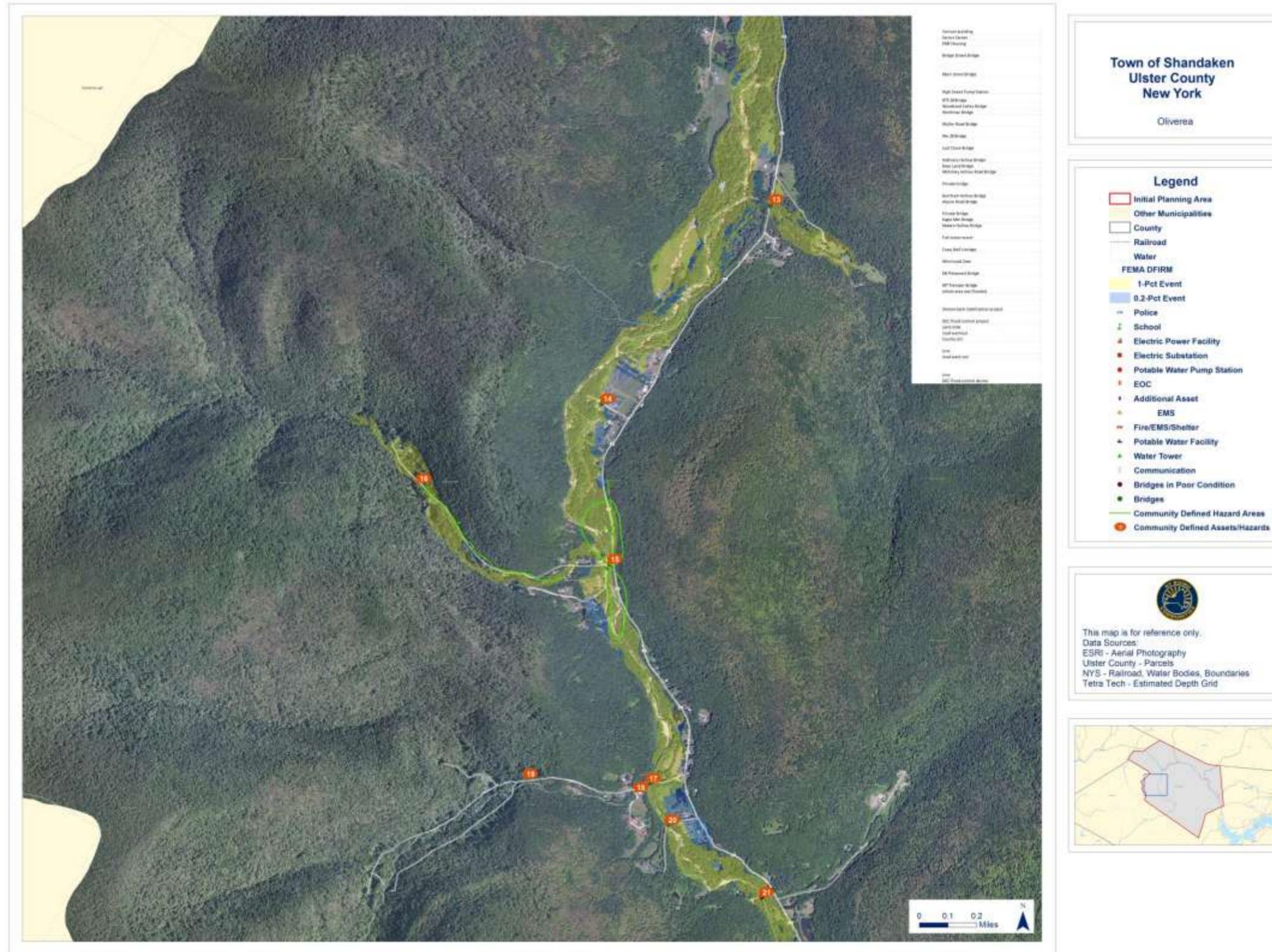


Town of Shandaken-Hamlet of Bushnellville

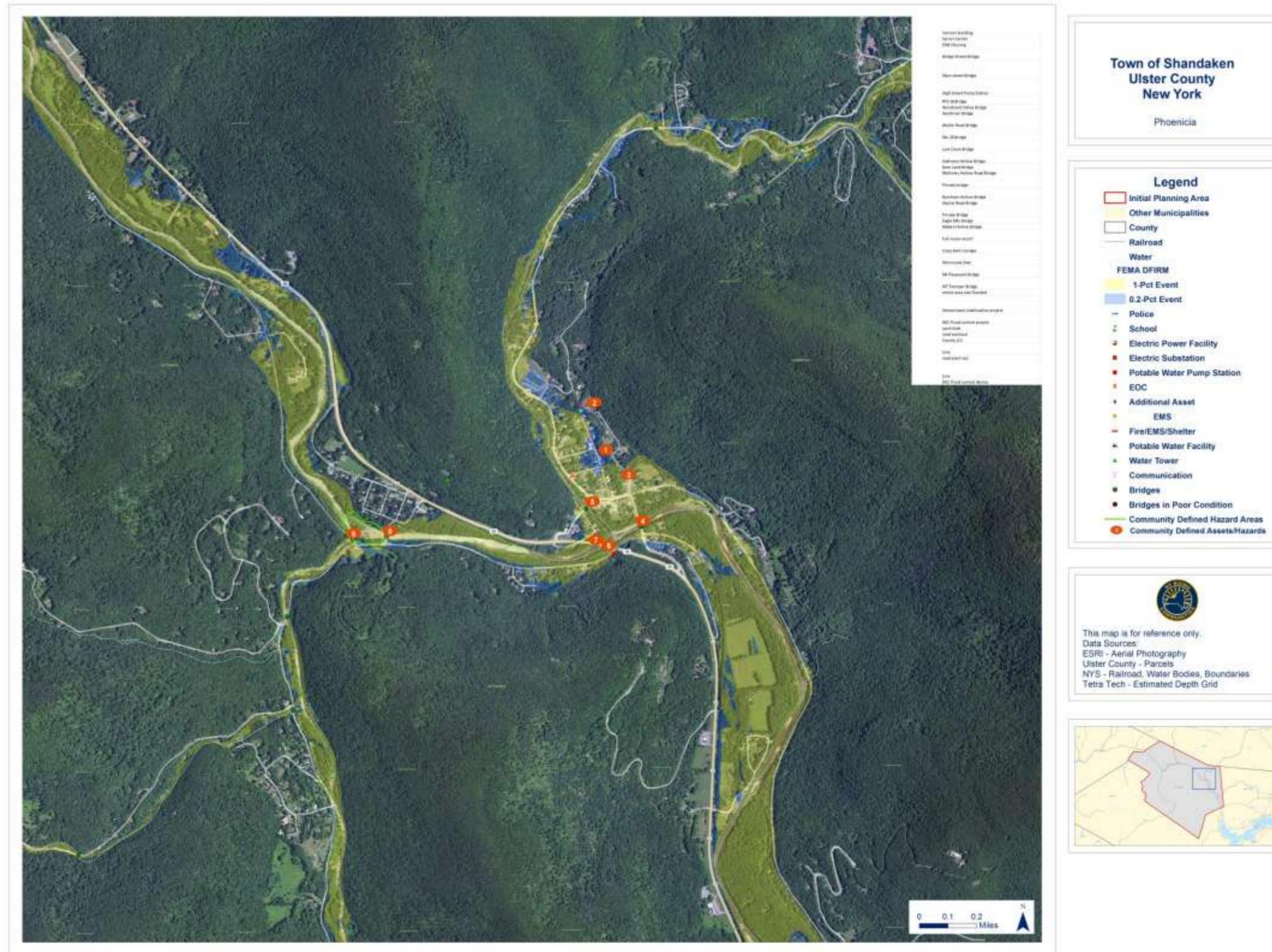


Town of Shandaken-Hamlet of Chichester





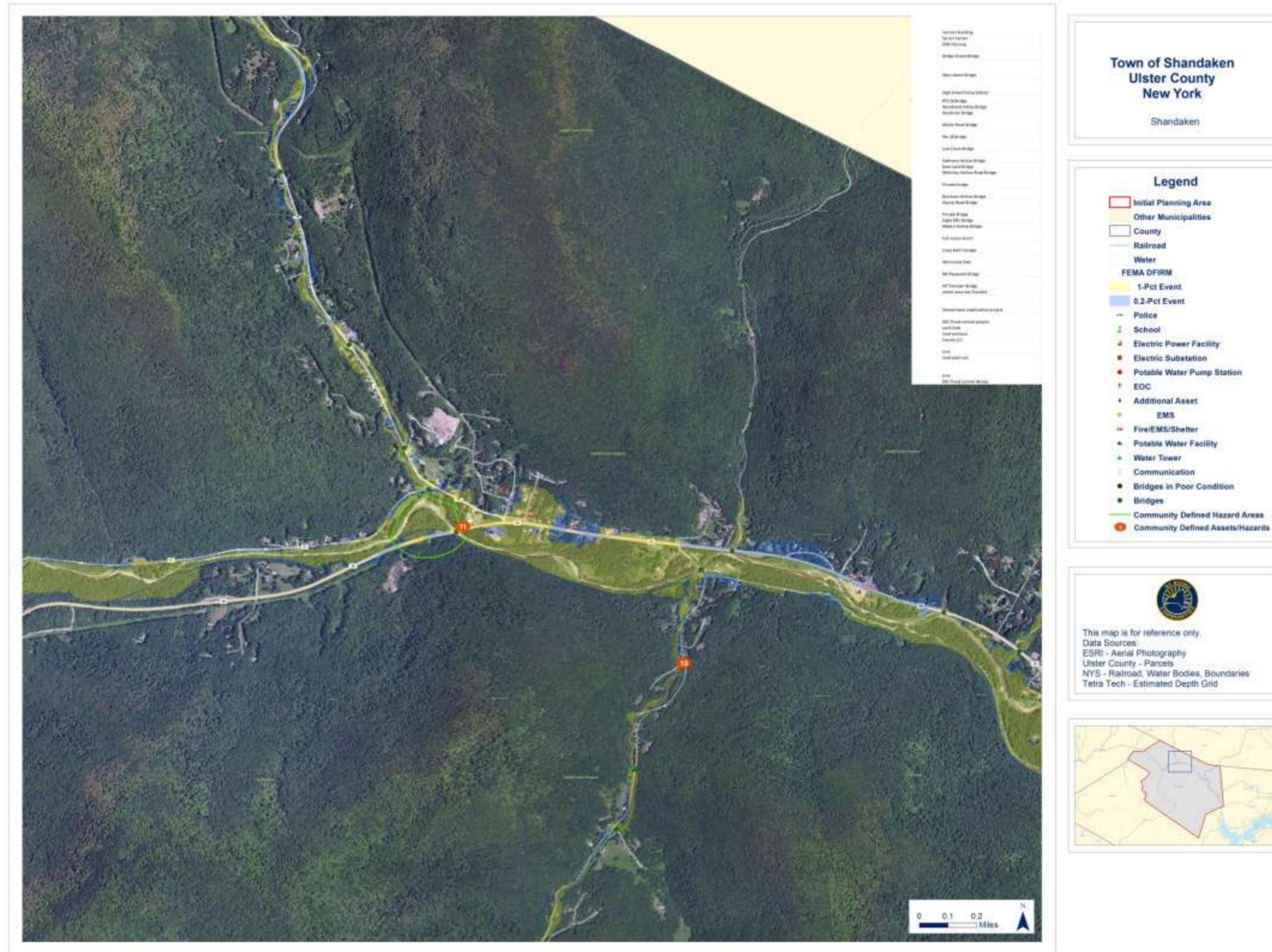
Town of Shandaken-Hamlet of Oliveria



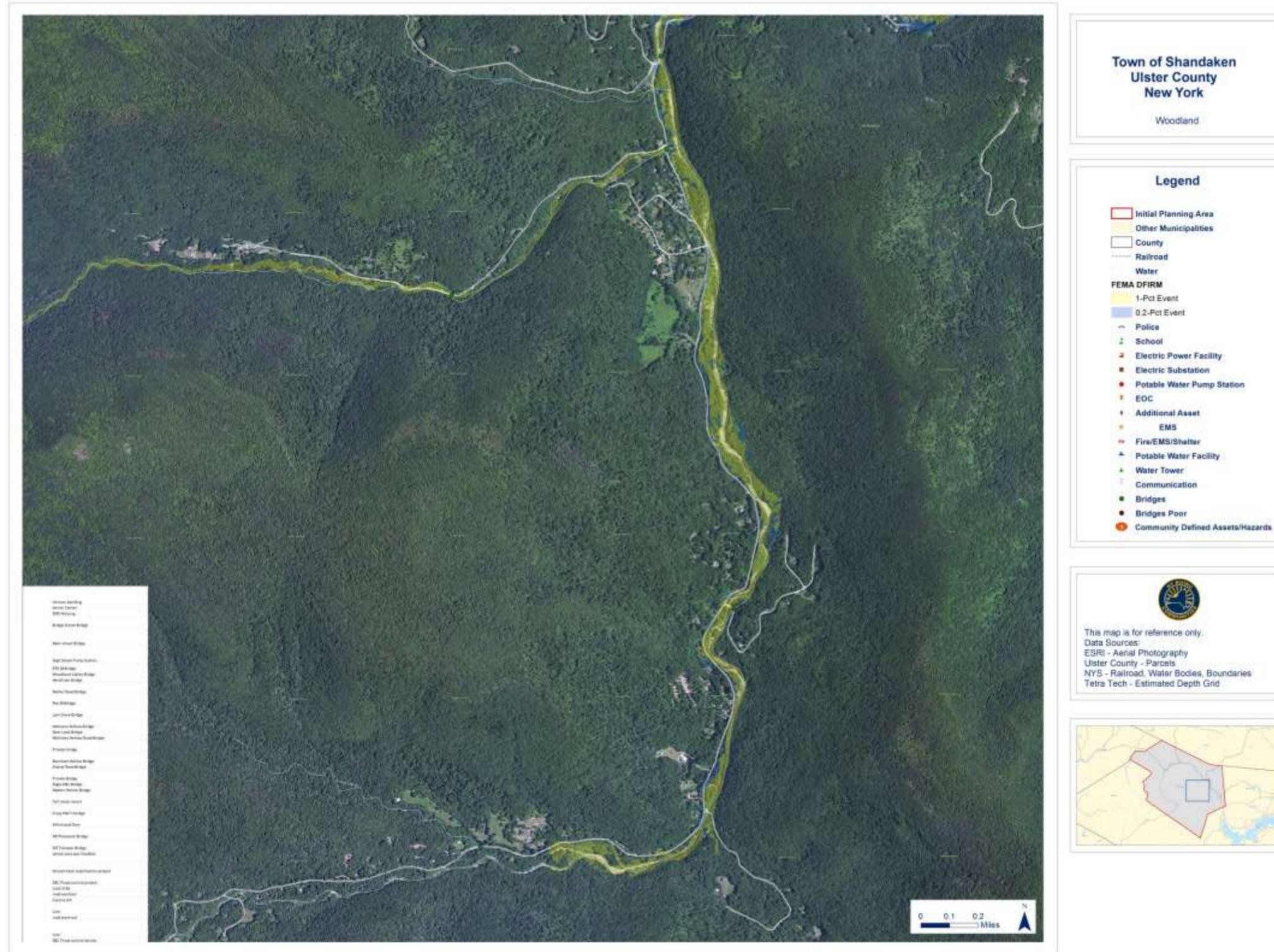
Town of Shandaken-Hamlet of Phoenicia



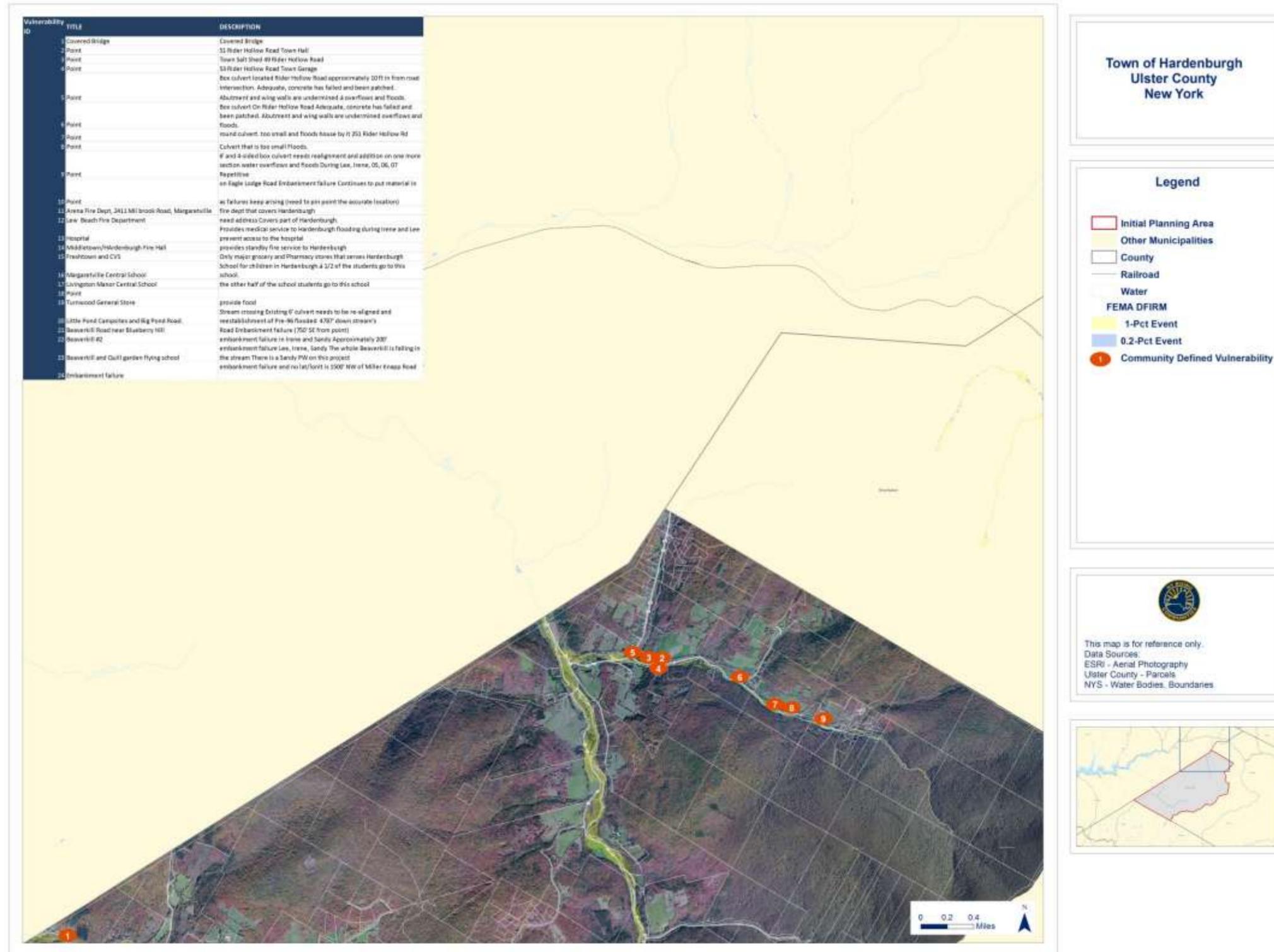
Town of Shandaken-Hamlets of Pine Hill-Highmount



Town of Shandaken-Hamlet of Shandaken



Town of Shandaken-Hamlet of Woodland









## 4.0 Community Background and Overview

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The Towns of Shandaken and Hardenburgh are two of the 24 municipalities that make up Ulster County. Ulster County is located in southeast New York State, in the Mid-Hudson Region of the Hudson Valley. It has a total area of 1,161 square miles. Ulster County is bordered to the north by Greene County, to the northeast by Columbia County, to the east by Dutchess County, to the south by Orange County and to the west by Sullivan and Delaware Counties (Ulster County Hazard Mitigation Plan, 2009).

Located amidst the central Catskill Mountains in the northwest corner of Ulster County, the Towns of Shandaken and Hardenburgh are surrounded by miles of beautiful forests, farmlands, and rich ecology. The quality of the surrounding natural environment creates striking landscapes, ample recreation opportunities, and drives a healthy tourism industry. The Towns' hamlets and local roads grew organically around the natural terrain and features of the land without the aid of comprehensive plans or local ordinances. The resulting development pattern reflects a close relationship with the land and topography and creates unique local character.

The early economy of both Towns grew around farming, tanneries, sawmills and other agricultural pursuits. These early industries would become even more successful following a series of infrastructure improvements including expanded commerce on the Hudson River, introduction of turnpikes and in 1870 the Rondout & Oswego Railroad (Renamed the Ulster & Delaware Railroad in 1875). The introduction of the turnpikes and the railroad in particular laid the foundation for a blossoming tourism and resort industry in the region and provided a means to distribute local goods to distant markets. The hamlet of Pine Hill in particular was an early attraction for such resorts and was home to the famous Grand Hotel from 1881 to 1966.

Despite the decline in the resort industry following transportation and lifestyle shifts, the natural environment with its scenic qualities and recreational opportunities have continued to play a driving role in the regional economy. The Belleayre Ski Center as well as numerous outdoor recreation activities including biking and hiking trails, fishing, tubing among others, continue to encourage tourism and a second home market. Despite these advantages, the community struggles with challenges related to environmental protection and public owned natural areas, including a lack of developable areas and the need to balance environmental conservation with flood protection for homes, businesses, and assets.

## 5.0 Demographics

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### 5.1 Population:

According to the 2010 U.S. Census, the town of Shandaken had a population of 3,085 people and the town of Hardenburgh had a population of 238 people.

The below table presents a summary of the 2010 U.S. Census general population statistics for the town of Shandaken by zip code. Census blocks do not follow the boundaries of each zip code. The Census blocks with their centroid in the zip code boundary were used to calculate the population within the zip code. The table below displays the Census blocks relative to the zip code boundaries used for this Plan. Please note Census Block 361119553001065, located in the town of Shandaken, has two zip codes: Phoenicia and



Boiceville. For the purposes of this analysis, the entire block is considered within the Phoenicia zip code and is reported as such in this Plan. Further, the zip codes may not accurately portray the hamlet boundaries or demographic statistics

Zip Code	Total Population (U.S. Census 2010)	Percent Population
Big Indian	457	14.8
Chichester	345	11.2
Mt Tremper	478	15.5
Phoenicia	1,021	33.1
Pine Hill	242	7.8
Shandaken	542	17.6
<b>Total – Town of Shandaken</b>	<b>3,085</b>	<b>100</b>

Source: Census 2010 (U.S. Census Bureau); HAZUS-MH 2.1

The populations of both Shandaken and Hardenburgh are increasingly aging with a median age of 50.2 and 50.3 respectively. In addition 21.7% (Shandaken) and 18.9% (Hardenburgh) of the population are aged between 50 and 59, and 19.7% (Shandaken) and 21.8% (Hardenburgh) of the population are over the age of 65. These figures stand in considerable contrast to the State median age of 38. In just the past ten years the median age has increased from 45 (Shandaken) and 46.6 (Hardenburgh) in 2000. In addition, 20-40 year olds, who typically contribute significantly to local economies and workforces, account for only 17.6% (Shandaken) and 17.2% (Hardenburgh) of the population.

## 5.2 Race and Education

As of the 2010 census, 92.9% of Shandaken residents and 92.4% of Hardenburgh residents are White. Minority populations in Shandaken today consist of .9% African American, .5% American Indian or Alaskan Native, 1.6% Asian, and 5% identifying as Latino. Minority populations in Hardenburgh include 4.2% American Indian and Alaskan Native (0% in 2000), 2.1% Asian, and 2.9% identifying as Latino.

The 2010 census also shows that 90.5% (Shandaken) and 91.6 (Hardenburgh) of residents graduated from high school or higher, and 29.6% (Shandaken) and 24.4% (Hardenburgh) have completed a bachelor's degree or higher.

## 5.3 Income

The median household income for Shandaken according to the American Community Survey is \$43,750, which is slightly higher than that of the County (\$43,554) and quite lower than the State (\$56,951). The median household income for Hardenburgh is \$36,731, which is considerably lower than both the County and State. Additionally 13.4% of residents in Shandaken and 7.1% in Hardenburgh were considered below the poverty line compared to 12.1% of the County and 14.5% of the State. Wages are generally lower in the Towns than larger urban and metropolitan areas which contributes to difficulties in housing affordability and the attraction of young families and to a sufficient workforce.



## 5.4 Land Use

### 5.4.1 Shandaken

The land use pattern in the Town of Shandaken has been influenced by the historic pattern of hamlet development, highway-oriented transportation, and state land ownership. Roadside development includes older dwellings and tourist-oriented businesses. Areas of resource-related industries, such as sawmills and bluestone, still exist but are not considered an economic factor that they were a century ago. Other factors such as floodplains, environmental legislations, and land acquisitions by the New York City Department of Environmental Protection (NYCDEP), in addition to the scenic natural terrain characteristics, have affected and limited land use and development. As per the 2005 Comprehensive Plan for the Town of Shandaken, 94% of the town is developed, has significant development limitations, or is highly regulated. The town comprises approximately 79,200 acres, with 66% of its land under public ownership and designated as public open space, 14% residential land use, 9% private open space, 7% vacant land, and 4% miscellaneous (Shandaken Comprehensive Plan,2005).

Land Use	Total Area (sq. mi.)	Percent of Town (%)
Open Water	0.14	0.11
Developed	2.86	2.32
Barren	0.016	0.01
Forested	118.81	96.31
Farmland	0.39	0.32
Wetlands	1.15	0.93
<b>Total</b>	<b>123.37</b>	<b>100</b>

## 5.5 Housing

Housing in both towns consists predominantly of single family detached residential structures which according to the American Community Survey account for 82.5% (Shandaken) and 81.6% (Hardenburgh) of the housing units. The majority of housing units are also owner occupied (72.0% Shandaken; 76.8% Hardenburgh) according to the 2010 Decennial Census. Median home values for Shandaken and Hardenburgh are \$215,200 and \$174,000 respectively both less than the County (\$242,500) and State (\$301,000) median values.

Both Shandaken and Hardenburgh are home to numerous historic homes that help to define local character and charm. Of the existing housing stock an incredible 38.7% (Shandaken) and 28.3% (Hardenburgh) were built prior to 1939. The majority of houses in Hardenburgh (62.2%) were built between 1960 and 1999 with only 5.3% of the houses built since 2000. Shandaken has a fairly even distribution of age in the housing stock with a notable 26% being built between 1970 and 1989 and only 6.5% after 1990.

Statistically both towns appear to suffer from very high vacancy rates of 45.8% (Shandaken) and 67.4% (Hardenburgh) compared to 9.7% for the State of New York. This relatively high figure however is accounted for by the region's historic and continued popularity as a vacation and second home owner destination. As the Census does not consider second homes as "occupied", these homes all appear as "vacant" at first glance. The Census however indicates that 980 of the 1,271 vacancies in Shandaken and 216 of the 232 vacancies in Hardenburgh are for seasonal/vacation use and not actually vacant or



abandoned. These figures help to illustrate the prevalence of second home and vacation properties and their importance to the local communities and economies.

Despite lower home values than the County and State, housing affordability has been identified as a challenge by the community, especially for young families and the younger workforce. There are currently a number of both home owners and renters substantially cost burdened<sup>1</sup> by housing costs in both Towns. A number of factors including housing prices, monthly costs, and limited development opportunities continue to exacerbate this issue. Additional details on the issues causing and stemming from housing affordability concerns are presented in the Goals, Needs and Opportunities section later in this Plan.

## 5.6 Infrastructure and Facilities

The Catskill Mountain Railroad services the Town of Shandaken, through the hamlets of Pine Hill, Shandaken, Phoenicia, and Mount Tremper. Currently the railroad is inactive from the hamlet of Phoenicia west to the Town line. State Route 28 enters the Town from Delaware County and is the main highway that generally runs east to west across the following sections of the Esopus Creek. County Route 47 runs north to south connecting the hamlets of Big Indian and Oliveria. Routes 42 and 214 connect the Town with Greene County to the north.

The Phoenicia Water District supplies about 40,000 gallons of water per day to residents and businesses in the hamlet of Phoenicia. The water system consists of three water sources, a filtration plant, a storage tank, and a water distribution system. Water from two surface water sources – an infiltration gallery and a spring supply – are treated at the water filtration plant. The third source (High Street Wells) consists of two drilled wells that convey water directly into the water distribution system. The Phoenicia treatment building has a back-up generator. The Pine Hill Water District supplies an average of about 15,000 gallons per day (gpd) to its largely residential users. The system includes the water supply, storage reservoir, treatment building, and distribution system. The water supply consists of several springs and a back-up well. Municipal and public non-municipal wells and water towers are also present. Facilities in the town include the Phoenicia Water District Main Filtration Plant and the Pine Hill Water District Treatment building. In addition, there is a water tower and a pump house located in the Town.

NYCDEP owns and operates two wastewater systems in Shandaken, a wastewater treatment facility on State Route 28 that serves the hamlet of Pine Hill, and a community septic system in the hamlet of Chichester that treats about 13,000 gpd.

There are five dams located within the Town of Shandaken, one of which is classified as a high hazard dam (Pine Hill Lake Dam). In addition, the Town has identified locations of four 'levees' along Esopus Creek: (1) on Route 212 in Mount Tremper; (2) on Dike Road; (3) a former dike on Plank Road that was wiped out in Irene; and (4) on Route 42 in Shandaken. Other small dams include a private barrier on the Birch Creek and another at the end of Lower Birch Creek Road on New York State Land.

Due to its rural setting, critical infrastructure in the Town of Hardenburgh consist of a series of local roads, bridges, and culverts many of which have been damaged during past storm events. The protection and full

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<sup>1</sup> The United States Department of Housing and Urban Development considers families that pay more than 30% of their income for housing as cost burdened



functionality of these assets in the Town is essential to the safety of private homes as well as to mobility and access during storm events.

## 6.0 Economic Profile and Key Drivers

Education, healthcare, and social assistance play a key role in the economies of both Shandaken and Hardenburgh; however, the other key drivers for the two towns diverge. Shandaken's economy is primarily based in tourism and related entertainment and accommodation services, while Hardenburgh retains more of its historic reliance on agriculture. This is due in part to the presence of several commercial hamlets in Shandaken compared to the more rural and less dense development pattern in Hardenburgh. While Hardenburgh continues to contribute agricultural and production services to the regional economy, Shandaken provides access to restaurants, hotels, shopping, arts and entertainment. According to the 2010 ZIP Code Business Pattern for the town of Shandaken and several hamlets, the town had a total of 109 business establishments of which 28 were accommodation and food services.

These factors are reflected in the following breakdown of top employment sectors for the two Towns:

### 6.1 Shandaken

- 21% - Educational services, healthcare, and social assistance
- 15.9% - Arts, entertainment and recreation, and accommodation and food service (State – 8.6%)
- 11% - Manufacturing
- 8.9% - Construction (State – 5.8%)
- 8.9% - Professional, scientific and management, and administrative and waste management services

### 6.2 Hardenburgh

- 26.2% - Education, healthcare, and social assistance (approximately 27% County and State)
- 19.4% - Agriculture, forestry, fishing and hunting, and mining (County – 1%; State .6%)
- 15.5% - Construction (County – 6.8%; State – 5.8%)
- 11.7% - Professional, scientific and management, and administrative and waste management services
- 10.7% - Other service, except public administration

An additional key economic driver for the region relies on the surrounding natural beauty and recreation opportunities which drive a considerable second home, tourism, and vacation market. This market provides stimulus to the local businesses, but also creates seasonal revenue fluctuations that can be a challenge for local business owners to maintain operations year round. While a large contributor to business in the Towns, the full potential of economic growth related to the natural resources and recreation opportunities has not been realized. A coordinated effort to fully capitalize on these assets could help to create a year round economy and address the seasonal difficulties for business owners.

Other assets that support the local economy and can be leveraged for future growth include:

- Recreational opportunities: hiking/biking trails, Belleayre Ski Center and future resort, fishing, hunting, golf, kayaking, tubing etc.
- Small town character and charm: walkability, historic buildings, peaceful neighborhoods



- Strong community values
- Proximity and access to major markets
- Active community members and organizations
- Lack of significant competition in the region

## 7.0 Community Vision

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Through collaborative discussions, stakeholder engagement, review of existing plans and studies, and a focused intention towards holistic community recovery, the local Community Reconstruction Committee adopted the following vision to guide the recovery and resiliency efforts of Shandaken and Hardenburgh:

*To rebuild stronger, safer, and more vibrant communities that will be more resilient in the face of future disasters by planning and developing actions to secure funding and other resources.*

## 8.0 Summary of Storm Impacts

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Many sources provided historical information regarding previous occurrences and losses associated with severe storm and flooding events throughout New York State, Ulster County, and the Towns of Shandaken and Hardenburgh. With a myriad of sources reviewed for the purpose of this plan, loss and impact information for past events could vary. Therefore, the accuracy of monetary figures discussed below is based only on the available information identified during research for this report.

### 8.1 Tropical Storm/Hurricane Irene

***August 25 – September 5, 2011***

***EM-3328 / DR-4020***

***Ulster County, NY designated eligible for Public and Individual Assistance (PA and IA)***

Hurricane Irene tracked up the east coast of the United States from August 21<sup>st</sup> through the 27<sup>th</sup>, when wind speed decreased to tropical storm force. Irene made its third landfall in coastal New Jersey and then hit New York State on August 28, and subsequently brought heavy rains to the Catskill Mountains and through the Schoharie and Mohawk Valleys. On August 31<sup>st</sup>, 2011, President Obama issued a major disaster declaration (DR-4020) for New York State and the counties impacted by Irene (FEMA, 2013).

In the weeks before Irene, areas from New Jersey to Vermont, including much of eastern New York State, had soil moisture ranking in the 80<sup>th</sup> and 90<sup>th</sup> percentile, as compared to long-term averages over the same time period. These saturated ground conditions left those areas less capable of absorbing the impending heavy rainfall, setting the stage for quick runoff and uprooted trees from the winds and rain to come (NCDC, 2013).

The heavy rains and strong winds associated with Tropical Storm Irene devastated parts of New York State beginning on the evening of August 28<sup>th</sup>, knocking down numerous trees and power lines across Broome, Delaware, Sullivan, and Otsego Counties. Rainfall totals ranged between eight and 12 inches, with higher amounts in the eastern Catskills and Schoharie Valley. 60,000 customers across Ulster County were affected by power outages in the wake of the storm, and some lost power for up to a week. Other losses reported in Ulster County included extensive damage to roads, bridges, and electrical infrastructure, with the majority of roads across the Catskills left impassable (NCDC, 2013; NYS, 2012).



The Towns of Shandaken and Hardenburgh saw record flooding and infrastructure damages from the storm, most notably along the Esopus Creek at Cold Brook Station in Boiceville and elsewhere upstream of the Ashokan Reservoir. Numerous accounts of flooding and flash flooding were reported in the Town of Shandaken on August 28<sup>th</sup>, and waters remained at flood stage until shortly after midnight, August 29<sup>th</sup>. The Mount Temper/Cold Brook river gage (located on Nissen Road in Coldbrook, 1.5 miles upstream from the Ashokan Reservoir, and 2.5 miles south of Mount Tremper) exceeded its 11 foot flood stage at 4:07 am on August 28<sup>th</sup>, its 15 foot moderate flood stage almost three hours later, its 18 foot major flood stage after another hour, and finally crested at a record 23.34 feet at 12 noon on August 29<sup>th</sup>. Critical assets in both communities were affected almost immediately - once the waters had hit a level of 18 feet, roads and bridges were flooded in the Hamlet of Phoenicia; at 21 feet, water reached Route 28; and at 22 feet, the Boiceville business district was underwater. Route 42 was also closed due to flooding between Route 23A in the town of Lexington and Route 28 in Shandaken in the 28<sup>th</sup> (NCDC, 2013; NYS, 2012).

In the wake of Irene's passing through Shandaken and Hardenburgh, the estimated peak discharge on Esopus Creek at Cold Brook was 75,800 cubic feet per second (cfs). This peak discharge is highest on the record, beating the previous highest of 65,300 cfs which occurred in March 1980. The peak discharge records at several other gages in the basin were also broken by Tropical Storm Irene. Other notable locations include Esopus Creek at the hamlet of Allaben, and Stony Clove Creek at the hamlet of Chichester, both located within the town of Shandaken (NCDC, 2013; NYS, 2012).

In the Town of Hardenburgh, flooding from Tropical Storm Irene wreaked havoc on roadways and transportation infrastructure. Flood waters washed out culverts along Haynes Hollow and Martin Road, causing major route closures and almost completely cutting the off town from essential emergency aid and responder access. Culverts and bridges on Millbrook, Rider Hollow and Dry Brook Roads also sustained heavy damages making vehicle access impossible for days, and reducing access to these areas to that of ATVs only. The Barnhart Bridge, located at the intersection of Barnhart Road and Ulster County Route 102, was compromised, as was the bridge on Mill Brook Road. The town submitted for permits under NYSDEC emergency authorization to complete repair work at ten locations along Rider Hollow Road, and at nine locations along Haynes Hollow Road (NCDC, 2013; Town of Shandaken, 2011).

The Town of Shandaken issued a public broadcast message on September 24<sup>th</sup> describing the storm's destruction as a sixteen mile swath from Oliverea through Mt. Tremper, with only one of the towns' twelve hamlets left fairly unscathed. Several dikes in the town were breached, including on Rte. 42, at the Town Hall, Plank Road, and Rte. 212. The Winnisook Dam had erosion damage, and the lake's water level was lowered as a precautionary measure to avoid a breach. Access was restricted on the Mt. Tremper Bridge (Rte. 28) until September 5<sup>th</sup> due to debris build-up and structural damage to the abutment (Town of Shandaken, 2011).

The devastating effects of Irene forced the evacuation of over 200 people from the area, including residents from the Towns of Shandaken and Hardenburgh. Displaced residents from the Towns were directed to an overnight shelter which had been set up at Belleayre Mountain, where beds, hot meals, and medical service was provided through September 9<sup>th</sup>. Other shelters were erected at local fire houses. In total, Ulster County experienced over \$10 M in damages, and the town of Shandaken marked Irene as the largest storm on the record (FEMA, 2013; Town of Shandaken, 2011).



## 8.2 Tropical Storm Lee

**September 7 -10, 2011**

**Remnants of Tropical Storm Lee**

**EM-3341 / DR-4031**

On September 7<sup>th</sup>, just after flood waters from Tropical Storm Irene had receded in Shandaken and Hardenburgh, remnants of Tropical Storm Lee crept into the region, producing substantial rains and river flooding across parts of central New York State. Bands of heavy rain throughout the day on September 8<sup>th</sup> brought streams back to flood stage threatened more flooding in areas of recovery from Tropical Storm Irene with temporary infrastructure across Shandaken and Hardenburgh. While the rains did cause minor flooding along the Esopus Creek, upstream of the Ashokan Reservoir, waters receded after cresting at 11.8ft at the Cold Brook Gauge (FEMA, 2013; NCDRC, 2013).

The majority of impacts wrought by Tropical Storm Lee in Shandaken and Hardenburgh were primary due to the weakened state of critical infrastructure and operations resulting from Tropical Storm Irene, which had ravaged the area only a week earlier. The Towns were still in states of emergency and repair when the heavy weather associated with Tropical Storm Lee moved through the region. Rainfall runoff from the storm was not as severe as what had been experienced during Irene, but was significant enough to break through some of the temporary stream channel and roadway repairs that had been completed in the near aftermath of Tropical Storm Irene. Specifically, the Town of Shandaken lost temporary infrastructure on Oliverea Rd., McKenley Hollow, and Little Peck Hollow, with additional damage to Burnham Hollow. Large amounts of debris from the storm had left Bridge St. bridge once again impassable, as well as many of the sole-access roadways to Hardenburgh. Phone service was down for residents in the hamlets of Phoenicia and Mt. Tremper (NCDRC, 2013; Town of Shandaken, 2011).

While flood waters receded on September 8<sup>th</sup>, both Towns remained in a state of emergency, working to recover lost temporary roads and reclaim other roadways and damaged infrastructure. Local residents who had not evacuated were warned to avoid such repetitive flooded roadway areas, including Plank Rd., High St., Station Rd., Oliverea Rd., and all Hollows roads through Oliverea (Town of Shandaken, 2011).

## 9.0 Review of Existing Plans and Studies

The Towns of Shandaken and Hardenburgh have participated in and developed a series of plans and studies in recent years that guide all areas of growth and development including but not limited to infrastructure, community facilities, housing, economic development, tourism, environmental protection, and stewardship, among others. These numerous plans and studies provide a significant advantage to the community and the planning process. By reviewing and incorporating these existing documents the Committee is able to build upon relevant data, methodologies, stakeholder engagement and consensus, as well as a series of carefully developed recommendations, to inform the development of the NYRCR Plan and the selection and prioritization of projects for implementation.

Most importantly perhaps, these prior efforts position the communities to use the NYRCR Planning process to focus on particular areas of need not sufficiently addressed in existing documents including flood specific needs, acute economic and housing challenges, among others. Below is a review of the existing plans and studies reviewed and incorporated into this planning process along with an indication of the key components that will help drive the implementation of this NYRCR Plan:



Resource	Relevance	Key Components for NYRCR Planning Process
Shandaken Comprehensive Plan	Establishes a vision for the long term maintenance, growth, and development of the Town. Provides overarching goals and recommended implementation actions for all areas of the community including but not limited to infrastructure, community facilities, housing, economic development, natural/cultural resources among others	Community Vision; detailed community/demographic/economic data; goals and recommendations for all areas of community and economic development
Revitalizing the Esopus/Delaware Region of the Central Catskills	Provides a regional collaborative economic revitalization plan for the Esopus and East Branch Delaware River region of the central Catskills. Outlines strategies for economic growth as well as main street and hamlet revitalization by capitalizing on the regions assets including natural resource based recreation opportunities and associated tourism potential.	Inventory of existing conditions, regional Vision, identified goals, priority projects for economic development
Shandaken Flood Mitigation Plan and Ulster County Hazard Mitigation Plan	Provides County and local strategies for mitigating all potential hazards to the Town. Provides detailed information on past and current flood issues, existing flood initiatives, and recommendations for additional mitigation actions to address future disaster events.	Detailed past flood information; hazard vulnerabilities; assessed values and potential losses; past and ongoing mitigation projects; proposed mitigation initiatives
Mid-Hudson Region Economic Development Council Strategic Plan	A regional economic development strategy and vision for the Mid-Hudson region of New York. Illustrates the economic climate, trends in job creation and business growth for the region as well as strategies for leveraging assets, revitalizing traditional urban centers and attracting desirable growth.	Key economic drivers, regional economic advantages and challenges, recommendations for economic development initiatives, priority regional projects
East Branch Delaware River Stream Corridor Management Plan	Provides local and regional guidance on watershed management to preserve and improve water quality, protect environmental resources and reduce community flood risk. Provides details on stream characteristics, conditions, processes, local issues and concerns related to stream management as well as recommendations for improvement.	Summaries of local issues and concerns collected through stakeholder outreach; existing/ongoing stream restoration projects; detailed stream management recommendations



Resource	Relevance	Key Components for NYRCR Planning Process
Catskill Mountains Scenic Byway Corridor Management Plan	Provides a strategy for protecting regional character and assets and capitalizing on scenic, natural and cultural resources to increase economic health and tourism. This plan also serves as a comprehensive nomination to designate sections of State Routes 28, 28A, 214, 42, 30, and local roads as a scenic byway.	Inventory of local resources, descriptions of key assets that define regional character, recommendations for tourism growth, increased recreational opportunities, transportation improvements, effective stewardship, marketing & branding, and implementation actions
A Three County Regional Housing Assessment: Ulster, Orange, and Dutchess Counties from 2006-2020	Provides a comprehensive look at current housing trends and issues in the 3-County plan area. Provides detailed information relating to affordability, economic climate, as well as existing and projected housing gaps at the local and regional level.	Housing gap analysis by income level, target affordable home values, and rents by local income, including projected future gaps and recommendations for providing adequate housing to accommodate future populations

## 10.0 Critical Community Assets

The committee is in the process of finalizing a prioritized list of community assets. The comprehensive list of assets have been collected from a number of sources including the NY State GIS database, the Ulster County Hazard Mitigation Plan, Ulster County GIS, committee provided data, and community input data. The compilation of data was reviewed by the consultant and processed to include all data located within the identified Planning Area. After which, the data was disseminated into the following different asset categories and sub-categories for committee review:

Economic	Health and Social Services	Housing	Infrastructure Systems	Natural and Cultural Resources
Downtown Center	Higher Education Institutions	Single-Family Residence	Telecommunications	Natural Habitats
Small Business	Schools	Multi-Family Residence	Wastewater	Water Bodies
Large Business	Primary/Regional Hospitals	Mixed-Use Housing	Stormwater	Wetlands and marshes
Employment Hub	Healthcare Facilities	Supportive Housing	Water Supply	Parks and Recreation
Lodging	Daycare and Eldercare	Senior Housing	Hazardous Materials, Solid Waste, and Recycling	Agricultural areas
Industrial, Warehousing and Manufacturing	Government and Administrative Services	Affordable Housing	Transportation	Cultural or Religious Establishments



<b>Economic</b>	<b>Health and Social Services</b>	<b>Housing</b>	<b>Infrastructure Systems</b>	<b>Natural and Cultural Resources</b>
Restaurants	Public Works Facilities		Liquid Fuels	Libraries
Banks and Financial Services	Military Installations		Power Supply	Community Centers
Tourism Destinations	Emergency Operations/Response		Marine commerce facilities	Museums, Performing Arts Centers, Stadiums
Marina/Water Based Business			Navigable waterway facilities	Historic Landmarks and Facilities
Grocery/Food Suppliers				Hunting and Fishing Lands
				Natural Protective Features

The committee was then provided with the asset list, an interactive web map, and hard copy maps for review and additional input at multiple public meetings and venues. During the review process the committee prioritized all the assets in terms of the individual assets value to the community in accordance with the NYRCR Risk Assessment guidance. The asset inventory is in the final stage of the internal QA and QC review and will subsequently be run through the Riverine Risk Assessment Tool. The draft results will then be reviewed by the committee and will be finalized after the review. The finalized results will serve as the basis for the Risk Assessment and be used to prioritize the identified potential projects.

## 11.0 Community Risk Assessment

The committee will support the preparation of the community risk assessment by the consultant based on the NY DOS approved Risk Assessment approach and methodology. Input will include the prioritized list of critical facilities and the analysis will culminate with the identification of vulnerable areas to be addressed by NYRCR projects which will be subject to benefit cost analysis to determine economic feasibility. Those projects which will have an impact on water levels will be further analyzed using Hydrologic Engineering Centers River Analysis System (HEC-RAS) modeling to determine any adverse effect within the watershed.

The consultant will conduct an analysis of the community’s infrastructure, economy, and assets to determine where the community’s greatest vulnerabilities and opportunities lie. This analysis will include assessment of the vulnerability of physical assets – for example, water treatment plants, nursing homes and hospitals, local transportation systems, zoning and building codes, ecosystems, and residential development. The consultant will consider the three factors contributing to risk – hazard, vulnerability, and exposure – and using those risk factors and historical data, shall estimate the potential consequences an asset faces from future storms.

The draft Risk Assessment shall be submitted to the NY DOS Planner for review, comment and revision. It will also be reviewed by the Chair/Co-chair of the Planning committee.



The consultant will work with the NY DOS Planner and the Planning Committee to hold a Public Meeting prior to review the Risk Assessment and identify solutions.

## 12.0 Public Outreach

The Towns of Shandaken and Hardenburgh are committed to engaging the public during the development of the Community Reconstruction Plan (CRP). It is a requirement of the NYRCR Planning process to develop and implement a focused strategy for communicating with the underserved populations and displaced stakeholders in the Towns of Shandaken and Hardenburgh. The Committee recognizes that the residents, property owners, and business owners in both Towns will play an important role during the development and the implementation of the NYRCR Plan. With this in mind the committee has provided a multi-faceted public outreach strategy which includes the residents; homeowners; non-resident homeowners; business owners; and local, federal, state, and nonprofit agencies to ensure that the public is engaged in the planning process.

The public outreach is composed of media alerts, press releases, informational flyers, electronic communications, public radio broadcasts, mailers, and participation at public events.

### 12.1 Media Alerts, Press Releases, and Broadcasts

Prior to all public meetings, media and public notification efforts are undertaken to ensure broad media coverage to reach the population. In addition, targeted mailings will be prepared for upcoming public meetings and events. A webpage has been established on the Town of Shandaken website with a link to the public survey to gather public input.

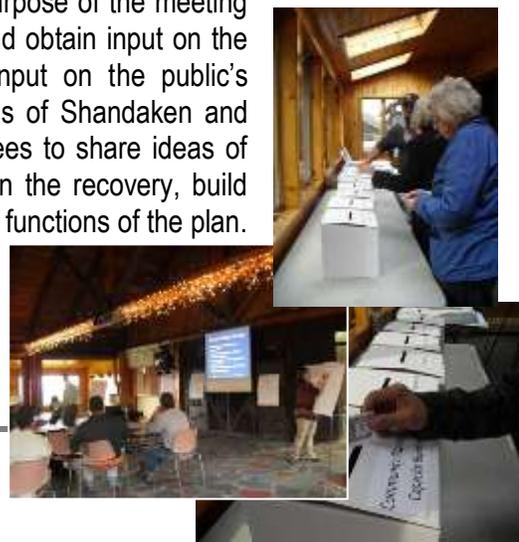
### 12.2 Planning Committee Meetings

The Planning Committee will conduct meetings initially on a bi-weekly basis and ultimately on a monthly basis or as needed during the process of developing the NYRCR Plan. The Planning Committee will provide an opportunity to provide comments during a designated portion of the agenda. The period of time for provide public input during these meetings will be limited to 15 minutes and can be limited at the discretion of the Co-Chairs of the Planning Committee if the comments being provided is deemed repetitive. The dates for these meetings are advertised on the NYRCR website.

### 12.3 Public Meetings

The Planning Committee has hosted one public meeting to date, which took place at the Belleayre Ski Center at 1:00 p.m. on Saturday, October 19, 2013. The purpose of the meeting was to inform the public of the NYRCR planning process and obtain input on the visioning and goals of the plan, in addition to eliciting input on the public's perception of the needs and opportunities facing the Towns of Shandaken and Hardenburgh. This meeting provided a platform for attendees to share ideas of ways to spend financial resources on projects that focus on the recovery, build resiliency in the community, and meet one of the six recovery functions of the plan. To gauge the public's level of concern regarding each of

these categories, the attendees were asked to participate in an interactive exercise investing Shandaken and





Hardenburgh “money” in the six needs areas. The Committee used the results of this exercise to provide a basis for future prioritization of needs in the plan. The meeting was well attended by Committee members as well as members of the public.

Public Meeting #2 is scheduled at the Belleayre Ski Center from 1:00 p.m. to 4:00 p.m. on Saturday, November 9, 2013. The purpose of this meeting is to solicit comments on the draft NYRCR Plan and gather input on strategies and implementation projects and actions that might increase the resiliency of the Towns.

Two additional public meetings will be scheduled as follows:

**Public Meeting #3 - TBD (Prior to February 16, 2014)**

Purpose: To review the assessment of risk to assets and to identify possible solutions

**Public Meeting #4 - TBD (February 16, 2014)**

Purpose: To receive additional input on implementation strategies and projects

## 12.4 Public Events

The Committee has sponsored a series of public events to engage and educate the community and its visitors. The public events were designed to take advantage of established venues to maximize visibility and attendance.

The first of those public events took place at the 2013 Shandaken Fall Festival, and is summarized below:

**Public Event #1 - NYRCR Booth at the Shandaken Fall Festival– October 12-13, 2013**



The Shandaken and Hardenburgh NYRCR Planning Committee staffed a booth at the Fall Festival to (1) obtain public input regarding the public’s needs and concerns resulting from recent flooding events, and (2) solicit feedback from the public regarding their vision for the future of the Towns. Maps of the communities were available for the public to review and mark up to indicate vulnerable areas and critical assets. The public was encouraged to fill out surveys to document their input.



## 12.5 Vulnerable Population Outreach

The Towns of Shandaken and Hardenburgh’s public engagement strategy is inclusive of vulnerable, under-served, and displaced populations. For this project, vulnerable populations are defined as people with disabilities, low and very-low income populations, the elderly, young children, homeless, and people at risk of becoming homeless. Examples of the ways in which the Committee is involving the vulnerable populations of Shandaken and Hardenburgh in the NYRCR planning process through community engagement activities, projects, and surveys are summarized below:



- **Elderly, Low-Income, and Special-Needs Population Research** - The Committee will work with various local and regional organizations to obtain information about elderly, low-income, and special-needs populations to ensure they will be included in the ongoing planning process and that the projects, strategies, and actions will address their concerns.
- **Agency Surveys** - The NYRCR Planning Committee is working with community leaders of various service organizations to obtain input on their needs. An electronic survey will be developed and issued to the leaders of specific groups in the community including members of fire departments and law enforcement organizations; and employees from utility companies, hospitals, and schools. The surveys will gather information related to the impact from the flooding events and will identify specific projects from each organization.
- **Survey - General Public and Second Homeowners**

A survey designed for the residents in each town has been distributed at public events and is accessible online to gather community input and perspectives. It includes the following questions:

- Were you in the Town during Hurricane Irene and/or Tropical Storm Lee?
- What do you remember most about the flooding event?
- Was your house damaged by the flood?
- What do you think should be done to reduce the damage to your community during future events?
- What do you like about the Town?
- If you had one wish for the Town, what would be?

The survey designed for second homeowners in the Town and is similar to that for the general public and has been similarly distributed.

- **Outreach from Existing Planning Projects.** Review of recently developed plans and their associated outreach activities is an important part of the planning process. As the NYRCR Planning Committee works to leverage specific information and element of existing plans, the Committee will use best practices developed during planning efforts to identify priority projects.

During the NYRCR Plan planning process, the Committee will continue to work in a collaborative process and will endeavor to collect and incorporate public input to ensure the plan remains relevant to reduce flood risk and identify a path to resiliency and continued economic vitality.

## 13.0 Key Issues

### 13.1 Repeat flood events and damage

The Towns of Shandaken and Hardenburgh are vulnerable to flooding events and have experienced devastating losses over the years. Between 1950 and 2012 Ulster County suffered 97 flood events for total of \$12.3M in damage

Recent history has shown that the Town of Shandaken can expect an average of 7 episodes of major river flooding each 10 years. Since 1978, residents of Shandaken have submitted \$5,603,540.93 in flood



insurance claims (FEMA NFIP Statistics, 2012). The majority of the Shandaken's development remains located in the valleys of Esopus Creek and its tributaries, which creates a high potential for significant future flood impacts (Town of Shandaken Comprehensive Plan, 2005). The Town has indicated that the hamlets of Phoenicia, Mt Pleasant, Allaben, Mt. Tremper, Olivera, Shandaken, Chichester, and Woodland Valley have experienced extensive flooding resulting from riverine reaches in the Upper Esopus Watershed. Flood stages on Esopus Creek tributaries may be further elevated in the vicinity of the tributary confluence with Esopus Creek. This is particularly so, in settings such as the hamlet of Phoenicia, in which development occupies much of the available flood plain and the channel is confined. In this instance, Stony Clove Creek has a relatively low slope, and the flood stage on Esopus Creek can be higher than Stony Clove's flood stage, inducing a backwater effect that raises the Stony Clove stage. The consequence is locally enhanced inundation in the hamlet. Main Street, Bridge Street, High Street, Plank Road, and Station Road in the hamlet of Phoenicia are particularly acute hazard problem areas for flooding.

Highway infrastructure construction has also contributed to flood vulnerability. For example, below the hamlet of Big Indian, the Esopus Creek flows along Route 28, and is locally impacted by the road corridor, especially where former meander bends were cut off by installation of the roadway.

The recent Shandaken Flood Mitigation Plan estimated the potential sheltering needs and the potential risk to the built environment as a result of the 1% and 0.2% flood events. For the 1% flood event, an estimated 902 people will be displaced and 461 people will seek short-term sheltering, representing 27.9% and 14.3% of the Shandaken 2000 population, respectively. For the 0.2% flood event, an estimated 990 people will be displaced and 547 people will seek short-term sheltering, representing 30.6% and 16.9% of the Shandaken 2000 population, respectively. Of the total built environment approximately 1216 parcels (34.3% of total) and 320 buildings with an approximate replacement value of \$131,100,000 are in the 1% hazard area. Additionally, 1382 parcels (39% of total) and 471 buildings with an approximate replacement value of \$176,300,000 are in the 2% hazard areas respectively.

According to the Ulster County All Hazard Mitigation Plan, the Town of Hardenburgh has 606 high flood risk acres with a value of \$18,811,933. The flood events following Hurricane Irene and Tropical Storm Lee had the greatest impact on Hardenburgh's infrastructure damaging or destroying numerous bridges and roads and creating significant access and mobility issues. With extremely limited transportation options, the loss of even one road during a flood event can result in isolation and stranding of residents. Despite the use of available resources there remains damage to critical infrastructure in Hardenburgh. Road, bridge, culvert, and repair or replacement of other infrastructure must be addressed to create greater future resiliency. Without additional mitigation and flood protection projects, the Town stands to suffer similar damages during future events.

Given the history of flood events that have impacted the Towns of Shandaken and Hardenburgh, it is apparent that future flooding of varying degrees will occur. To ensure the long term safety and health of both Towns, conditions of the natural and man-made environment that cause repetitive flooding and damage to homes, businesses, and critical assets must be addressed.

### 13.2 Balancing environmental conservation with community protection

While mountainous terrain and beautiful streams help define the community's character, provide the necessary setting to drive tourism, and protect critical drinking water supplies, they also place the community at risk for significant flood damage and cause certain economic and community development



challenges. The additional effects of agricultural and development, including timber removal, stream realignment, and increased impervious surfaces, have magnified this risk significantly causing more erosion and runoff. Any strategy leading to increased resiliency and health will need to strike a balance between environmental, ecological, and drinking water protection with the protection of community assets and the creation of opportunities for community development.

- 1. Limited ability to address stream conditions increasing flood risk:** Over time, deposits of gravel and debris and streambank erosion have led to increased flood risk and damage to both Towns. As the protection of the New York City water supply has caused the waterways to come under increased regulatory oversight, it has become increasingly more complicated to implement stream based flood mitigation projects such as bank restoration, gravel harvesting, or other measures to address repetitive flood damage. Detailed studies including cost/benefit analysis and environmental assessments will need to be conducted for stream restoration projects that may be critical to protecting community assets, homes, and businesses.
- 2. Limited Development Sites:** The necessity of clean drinking water has also prompted New York State and City over the years to acquire large tracts of land to ensure the protection of this resource. This has created significant flood safety and development challenges for the community by severely limiting the available development sites for residential and commercial growth. According to the Shandaken Comprehensive Plan 84% of the community is currently built out, and only approximately 4% (3300 acres) is available vacant or private open space that could be developed after making adjustments for wetlands, water bodies, floodplain, and slopes greater than 20%. This lack of developable land makes it very difficult to relocate homes, businesses, and critical assets out of flood prone areas. This issue has become further exacerbated as flood events and subsequent buyout programs have removed residential and commercial properties from each Town's tax base.

### 13.3 Housing affordability

Housing affordability and a general lack of sufficient workforce housing have been identified as ongoing issues for the Town of Shandaken. While the median home value of \$215,200 is less than both the County (\$242,500) and the State (301,000) it has become increasingly difficult for local wage earners to afford housing. Four key factors have combined to cause the majority of these issues:

- **Rising home prices outpacing income:** between 2000 and 2011 home values in the Town of Shandaken increased 136% from \$91,200 to \$215,200 (2010 Census and 2011 American Community Survey). During this same time, median household income increased only 39% and remains the second lowest of all towns in Ulster County. The rapid rise in housing prices is due in part to the second-home market driven by the area's scenic and recreational qualities.
- **Limited housing stock:** With few remaining development areas and a housing stock dominated by historic single family homes with rising values, there is currently limited available housing for young families and a young workforce.
- **Flood insurance rates:** Risk for continued flooding has driven insurance rates up and increasingly present additional financial burdens for homeowners.
- **Low wages:** Shandaken and Hardenburgh generally offer lower wages than more urban or developed areas. When combined with the above factors this places additional strain on housing affordability.



As a combined result of the above factors, 29.8% of home owners with a mortgage and a staggering 50.2% of renters are considered cost burdened and pay more than 35% of their household income on housing costs.

Information regarding the Town of Hardenburgh housing affordability is not available at the time of this writing but will be developed throughout the planning process and included in the final version of this plan.

### 13.4 Economic development challenges

A number of factors currently deter the full economic potential of the two Towns and the region at large including:

- **Limited land for development:** Few remaining parcels for the development of new residential and commercial uses or for the relocation of assets in flood prone areas currently deter economic growth and a sufficient workforce.
- **Realignment of Route 28** – Historically the main artery for this region of the Catskills, Route 28 originally ran through almost all Hamlets in Shandaken and encouraged commercial success and tourism. Realignment of Route 28 in the 1960's provided increased travel speeds through the region but also caused the route to now bypass many of the hamlet centers. As a result, investment and development began to occur along the new Route 28 rather than in the traditional Hamlet centers.
- **Aging population:** An increasingly aging population in both Shandaken and Hardenburgh limits the available workforce for local businesses.
- **Seasonal economy/workforce:** The region's popularity as a second home and vacation destination provides key patrons for local businesses but also creates unpredictability and seasonal revenue fluctuations as well as seasonal workforce challenges.
- **Lack of incentives:** there is a currently a lack of available incentives to attract and retain desirable businesses and development projects. Potential incentives could include tax abatements, fast track permitting, fee waivers, and density bonuses among others.
- **Limited amenities, shops and services:** while commercial centers such as Phoenicia offer charming stores and restaurants, there remains an opportunity for additional shops, services, and amenities to increase tourism spending.

### 13.5 Limited Infrastructure and Services

Limited infrastructure systems in both Towns create ongoing safety and economic challenges. In particular many homes currently have few access and exit routes (or only one) available to them, leading to the potential for stranded residents during flood events. Lingering damage to roads, culverts, bridges, and more sustain this risk for the current population of both Towns. There remains a key opportunity for additional flood proof and mitigation enhancements to infrastructure recently repaired or replaced following Hurricane Irene and Tropical Storm Lee. Select improvements of core infrastructure would help strengthen resiliency against future storms and ensure the protection of assets and safe mobility of residents.

The lack of a dedicated regional evacuation center of sufficient size for all residents places the community at further risk. Currently the Belleayre Ski Center functions as an evacuation center; however, there remain logistical and funding issues related to its use, operation, and provision of supplies.



The Towns also suffer from limited cell phone service which reduces communication during emergencies and also deters economic growth. Of particular concern is the potential removal of existing land lines in each Hamlet that currently act as a means of emergency communication. Due to lack of financial return, these lines have been slated for removal, which will create additional need for improved cell phone service.

Several utility issues are also present throughout the community. The majority of power lines currently remain above ground throughout Shandaken and Hardenburgh, which increases the risk for service outage during storms and also takes away from the aesthetic appeal of the Hamlet centers. In addition, many areas throughout both Towns are not serviced by municipal sewage systems.

### 13.6 Untapped tourism and recreational potential

While a large contributor to business in the Towns, the full potential of economic growth related to the natural resources and recreation opportunities has not been realized. A coordinated effort to fully capitalize on these assets could help to create a year round economy and address the seasonal difficulties for business owners. Particular areas of concern include:

- Insufficient maps, signs, and wayfinding to guide visitors to the full range of outdoor recreation
- Lack of coordinated marketing and branding initiatives including a robust online presence, use of social media, marketing materials, and a coordinated regional tourism effort
- Limited access to waterways for recreation
- Limited connectivity or coordinated themes between hamlets
- Need for additional trails and connections
- Lack of full capitalization on the former rail line for recreation and tourism

## 14.0 Goals, Needs and Opportunities

### 14.1 Community Planning and Capacity Building

- Goals, needs, and opportunities related to community planning and capacity building are included throughout the remaining sections below

### 14.2 Economic Growth

**Goal 1:** Establish more resilient, vibrant, and protected hamlet centers to act as commercial and social hubs

- Need to address the lack of broadband and cell service, and its impact on economic development and the diversification of the business base
- Need for diversification of the business base beyond just lodging and tourism to establish a more vibrant tax base
- Need to invest in and strengthen hamlet centers

**Goal 2:** Increase visibility and utilization of local resources, services, and assets to promote business growth and tourism.

- Need for greater capitalization on recreation and tourism potential
- Need for additional wayfinding and signage to highlight available recreation opportunities



- Need to increase the community's visibility through greater online and technology presence including websites, social media, and smart phone applications
- Need for a coordinated branding and marketing strategy
- Need to enhance visual character of the area (especially Rt. 28)
- Need for enhanced waterfront access
- Need to increase number of year-round visitors to the region
- Need to increase tourism dollars spent in local businesses through diversification of commercial uses, increased marketing and greater access to resources for business owners

**Goal 3:** Diversification of the business base to promote economic growth, provide additional amenities, and increase the tax base

- Need for incentive programs to stimulate desirable business growth
- Need to provide greater access to resources for local businesses

### 14.3 Health and Social Services

- Need to attract education, health and service industries, and related facilities to the region
- Need to improve the public schools (Onteora and Margaretville) as a prerequisite to attracting more young professionals to the area
- Need to protect vulnerable populations
- Need to maintain access to health services before, during and after disaster events

**Goal 4:** Attract more health services and facilities to meet the health and welfare needs of all members of the community and its visitors

- Need improvements to existing EMS facilities

**Goal 5:** Ensure ongoing protection of vulnerable populations during future disasters

- Need to identify the most vulnerable populations and provide them with the necessary information to adequately prepare for future disasters
- Need to establish pet shelters to ensure that pet owners know their pets are secure and can evacuate

### 14.4 Housing

**Goal 6:** Secure and protect existing housing stock against future floods, and protect against the loss of residents and tax base

- Need to identify homes that are physically and economically feasible for elevation or other mitigation enhancements
- Opportunity to create incentives to encourage rehabilitation of existing housing stock and development of housing for senior citizens

**Goal 7:** Provide adequate housing that is affordable for each segment of the population

- Need to encourage additional workforce and affordable housing
- Need to develop diverse housing options in the community



- Need to identify available land suitable and feasible for future housing development
- Need to address concern with high taxes and costs of housing
- Need to address concern expressed that increased flood insurance rates will drive people away
- Need to present information on funding opportunities to assist home owners

## 14.5 Infrastructure

**Goal 8:** Stabilization and improvement of current infrastructure assets including roads, bridges, and communications to ensure mobility and safety in times of disasters

- Need for select bridge repair/replacement
- Need for select culvert repair/replacement
- Need for select road repair/replacement
- Need for enhanced telecommunications infrastructure (cell and internet)
- Opportunity to create a communications infrastructure plan that provides for emergency communication, high-speed internet, and cell service
- Need for emergency communications infrastructure/systems
- Need for regional emergency and evacuation center
- Need for repair or construction of underground utilities (electric, phone, and cable) in hamlet centers
- Need to identify areas for new/expanded sewage and wastewater treatment service areas, and storm water systems

**Goal 9:** Develop and implement stream management plans that balance environmental protection with the protection of community housing/infrastructure/assets

- Need to address flood hazard mitigation by implementing evolving stream management plans and best management practices
- Need to address stream conditions that cause repeat floods including gravel deposits, stream bank erosion, remaining debris among others.
- Need to balance environmental and drinking water protection with the need to protect homes, assets and infrastructure from repetitive flooding. Opportunities include:
  - Identifying areas for selective gravel harvest and stream restoration
  - Implementing stream management plans
  - Consider climate change and future impacts in all initiatives
- Need to identify areas for channel restoration

**Goal 10:** Provide necessary communication infrastructure to ensure emergency communication capability and to provide services to attract/retain businesses

- Need for effective communication prior to, during, and after natural disasters
- Need to implement improved radio and universal cell service

**Goal 11:** Ensure all essential services including but not limited to potable water, shelter, food, medicine, fuel, and travel corridors are available and acceptable during the time of disaster

- Need to relocate critical facilities out of flood prone areas
- Need to identify and pursue sewer expansions where appropriate/possible



- Need to bolster public facilities capabilities to serve as resource centers for future disasters

## 14.6 Natural and Cultural Resources

**Goal 12:** Provide improved or new facilities to allow for community gathering, special events, sheltering etc.

- There is a need for a community center to act as a shelter, community gathering place, place for information, place to hold events
- Due to lack of a local newspaper there is a need to establish a central place to provide information

**Goal 13:** Promote, protect, extend, and enhance existing natural, historic, and cultural assets

- Need to retain historic character and charm
- Need to protect identified historic and cultural assets from future flood damage
- Need to connect owners of historic assets with available resources and information

**Goal 14:** Improve utilization of the area's natural resources to connect hamlets, drive tourism, and encourage economic development

- Need to connect hamlets through additional trails and transportation options
- Need to protect historic resources and landmarks
- Need to create year round tourism

**Goal 15:** Support the economic resiliency of our agricultural areas and protect them from damages of flooding

## 15.0 Preliminary Projects, Actions and Implementation

Through the ongoing NYRCR Planning process, the Committee with continued public input will build on this preliminary analysis and will use the identified issues, goals, needs, and opportunities to identify projects that will help the Towns achieve their vision of greater resiliency and overall community health and vibrancy.

The Committee will prepare strategies for the priority projects, programs, and actions identified during the planning process that will rebuild, and will spur recovery, economic growth, and resiliency. There may be a significant number of projects, programs, and actions identified during the planning process. In order to develop an action-oriented and implantable plan, the Planning Committee will identify priority projects, programs, and/or actions. The Planning Committee will utilize the information gathered during the planning process to identify the priority projects and base them upon their cost, financial feasibility, timeline, benefits, elimination of risk, and impacts on other aspects of life in the community. It will be important that the Planning Committee also consider a project's eligibility under the Community Development Block Grant Disaster Recovery (CDBG-DR) funding program.

The Committee will then prepare reconstruction strategies priority projects. Each strategy will include the identification of the recommended steps and responsible entities necessary to implement the project. These steps may include the name of the project, required steps/actions, timeline, and preliminary cost estimates. The planning process will also include the creation of a range of potential investments and funding sources and their relative priority. This may also include the prioritization and consideration of



actions such as zoning changes or other policy changes to improve the resilience and economy of the community.

The priority projects will fall into one or more of the six (6) major areas of Recovery functions:

1. Community Planning and Capacity Building
2. Economic Development
3. Health and Social Services
4. Housing
5. Infrastructure
6. Natural and Cultural Resources

Reconstruction strategies will include new measures to protect vulnerable persons in the event of a future emergency, and include strategies that address many of the needs and opportunities of vulnerable populations.

Housing strategies will be based on the housing needs and opportunities identified during the planning process and will include:

- How demand for affordable housing will be met
- How the availability of affordable housing will be promoted to people impacted by the storm
- Identification of non-CDBG programs available for public and private housing provides to address post-disaster housing needs, in the context of supply, affordability, and accessibility
- How the community will encourage the provision of disaster-resistant housing for all income groups

## 16.0 Regional Perspective

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The NYRCR planning committee reviewed all regional plans that included the Towns of Shandaken and Hardenburgh to identify regional key economic drivers, characteristics of the housing stock, demographics as well as current and emerging issues and trends, and all other areas influencing regional community development. The Committee utilizes these plans to identify potential projects that would be of regional significance as well as to the benefit both Towns and their regional partners. As the committee continues to identify and develop its priority list of projects, it will reach out to regional organizations such as the County planning office watershed groups and regional economic development councils to discuss those projects with them, identify any type of regulatory approval process that is required and identify any resources available for the project. They will also leverage any studies and/or services to provide feasibility studies for these projects from the regional entities. It will be important once the final list of projects has been identified to review them with those regional entities to identify key financial and regulatory resources that are available to ensure that the projects are implemented. It will also be critical to build a network of support from the Towns up through the regional organizations so that the project can be implemented and therefore achieve the vision and goals of the NYRCR committee.

As part of the efforts to implement their projects the committee will evaluate projects that will also benefit neighboring municipalities. The committee will meet with the appropriate municipal leaders to discuss potential participation in some of those key projects. The key projects may be focused around infrastructure, emergency services social services and waterways; ventures that usually transcend municipal boundary lines. Throughout the identification and development of the projects, it will be important



that the communities and the committees seek opportunities to act regionally to increase the positive impact of the projects and potentially reduce the costs by spreading them out regionally.