CLARKSTOWN NYRCR

NY RISING COMMUNITY RECONSTRUCTION PLAN

December 2014

NY Rising Community
Reconstruction Program

Members of the Clarkstown NYRCR Planning Committee

Mark Brecher, Co-Chair
Peter Noonan, Co-Chair
Carol Donnelly
John Eshoo
Michael Gach
Sabrina Greco*
Alexander Gromack*
Luke Kalarickal
Dennis Letson
Jim McCormick
Joe Simoes

(non-voting member)

Prepared By

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Foreword

Introduction

In the span of approximately one year, beginning in August 2011, the State of New York experienced three extreme weather events. Hurricane Irene, Tropical Storm Lee, and Superstorm Sandy wreaked havoc on the lives of New Yorkers and their communities. These tragic disasters signaled that New Yorkers are living in a new reality defined by rising sea levels and extreme weather events that will occur with increased frequency and power. They also signaled 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 planning program on a scale unprecedented and with resources unparalleled. The NY Rising Community Reconstruction (NYRCR) Program, within the Governor's Office of Storm Recovery (GOSR), empowers the State's most impacted communities with the technical expertise and funding resources needed to develop thorough and implementable reconstruction plans to build physically, socially, and economically resilient and sustainable communities.

Program Overview

The NYRCR Program, announced by Governor Cuomo in April of 2013, is a more than $700 million planning and implementation program established to provide rebuilding and resiliency assistance to communities severely damaged by Hurricane Irene, Tropical Storm Lee, and Superstorm Sandy. 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 not only that community members are best positioned to assess the needs and opportunities of the places where they live and work, but also that decisions are best made when they are grounded in rigorous analysis and informed by the latest innovative solutions.

Launched in the summer of 2013 and completed in March 2014, Round I of the NYRCR planning process included 50 NYRCR Planning Areas, comprising 102 storm-impacted localities. In January 2014, Governor Cuomo announced a second round of the planning process, serving an additional 22 storm-impacted localities. Four of these localities were absorbed into existing Round I NYRCR Planning Areas, bringing the number of localities participating in Round I up to 106; the other 18 localities formed 16 new Round II NYRCR Planning Areas. Between Rounds I and II, there are 66 NYRCR Planning Areas, comprising 124 localities. The program serves over 2.7 million New Yorkers and covers nearly 6,500 square miles, which is equivalent to 14% of the overall State population and 12% of the State's overall geography.

In Rounds I and II, the State allotted between $3 million and $25 million to each participating locality for the implementation of eligible projects identified in the NYRCR Plan. The funding for these projects is provided through the U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant – Disaster Recovery (CDBG-DR) program.[1]

Each NYRCR Planning Area is represented by a NYRCR Planning Committee composed of local residents, business owners, and civic leaders. Members of the Planning Committees were identified in consultation with established local leaders, community

1. Five of the Round I Planning Areas—Niagara, Herkimer, Oneida, Madison, and Montgomery Counties—are not funded through the CDBG-DR program.

organizations and, in some cases, municipalities. The NYRCR Program sets a new standard for community participation in recovery and resiliency planning, with community members leading the planning process. Across the State, more than 650 New Yorkers have represented their communities by serving on Planning Committees. Nearly 650 Planning Committee Meetings have been held, during which Planning Committee members worked with the State's team to develop community reconstruction plans, which identify opportunities to make their communities more resilient. All meetings were open to the public. An additional 250+ Public Engagement Events attracted thousands of community members, who provided feedback on the planning process and resulting proposals. The NYRCR Program's outreach has included communities that are traditionally underrepresented, such as immigrant populations and students. All planning materials are posted on the program's website (www.stormrecovery.ny.gov/nyrcr), providing several ways for community members and the public to submit feedback on the program and materials in progress.

Throughout the planning process, Planning Committees were supported by staff from GOSR, planners from New York State (NYS) Department of State and NYS Department of Transportation, and consultants from world-class planning firms that specialize in engineering, flood mitigation solutions, green infrastructure, and more.

The NYRCR Program does not end with this NYRCR Plan. Governor Cuomo has allotted over $700 million for planning as well as implementing eligible projects identified in NYRCR Plans. NYRCR Planning Areas are also eligible for additional funds through the NY Rising to the Top Competition, which evaluates applications from Round II NYRCR Planning Committees across three categories—Regional Approach, Inclusion of Vulnerable Populations, and Use of Green Infrastructure. The winner of each category will be allotted a share of the competition's $3.5 million to fund additional eligible projects.

In April 2014, Governor Cuomo announced that projects identified in NYRCR Plans would receive priority consideration through the State's Consolidated Funding Application (CFA) process and charged the Regional Economic Development Councils (REDCs), which play an advisory role in the CFA process, to support NYRCR projects. In December 2014, Governor Cuomo announced that 24 NYRCR projects received nearly $12 million in CFA funding. This announcement is an example of the Governor honoring his commitment to leverage the work of the NYRCR Planning Committees to incorporate resilience into other State programs and to find additional sources of funding for NYRCR projects. The NYRCR Program is also working with both private and public institutions to identify existing funding sources and to create funding opportunities where none existed before.

The NYRCR Program has successfully coordinated with State and Federal agencies to help guide the development of feasible projects. The program has leveraged the REDC State Agency Review Teams (SARTs), composed of representatives from dozens of State agencies and authorities, for feedback on projects proposed by NYRCR Planning Committees. 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.

On the pages that follow, you will see the results of months of thoughtful, diligent work by the Clarkstown NYRCR Planning Committee, which is passionately committed to realizing a brighter, more resilient future for its community.

The NYRCR Plan

This NYRCR Plan is an important step toward rebuilding a more resilient community. Each NYRCR Planning Committee began the planning process by defining the scope of its planning area, assessing storm damage, and identifying critical issues. Next, the Planning Committee inventoried critical assets in the community and assessed the assets' exposure to risk. On the basis of this work, the Planning Committee described recovery and resiliency needs and identified opportunities. The Planning Committee then developed a series of comprehensive reconstruction and resiliency strategies, and identified projects and implementation actions to help fulfill those strategies.

The projects and actions set forth in this NYRCR Plan are divided into three categories. The order in which the projects and actions are listed in this NYRCR Plan does not necessarily indicate the Planning Committee's prioritization of these projects and actions. **Proposed Projects** are projects proposed for funding through an NYRCR Planning Area's allotment of CDBG-DR funding. **Featured Projects** are projects and actions that the Planning Committee has identified as important resiliency recommendations and has analyzed in depth, but has not proposed for funding through the NYRCR Program. **Additional Resiliency Recommendations** are projects and actions that the Planning Committee would like to highlight and that are not categorized as Proposed Projects or Featured Projects. The Proposed Projects and Featured Projects found in this NYRCR Plan were voted for inclusion by voting members of the Planning Committee. Those voting members with conflicts of interest recused themselves from voting on any affected projects, as required by the NYRCR Ethics Handbook and Code of Conduct.

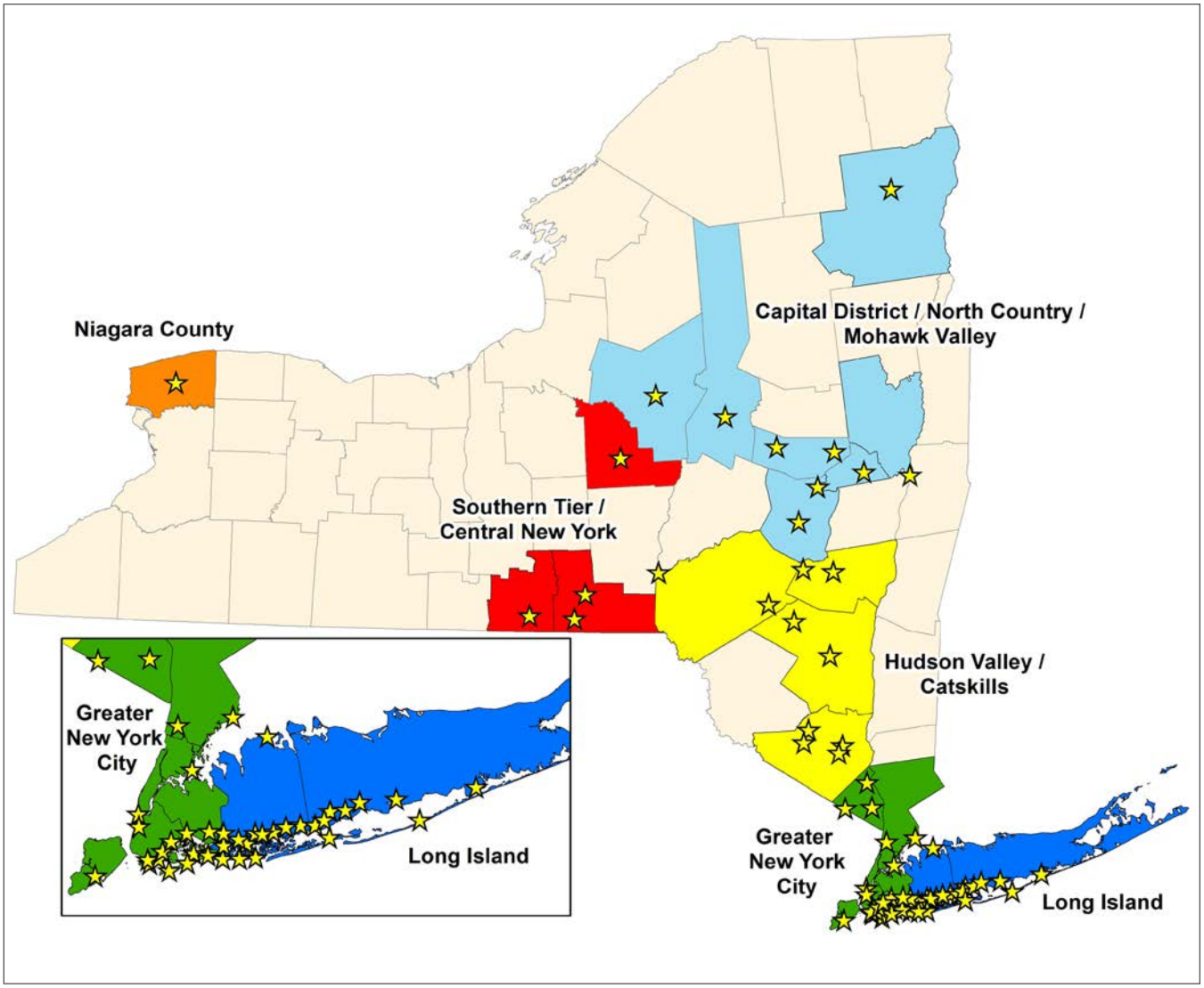
As part of Round II of the NYRCR Program, the Clarkstown NYRCR Planning Area has been allotted up to $3 million in CDBG-DR funds for the implementation of eligible projects identified in this plan.

While developing projects for inclusion in NYRCR Plans, Planning Committees took into account cost estimates, cost-benefit analyses, the effectiveness of each project in reducing risk to populations and critical assets, feasibility, and community support. Planning Committees also considered the potential likelihood that a project or action would be eligible for CDBG-DR funding. Projects and actions implemented with this source of Federal funding must satisfy a Federally-designated eligible activity category, fulfill a national objective (i.e., meeting an urgent need, removing slums and blight, or benefiting low- to moderate-income individuals), and have a tie to the natural disaster to which the funding is linked. These are among the factors that GOSR will consider, in consultation with local municipalities and nonprofit organizations, when determining which projects and actions are best positioned for implementation.

The total cost of Proposed Projects in this NYRCR Plan exceeds the NYRCR Planning Area's CDBG-DR allotment to allow for flexibility if some Proposed Projects cannot be implemented due to environmental review, HUD eligibility, technical feasibility, or other factors. Implementation of the projects and actions found in this NYRCR Plan are subject to applicable Federal, State, and local laws and regulations, including the Americans with Disabilities Act. Inclusion of a project or action in this NYRCR Plan does not guarantee that a particular project or action will be eligible for CDBG-DR funding or that it will be implemented. Projects will be implemented on a staggered timeline, and the NYRCR Program will choose an appropriate State or local partner to implement each project. GOSR will actively seek to match projects with additional funding sources, when possible.

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.

NY Rising Communities



Note: Map displays the 66 NYRCR Planning Areas from Rounds I and II. (Five of the Round I Planning Areas—Niagara, Herkimer, Oneida, Madison, and Montgomery Counties—are not funded through the CDBG-DR program.)

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Clarkstown NYRCR Executive Summary

I. Overview

The NY Rising Community Reconstruction (NYRCR) Program was established by New York Governor Andrew M. Cuomo to provide rebuilding and revitalization assistance to communities damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. The goal of the program is to rebuild from these storms and to increase communities' physical, economic, and social resilience to future storm events. The NYRCR Program provides an opportunity for residents, business owners and community leaders to actively participate in planning for a stronger future. The NYRCR Program empowers communities to prepare locally driven recovery plans to identify innovative reconstruction and resiliency projects and other actions to allow each community not only to survive, but also to thrive in an era when natural risks will become increasingly common.

The Clarkstown NYRCR Plan was developed during six months of community stakeholder engagement. The NYRCR Plan reflects Clarkstown's vision and goals, honoring its unique qualities and assets for building a safer, more resilient and sustainable future.

a. Community Location and Allotment Amount

The Town of Clarkstown is 41-square miles located approximately 25 miles northwest and a one-hour drive from New York City. The Town comprises eight hamlets: Bardonia, Central Nyack, West Nyack, Congers, Nanuet, New City, Rockland Lake, and Valley Cottage, as well as the Village of Upper Nyack and a portion of the Villages of Nyack and Spring Valley. The majority of the Town is within the Upper Hackensack River watershed. As of the 2010 census, the Town's population was just under 85,000 residents.

The Town of Clarkstown is eligible for up to $3 million in Community Development Block Grant – Disaster Recovery (CDBG-DR) funding through the NYRCR Program.

b. Scope of Planning Area

The Clarkstown NYRCR planning area is coterminous with the municipal boundaries and includes all eight hamlets. Although some Clarkstown neighborhoods were not directly impacted by flooding or wind damage, these areas contain important recovery and resiliency assets and serve as resources for resilient reconstruction.

c. Summary of Storm Impacts

Both Hurricane Irene (August 28, 2011), and Superstorm Sandy (October 29, 2012) resulted in widespread flooding, wind damage and prolonged power outages throughout Clarkstown.

The torrential rains, strong winds, and heavy downpour from Hurricane Irene caused extensive flooding, uprooted trees, and downed power lines, resulting in widespread and protracted road closures. Many homes and businesses were flooded up to six feet in their basements. Clarkstown Supervisor Alexander Gromack declared a local State of Emergency that lasted five days, ordering 1,400 homes in West Nyack to evacuate because of potential flooding by the Lake DeForest reservoir.

Following Superstorm Sandy, a State of Emergency was declared at both the County and local level. Although the flooding was less severe than during Hurricane Irene, strong winds with gusts up to 60 to 70 mph brought down trees and power lines, causing severe power outages and damaging buildings and infrastructure.

The physical damage to roads, homes and Town infrastructure, caused by Superstorm Sandy and Hurricane Irene, combined with the economic impacts of displaced and closed businesses continue to affect Clarkstown today. The Town continues to recover as they plan to build back better to become more resilient to both extreme storm events, and also the more frequent high intensity short duration storms.

d. Summary of Critical Issues

Since 1999, 10 serious flooding events have impacted the residents and businesses, roads, critical infrastructure systems, and natural resources throughout the Town. It is important to note that it is not only the named storm events that impact the Town, but also flash flooding that accompanies summer storms, the spring thaw, and power outages that occur during high wind events.

The key critical issues facing Clarkstown include:

- Emergency Service Provider Access;
- Flooding in Residential Neighborhoods;
- Interruptions to Town Services and Facilities;
- Repeated Flooding of Businesses;
- Road Closures; and
- Widespread and Prolonged Power Outages.

II. Community-Driven Process

The NYRCR Program is fundamentally a grassroots initiative. Initial project recommendations were generated by the Clarkstown NYRCR Planning Committee (Committee), which comprises elected officials, community leaders, residents, and business owners who came together to discuss how to help their Town recover from and become more resilient to future storms. The Committee met approximately ten times—every other week from June 2014 through November 2014.

All of the material presented in the Clarkstown NYRCR Plan has been developed collaboratively. The NYRCR Program provided the Community with a unique opportunity to participate in a bottom-up/community-driven planning effort to shape the communities' more resilient future.

EIGHT STEPS TOWARD RESILIENCY:

- Organize for Action;
- Inventory Assets;
- Determine Needs and Opportunities;
- Prepare and Present Concept Plan;
- Conduct Risk Assessment;
- Engage in Regional Planning Process;
- Develop Strategies for Investment & Action; and
- Deliver Final NYRCR Plan.

a. Community Vision and Goals

Clarkstown NYRCR Vision

Clarkstown, the economic hub and Rockland County seat, is a safe, centrally located, diverse, and resilient Town. The community is a geographic crossroads between New York City, New Jersey, and the rest of New York State. The Town enjoys access to multi-modal transportation options, diverse housing choices, a variety of small and large commercial venues, and robust educational, recreational, and cultural facilities in a bicycle and pedestrian friendly environment.

Clarkstown values and will continue to protect its natural resources including the Palisades Ridgeline, Hackensack, and Hudson Rivers, wetland systems, and stream corridors that together provide significant benefits to the community including environmental and water quality protection, flood mitigation, recreational opportunities, and preservation of community character.

Our vision is to embrace and enhance the many strengths of our Town while planning for a more resilient community so that we may build back better from future disasters.

The following goals were developed to help the Community realize the vision:

- Augment emergency services including providing back-up power during storm events;
- Build closer working relationships and coordination with the States of New York and New Jersey to address flooding issues associated with the Hackensack River;
- Continue to balance commercial, industrial and residential development with the preservation of open space and agricultural lands;
- Enhance infrastructure and stormwater systems where needed;
- Enhance multi-modal opportunities including safe bicycle and pedestrian facilities;
- Preserve the unique community fabric made up of rural, suburban, and urban settings; and
- Protect natural resources including the Hackensack and Hudson Rivers, wetland systems, stream corridors, and Clarkstown's lakes.

b. Summary of Public Outreach

Three Public Engagement Events were held throughout the six month planning process, with a fourth to be conducted after the final NYRCR Plans are completed in January 2015. These events provided the opportunity for Clarkstown residents to learn about the NYRCR Program, assets, and projects, and provide input to help develop community-driven plans for a more resilient future. The format of the Public Engagement Events varied throughout the process, but generally included PowerPoint presentations, display boards and mapping, workgroups, and discussion with maps and markers, survey sheets, and photo booths.

Materials were circulated to the Committee and posted to a dedicated Clarkstown webpage on the NYRCR Program website. Committee Members also shared project information with their community by posting relevant materials to the Town's website, leaving materials in the various Town libraries and other community facilities, posting information throughout the Town, reaching out to friends and neighbors through email and conversation, and attending municipal meetings and community functions to report on their NYRCR Plan progress. In addition, the Committee utilized social media, emailing via the Town's direct email system, and also sent flyers home with students enrolled in Town summer camps and schools.

III. Final Plan as Blueprint for Implementation

a. Needs and Risks Underpin Projects

The Clarkstown NYRCR Planning Committee understands where the Town is vulnerable, where the critical assets are located, and what the risks are to those assets. To address their specific vulnerabilities, a comprehensive needs and opportunities analysis was prepared through a combination of research, analysis, Committee and community feedback. A sample of the needs and the opportunities identified to address those needs is presented below:

NEEDS:

- Protection of businesses and commercial centers subject to repetitive flooding from future storm damage;
- Backup power supply for and installation of permanent generators at key facilities;
- Protection of single family and multi-family residential neighborhoods from flooding;
- Upgrades to stormwater infrastructure and improvement of drainage systems;
- Protection of open space assets for recreation and tourism, and as a means to assist with stormwater management; and
- Development balanced with open space preservation.

OPPORTUNITIES:

- Evaluate options and various technologies to alleviate flooding conditions to commercial centers;
- Locate and evaluate the vulnerability of health and social service facilities, including access to medicine;
- Investigate and pinpoint causes of neighborhood flooding (i.e., stormwater systems, stream alignment, watershed development, location in mapped floodplain, etc.) and develop plans for flood mitigation;
- Inventory stormwater infrastructure including age and condition of facilities and continue to prioritize and identify funding sources for maintenance and/or replacement;
- Determine impacts on recreational assets from flooding and evaluate measures to protect from future flood events; and
- Evaluate local regulations to ensure a proper balance is maintained between new development and open space protection.

b. Strategies

The strategies developed in the NYRCR Plan consider emergency, disaster recovery, long-term resiliency, and economic development needs that either remain unmet or can be strengthened. 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. The projects developed throughout the planning process are a path to executing the strategies and realizing the vision the community has for the Town of Clarkstown. Although not every strategy presented in the NYRCR Plan has a specific corresponding project, the strategies remain important guides to developing additional resiliency measures to help strengthen the future of the community.

Clarkstown NYRCR Strategies

- Develop initiatives and financial assistance programs to better protect residents, businesses, and commercial centers from future storm damage and to allow them to recover more quickly;
- Ensure access to and improve resiliency of critical health and social service facilities and safe havens during and after storm events;
- Improve regional coordination with neighboring communities and local and state agencies for watershed management to better mitigate flooding and plan for future disasters;
- Improve stormwater infrastructure and drainage systems using green infrastructure practices where possible and cost-effective;
- Preserve open spaces and restore natural resources to better support flood mitigation;
- Promote resilience and flood management best practices through land-use planning, policy, and regulation;
- Provide education, outreach and implementation assistance regarding pre-storm preparedness (including proper maintenance of waterbodies and stormwater runoff mitigation on private properties), storm protection procedures and post-storm recovery initiatives to protect from future flooding; and
- Restore and protect critical infrastructure and transportation assets.

c. Projects are the Path to Executing the Strategies

Proposed Projects are proposed for funding through a community's allotment of CDBG-DR funding.

Featured Projects are innovative projects where an initial study or discrete first phase of the project is proposed for CDBG-DR funding or other identified funding; and regulatory reforms and other programs that do not involve capital expenditures.

Additional Resiliency Recommendations are resiliency projects and actions that the Committee would like to highlight and are not categorized as Proposed or Featured Projects.

The strategies presented in Table A, and the Proposed or Featured Projects to implement them, specifically address the stated needs and transform opportunities into action items. The Proposed and Featured Projects are not presented in any particular order of priority.

Table A
Proposed and Featured Projects

Strategy	Project Name	Project Category
Improve stormwater infrastructure and drainage systems using green infrastructure practices where possible and cost-effective	Cranford Drive Drainage Improvements	Proposed Project
	Drainage Improvements to the Demarest Kill Stream	Proposed Project
	Drainage Improvements to the Nauraushaun Brook Basin	Proposed Project
	South Mountain Road Drainage Improvements	Proposed Project
	Cul-de-sac Island Reconstruction	Featured Project
	Jeffrey Place Drainage Improvements	Featured Project
	Pineview Road Storm Drainage Improvements	Featured Project
Preserve open spaces and restore natural resources to better support flood mitigation	Implementation of Post-Residential Buyout Program Measures for Flood Protection	Featured Project
Promote resilience and flood management best practices through land-use planning, policy, and regulation	Digital Inventory of Stormwater Infrastructure	Featured Project
	Tree Maintenance Program	Featured Project
Restore and protect critical infrastructure and transportation assets	Fredric Street Drainage Improvements	Proposed Project
	Old Haverstraw Road Drainage Improvements	Proposed Project

2014
NY RISING COMMUNITY RECONSTRUCTION PLAN

CLARKSTOWN NYRCR

Section I
Community Overview

I Community Overview

Geography

In addition to being ranked nationally as one of the 100 Best Places to Live by Money Magazine, the Town of Clarkstown is also one of the "*Safest Places to Live in the United States*[1]". Clarkstown is a 41-square-mile town located approximately 25 miles northwest from New York City. The Clarkstown NY Rising Community Reconstruction (NYRCR) Community (Community) is bordered to the east by the Hudson River and the Village of Upper Nyack, which is incorporated within the Town, to the south by the Town of Orangetown, to the west by the Town of Ramapo, and to the north by the Town of Haverstraw.

The Town of Clarkstown was recently placed as the No. 1 Place to Live for 'Booming Suburbs' in New York State by Coldwell Banker Real Estate.[2]

The Town comprises eight hamlets: Bardonia, Central Nyack, West Nyack, Congers, Nanuet, New City, Rockland Lake, and Valley Cottage, as well as the Village of Upper Nyack and a portion of the Villages of Nyack and Spring Valley. High Tor State Park sits along the Town's northern border, and Rockland Lake State Park sits along the Town's Hudson River border. Both of these parks are owned by the Palisades Interstate Park Commission.

The New York State (NYS) Thruway, County Route 80 and NYS Route 59 are the primary east-west corridors providing access to Clarkstown. The Palisades Interstate Parkway and NYS Routes 9W, 303, and 304 provide north-south access.

The majority of the Town is within the Upper Hackensack River watershed. The Hackensack River, and its tributaries and related streams, wind through the center of the Town and through Lake DeForest, a reservoir formed by impounding the Hackensack River.

Congers Lake (Jennifer Tesker)

The Lake DeForest reservoir, owned by United Water New York, serves Rockland County as a public drinking water source. Other key water bodies within the Town include: Rockland, Swartout and Congers Lakes, and Lake Lucille. The Hackensack River, Nauraushaun Book and Pascack Brook flow through the Town, ultimately discharging into Newark Bay.

Residential and commercial neighborhoods, key roadways south of Lake DeForest in West Nyack, and the neighborhood between Congers Lake and Lake DeForest, are subject to the most intense repeated flooding. Lowland areas along the Demarest Kill and Nauraushaun Brook, to the west of Lake DeForest, also experience chronic flooding. In addition, the far western portion of the Town is located within the Pascack Brook watershed, which is a tributary to the Hackensack River. The far southwestern portion of the Town, in the hamlet of Nanuet, suffers from flooding along the Pascack Brook during storm events.

History

Clarkstown was incorporated in 1791 after separating from the Town of Haverstraw. While early European settlement began in a primarily agrarian land use pattern, by the mid-18th century Clarkstown was an economic center. Dating back to the late 18th century, Clarkstown was the County seat, resulting in the early creation of one of the Town's hamlets, New City, developed with two hotels and a post office. In the late 18th and early 19th century, gristmills, sawmills, and quarries were the Town's main industries. Knickerbocker Ice Company, the largest in New York State at that time, was founded in the Town and exported ice from Rockland Lake, primarily to New York City.

The hamlets of Nanuet, West Nyack, Congers, and Bardonia owe their creation to important transportation improvements in the area. Built in 1828, the Nyack Turnpike connected the Village of Suffern to the Village of Nyack and the Hudson River. Along that route, West Nyack, at the crossroads of many streams, burgeoned with mills fed by the waters. In 1841, the Erie Railroad was completed, helping to spur the development of Nanuet. Finally, Congers was settled after the creation of the West Shore Railroad, originally a commuter line, which is now a major freight hauling line in the Northeast.

Later in the 20th century, new transportation improvements spurred further growth within the Town and forever changed the Town from one that was still quite rural and agrarian, to one that was primarily residential. In 1958, the Palisades Interstate Parkway, a major north south artery, was completed. However, it was the opening of the Tappan Zee Bridge in 1955 that was the real catalyst for growth. Between 1950 and 1960, the Town's population doubled to more than 33,000 people, and then nearly doubled again by 1970 to 61,000 people.

Demographics

Today, Clarkstown has approximately 84,504 residents and a median age of 42.9. The racial makeup of the Town is: 74.8% White, 9.4 % Black or African American, 10.5% Asian, 0.1% American Indian or Alaska Native, 3.6 % from other races, and 1.6 % from two or more races. Hispanic or Latinos of any race comprise 12.1% of the population.[3]

Clarkstown's economy consists of a mix of sectors from warehousing to professional services. The Town's several hamlets are well served by local and regional retail. Along NYS Route 59, a major east-west thoroughfare through Rockland, The Shops at Nanuet mall and Palisades Center mall, together with several other large big-box retail outlets, draw thousands of shoppers to the region. According to the most recent data (2007) together with the smaller stores in the hamlet centers, the retail sector employs more than 8,500 people in Clarkstown, by far the largest source of employment. The health-care sector is the second largest sector, employing more than 6,500 people. Hotels and restaurants employ slightly more than

3,000 people, and professional services employ approximately 2,100 people.[4] Approximately 47.7% of Clarkstown residents work outside of Rockland County, including many who commute to New York City.[5]

Housing

As noted in the *Town of Clarkstown Comprehensive Plan* (2009), "the majority of the Town's land is developed as residential."[6] Of the Town's 30,162 housing units, 96.4% are occupied with only 3.6% identified as vacant. Approximately 80% of housing units are owner occupied[7], a high homeownership rate, with the remaining 20% indicated as rental properties. Nearly 70% of Clarkstown's housing stock is single-family detached houses. Approximately 4% of the Town's housing units are in structures of 10 or more units.

A. Geographic Scope

Defining the geographic scope for Clarkstown NYRCR was the key first step in the planning process. The NYRCR Planning Committee (Committee) was encouraged to define the geographic scope of their NYRCR Plan to include:

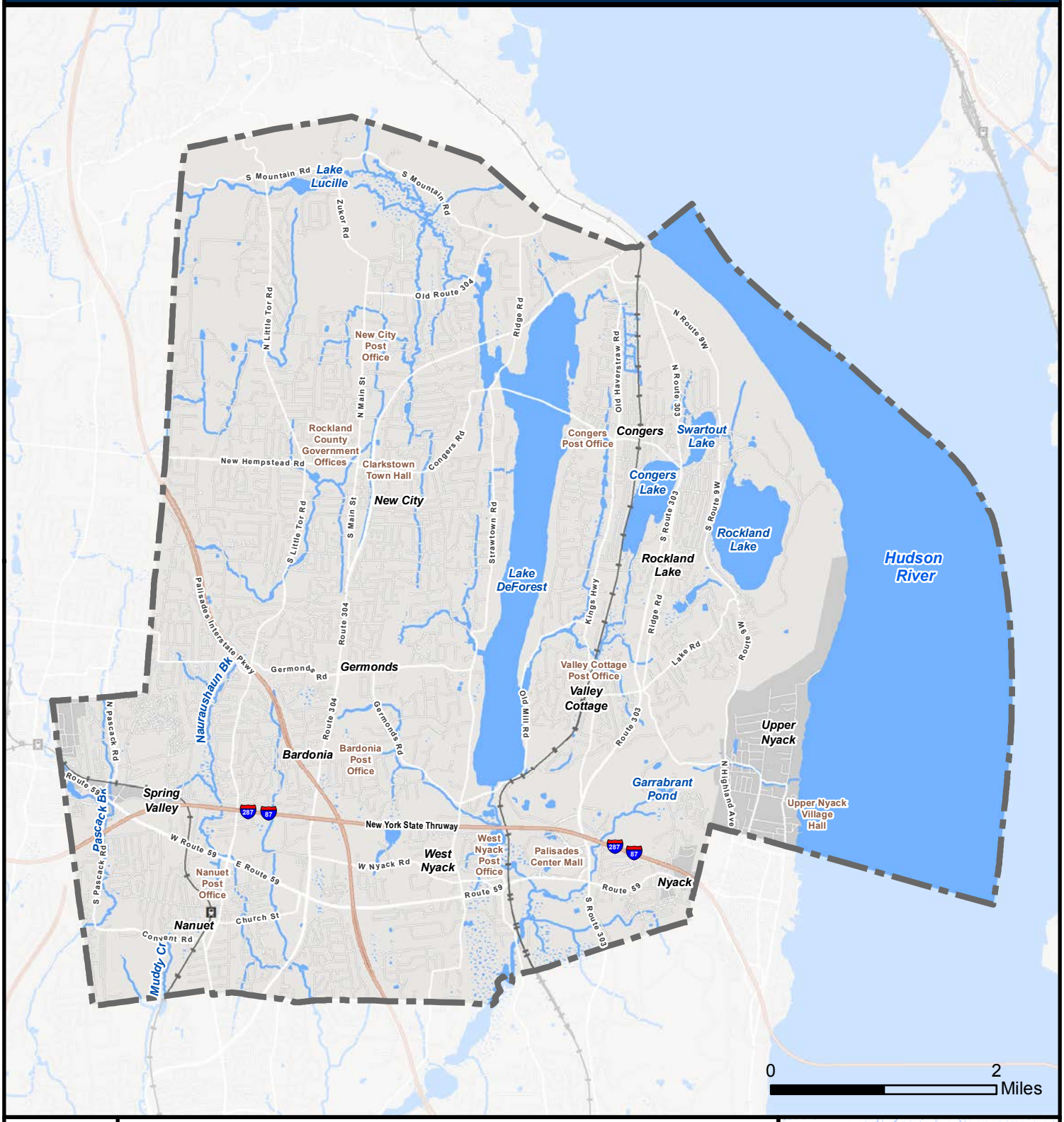
- Vulnerable areas where assets are most at risk;
- Focus areas for future development or redevelopment;
- Focus areas where development or redevelopment would be prohibited; and
- Focus areas where additional economic investment will help the Town's financial resiliency.

"Assets are likely to be most at risk due to future storms in the extreme, high and moderate risk areas of the community. But reviewing current and previous storm damage may indicate that other areas should be included [in the geographic scope]."

Guidance for New York Rising Community Reconstruction Plans, A Planning Toolkit for CR Planning Committees

Although there are areas in Clarkstown that were not directly impacted by flooding or wind damage, these areas contain important recovery and resiliency assets. The Committee determined that impacts from flooding, wind, stormwater, downed trees, and utility outages were widespread enough to merit including all of the Town's hamlets within the scope of the planning area. Some areas within the Town sustained substantial damage, while some suffered minimal disruption highlighting their potential for hosting recovery services, shelters, and other important community resources. Locating these types of facilities in less damage-prone areas could help the Town recover more effectively and quickly from future storm events. In addition, the NYRCR Plan presents needs, opportunities, strategies and projects that would benefit the whole Town. The Committee agreed that boundaries of the geographic scope would be coterminous with the municipal boundaries and the asset inventory and risk assessment would focus on areas repeatedly impacted by destructive flooding. Figure I-1 presents the geographic scope developed by the Committee and endorsed by the broader Clarkstown community at the first Public Engagement Event. More information about public outreach can be found in Section V.C, "Public Engagement Process."

Figure I-1
Geographic Scope - Town of Clarkstown



N

Legend

- Town of Clarkstown (Study Area)
- Village
- Rail Station
- Railroads
- Major Highways
- Rivers & Streams
- Wetlands
- Water Bodies

Data Sources

ESRI, NYSITS, Rockland County, Town of Clarkstown

B. Description of Storm Damage

On August 28, 2011, Hurricane Irene made landfall in New York State, hitting Rockland County and the Town of Clarkstown with full force, bringing with it torrential rains and strong winds. The heavy downpour caused the Hackensack River and its many tributaries to rise above their banks, flowing into their natural floodplains, and inundating the surrounding areas. Soils were already saturated in advance of the storm, which exacerbated flooding from the heavy rains.

In advance of the storm, on August 26 2011, a County-wide state of emergency was declared, urging residents to stay off roads and prepare for power losses.[8] Clarkstown Supervisor Alexander Gromack declared a local State of Emergency that lasted five days. In West Nyack, the Town ordered residents in 1,400 homes to evacuate during the Hurricane because of potential flooding of the Lake DeForest reservoir.[9] Many residents took shelter at Rockland Community College and Nyack High School, which were run by the County in association with the American Red Cross. When large groups of people are temporarily displaced from their homes, the Town of Clarkstown, in partnership with the Red Cross may respond by opening and operating a shelter for several days. A designated Red Cross shelter can provide trained personnel, overnight accommodations, meals, medical, mental health, and security services from trained personnel.

To supplement these County/Red Cross shelters, during and after Hurricane Irene, local Town officials opened the Street Community Center in New City and the Congers Community Center as reception centers for residents.[10] Reception centers are designated by the Town and provide coordinated assistance and information, and serve as warming and cooling centers to Clarkstown residents. The reception centers are generally open for a few days during and after extreme events. Both the Street Community Center in New City and the Congers Community Center reception centers were well used by Clarkstown residents following Hurricane Irene.

Flooding in the West Nyack Post Office Parking Lot, Hurricane Irene, August 28, 2011 (Michael Gach)

Heavy rains from the Hurricane led to flooding that damaged homes, businesses and infrastructure throughout the Town while aggressive winds uprooted trees, blocking roadways and causing power outages. The storm most directly impacted areas in the Town that were either low-lying or close to waterways.

In West Nyack, the hamlet located directly below or south of Lake DeForest, the flooding extended to the 500-year flood zone, affecting homes, businesses, and transit corridors. Many neighborhoods in the area experienced devastating inundation, with homes along Klein Avenue accumulating up to six feet of water in their basements. The lower level and parking lots at Plastic Craft Productions, a local business located at the corner of West Nyack Road and Fulton Drive, flooded due to the heavy rains and back-up from the Hackensack River, up to six feet in certain areas.

A few blocks west, a small commercial strip was inundated, causing it to close for weeks. Water accumulated with such force and speed in front of the West Nyack Post Office that it fully blocked access to the

building and forced road closures. The Post Office was forced to relocate, reopening a full eight months after Hurricane Irene. The Hackensack River also caused widespread flooding that forced the north bound side of the NYS Thruway to close for half a day, impeding a major regional transportation corridor and thousands of motorists.

Flooding along West Nyack Road, Hurricane Irene, August 28, 2011 (Michael Gach)

Further west, in the Hamlet of Nanuet, the Nauraushaun Brook flowed into its floodplain, which led to water accumulations along Route 59, effectively blocking access to one of the Town's major business hubs. Other neighboring streams and tributaries flowed into their floodplains, damaging homes along Convent Road and the surrounding residential areas. The Pascack Brook crested three feet above flood stage, flowing into its floodplains, which directly caused flooding of roads and the basements of residents at the New Holland Village condominium complex. Water accumulated six feet in many homes, causing a wide range of damage to electrical and structural building components.

The northern portion of Town suffered during Hurricane Irene as well. The Demarest Kill rose above its banks and flowed into its floodplains throughout many residential areas. The flooding became so intense along Cypress Street and Cranford Drive that residents navigated in a rowboat.[11] Many road closures occurred in this area due to flood waters overwhelming culverts and bridges, including along Squadron Boulevard, Mill Creek Road, and Old Route 304.

Damage from Hurricane Irene also impacted Clarkstown's Hudson River shoreline along the Longtrail in Hook Mountain State Park. The Longtrail, which connects Rockland Lake to the Hudson River, sustained significant erosion on the river side of the trail; and much of the damage remains uncorrected.

Although the storm damage from Hurricane Irene most impaired the hamlets of West Nyack, Nanuet, and New City, the direct and indirect impacts from the Hurricane were felt throughout the entire Town. Clarkstown Supervisor Alexander Gromack ordered that all business throughout the Town close.[12] Such business closures left residents without access to basic goods and services for three days. The flooding that damaged roads, bridges, and culverts was exacerbated by the accumulation of natural and man-made debris. This provided a challenge to emergency service workers while also preventing through-travel for residents. The heavy winds uprooted trees, damaged utility lines, and caused power outages that lasted for days following the storm. The high velocity currents, often carrying debris, also damaged the stream banks along many waterways in the Town, causing long-term stream bank erosion.

Although Clarkstown suffered minimal damage from wind gusts produced by Tropical Storm Lee, the community was extremely hard hit, on October 29, 2012, when Superstorm Sandy approached the Hudson Valley at full speed. States of Emergency were declared at both the County and local level. Although the flooding was less severe than during Hurricane Irene, strong winds with gusts up to 60 to 70 mph brought down trees and power lines, causing severe power outages and damaging buildings and infrastructure. Gable Road residences in New City lost power for eight days. Following the storm, Clarkstown

Supervisor Gromack estimated that Superstorm Sandy would cost the Town approximately $1 million for cleanup and repair.[13] Clarkstown mobilized many employees from the departments of Maintenance, Recreation and Parks, and Highway to clear roadways and restore power but they were delayed until Orange & Rockland Utilities Inc. (O&R) ensured that power lines were not live.[7] All Rockland County school districts were closed for a week because of dangerous road conditions caused by uprooted trees and fallen power lines.

During and after Superstorm Sandy, significant erosion occurred along Clarkstown's Hudson River shoreline. The Nyack Beach State Park parking lot and portions of the hiking/walking trail connecting Nyack Beach to Hook Mountain State Park sustained significant damage. In addition, large sections of a retaining wall washed away. The Palisades Interstate Park Commission (PIPC) has been working to reconstruct and restore the retaining wall, and significant construction has taken place to address the damage in Nyack Beach.

Although Hurricane Irene and Superstorm Sandy presented the most significant challenges in recent years, Clarkstown is regularly affected by high intensity, short duration storms and flooding events. For example, the front parking lot of Plastic Craft Productions Corporation has significantly flooded seven times between 1999 and 2014, while the back parking lot, that faces the Hackensack River, floods every spring. High impact, short-term rainfall events have been occurring more frequently, highlighting the exposure of various areas in the Town to repeated flooding. This is due to a variety of factors including Town topography, development within the floodplain, frequent storm events due to climate change, overwhelmed drainage systems, ageing infrastructure, and stream bank erosion.

Hurricane Irene and Superstorm Sandy exposed much vulnerability in the Town of Clarkstown. Storms bring challenges that extend beyond the direct physical damage to roads, bridges, homes, and essential infrastructure, threatening economic vitality, emergency recovery efforts, and the health and well-being of Clarkstown residents. Following every storm event, Clarkstown has retrenched and reevaluated, making substantial financial and policy commitments to recovery and resiliency so that they may build back better from future disasters.

Uprooted Tree Damages Home during Superstorm Sandy, October 29, 2012 (John Eshoo)

C. Critical Issues

The vast majority of storm-related flooding in Clarkstown comes from the Hackensack River and its many tributaries rising above their banks, flowing into their natural floodplains and inundating the surrounding areas. As presented in Figure I-2, fortunately Clarkstown was not impacted by Hudson River storm surges from Hurricane Irene or Superstorm Sandy to the extent that can be seen in areas to the north and northeast.

In addition to widespread riverine flooding caused by Superstorm Sandy and Hurricane Irene, it is important to recognize that Clarkstown has experienced numerous flood events in its recent history impacting residents, businesses, and public infrastructure. Several Clarkstown neighborhoods are impacted with a high frequency, and are considered areas of extreme risk by the Committee.

Since 1999, 10 serious flooding events have impacted the residents and businesses, roads, critical infrastructure systems, and natural resources throughout the Town of Clarkstown. Flooding from these unnamed storm events, as described below, underscores the need for additional resiliency measures throughout the Town.

In 1997, 4-5 inches of torrential rain fell during a 3-hour period causing streams and brooks to overflow.[14] This storm resulted in widespread street flooding in West Nyack and Nanuet. Remnants of tropical storm Allison in June 2001 produced rainfall at up to three inches per hour causing flash flooding in small streams and street flooding. Several roads were closed and several houses were evacuated near Valley Cottage.

In 1999 Hurricane/Tropical Storm Floyd brought torrential record rainfall, which caused serious widespread neighborhood, small stream, and river flooding throughout the community. Damage included the breach of the Lake Hyenga Dam which resulted in a surge of water into the Pascack Brook and the evacuation of 60 residents. The Lake Hyenga Dam has not been rebuilt. The storm also caused overtopping of the Lake Lucille Dam and heavy erosion forming a large gully and pavement buckling of the road over the dam. Additional damages included road closures, culvert collapses, and significant property damage in the Village of Upper Nyack. Rockland County was declared a disaster area under Disaster Declaration DR-1296.

West Nyack experienced heavy rain in July 2002 that produced 2-4 inches within one hour.[1] The roof drain at the Palisades Center Mall overflowed as a result and caused stores to flood, walls to collapse, and the evacuation of the mall. In August 2002, torrential rain caused street flooding in West Nyack. Parts of West Nyack flood almost annually.

In September 2004, torrential rainfall and flashing flooding occurred as a result of Hurricane Frances.[1] The Hackensack River overflowed and flooded into its natural floodplain during this event and resulted in the closures of NYS Route 59 and NYS Route 303.[1] Additionally, several people were rescued from homes and cars.

Clarkstown was impacted by thunderstorms and torrential rainfall in August 2008.[1] This led to flash flooding leaving Rockland Lake Road in Valley Cottage impassable. Also in August 2008, another high intensity storm caused flash flooding resulting in the closure of the intersection of Middletown Road and Atlantic Avenue and other roadways throughout Nanuet.

The widespread flooding and wind damage caused by Hurricane Irene, Superstorm Sandy, to a lesser extent by Tropical Storm Lee, and by frequent high-intensity short duration storms reveal Clarkstown's vulnerabilities and also provide the opportunity to examine key factors impacting recovery and resiliency.

While the Town has implemented a number of initiatives to reduce the occurrence and severity of flooding within its borders, and continues to aggressively pursue funding to complete additional drainage projects, the need for additional resiliency measures persists.

"Drainage and flooding were two of the most frequently raised issues during the hamlet meetings..."

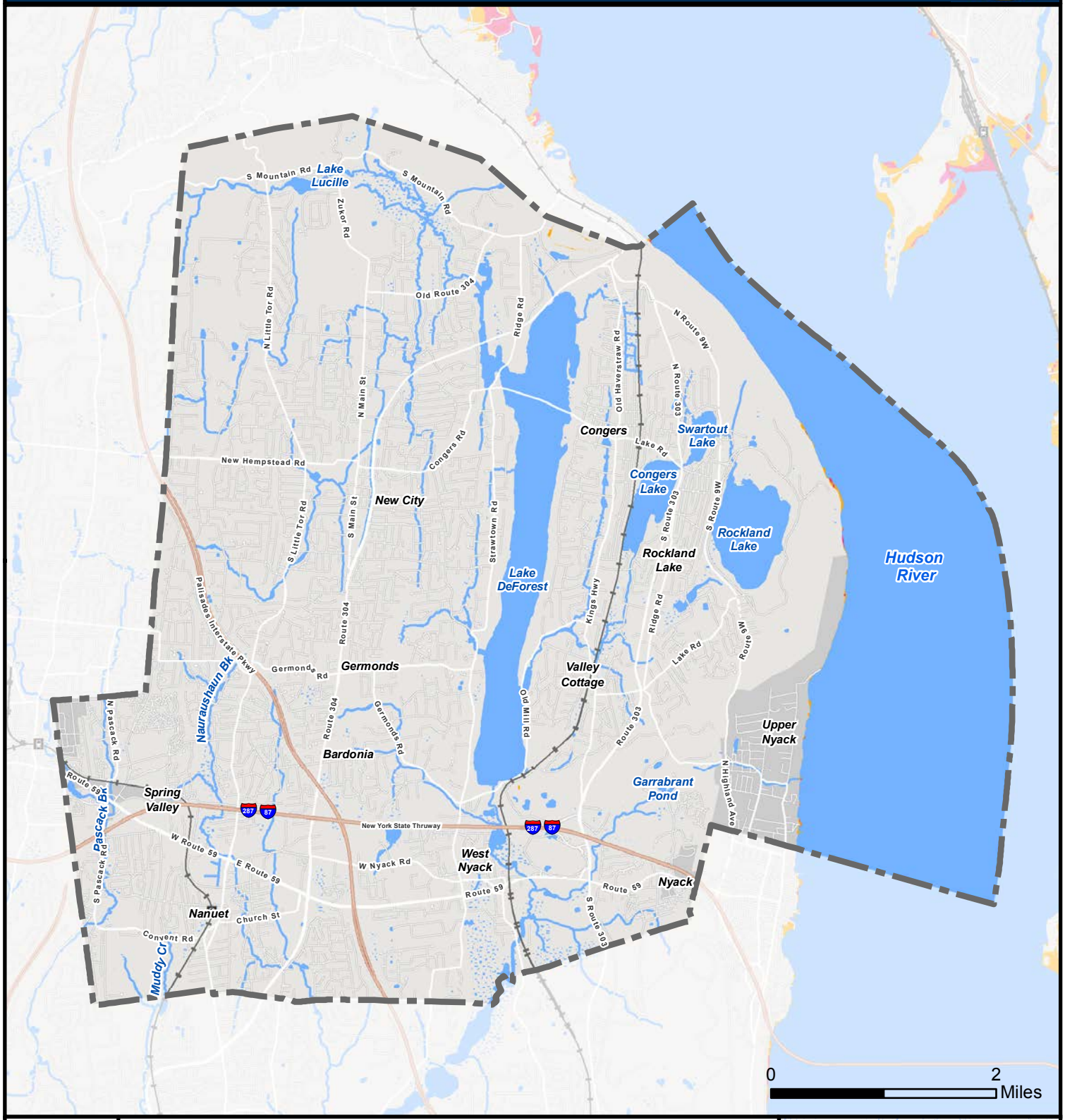
Partnerships and Connections, *The Town of Clarkstown Comprehensive Plan (2009)*

These critical issues affect the Town's ability to withstand the impact of various storms and also its ability to recover from the storms. The Committee, with input from residents, identified the following list of critical issues which are further described below:

- Emergency Service Provider Access;
- Flooding in Residential Neighborhoods;
- Interruptions to Town Services and Facilities;
- Repeated Flooding of Businesses;
- Road Closures; and
- Widespread and Prolonged Power Outages.

Figure I-2

Hudson River Storm Surge - Town of Clarkstown



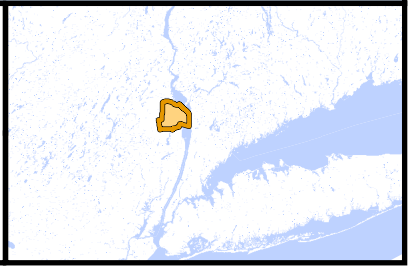
N

Legend

- Town of Clarkstown (Study Area)
- Village
- Rail Station
- Railroads
- Major Highways
- Rivers & Streams
- Wetlands
- Water Bodies
- 2012 Hurricane Sandy Storm Surge Boundary
- 2011 Hurricane Irene Storm Surge Boundary

Data Sources

ESRI, FEMA, NYSITS, Rockland County, Town of Clarkstown



Emergency Service Provider Access

During and after Superstorm Sandy and Hurricane Irene, widespread road closures resulted in the isolation of many residents, in particular vulnerable populations, including seniors. When residents who require additional support are inaccessible to emergency vehicles and services, the situation can quickly become dire. The Town of Clarkstown Police Department maintains an Access and Functional Needs Registry of people with limited mobility or special needs to be able to better assist them in emergency situations. However, when roadway access is cut-off, providing this assistance becomes increasingly complex. Some areas within the Town were only accessible by boat revealing the need to secure safe passage by emergency service providers.

Residents who attended the first Public Engagement Event held on July 30, 2014, identified the need for additional information regarding locations of shelters and emergency supply stations in various neighborhoods throughout the Town. The Town of Clarkstown provides Reception Centers, all of which were recently equipped with transfer switches and are currently being outfitted with large capacity generators using funding previously awarded to the Town through the Hazard Mitigation Grant Program (HMGP). Three of the four Town Reception Centers also include kitchens and shower facilities. A wider distribution of this information or mapping of these resources would provide residents with information on safe and secure facilities that are available to them during an emergency.

Flooding in Residential Neighborhoods

Historically, homes and businesses have developed along waterways due to opportunities for commerce and the resources offered by streams and lakes. Throughout the Town, homes and in some cases entire neighborhoods are located in flood prone areas, and are subject to repetitive flooding, not only during extreme storm events, but also during high intensity, short duration storms and the spring thaw. The high water table and underground streams throughout the Town coupled with power outages that shut down sump pumps cause water to not only sheet over land, but also to come up from underneath homes.

Flooding in West Nyack, August 27, 2011 (Mark Brecher)

Residences located within the floodplain are particularly vulnerable, highlighting a need for housing retrofit and buyout programs, and homeowner assistance to rehabilitate structures and protect their residences from future flooding. Some residents who have expressed interest in selling their homes have faced challenges due to declining home values. Others noted the potential to investigate relocating entire neighborhoods outside the floodplain but within Clarkstown to retain the tax base. However, undeveloped and dry land is scarce within the Town of Clarkstown, making this an unlikely solution. Repeated claims to flood insurance providers have led to expensive premiums and decreasing refunds, and denial of service. Financing programs for elevating homes to minimize damage and restricting future development of homes to areas outside of the floodplain and flood zone are critical to the long-term resiliency of the community.

Interruptions to Town Services and Facilities

Although not necessarily located in vulnerable areas, many critical facilities were impacted due to inundation of access roads, and power failures due to downed trees and power lines. Following Hurricane Irene, the West Nyack Post Office was closed for eight months. Although the Clarkstown Police Department was equipped with a generator, it failed, forcing the emergency service providers to relocate their base of operations to Pomona. Subsequently the Town applied for, and was awarded through the Hazard Mitigation Grant Program, funding for permanent diesel and natural gas-powered generators.

Stormwater infrastructure including culverts, drainage conveyance systems and roads were inundated, flooding entire areas of Town. The Town's Drainage Task Force maintains a prioritized list of infrastructure upgrade and replacement projects, which are implemented as funding becomes available through grants, and as allocated through the Town's Budget. However, significant additional resources are required to implement necessary improvements. Infrastructure repairs and enhancements are often the largest investments a community will make after a disaster. Rebuilding infrastructure in a manner that is more resilient is key to ensuring long term durability.

Repeated Flooding of Businesses

The Shops at Nanuet mall, the Palisades Center mall, and many large big-box retail and service outlets along the Route 59 corridor contribute significantly to the economy. Local retailers, restaurants, office, manufacturing, and service providers, which employ more than 30% of Clarkstown residents, are scattered throughout the hamlet centers. When businesses are inundated by floodwaters, or forced to close due to power outages, the impact to the local economy is profound.

In the wake of Hurricane Irene, West Nyack experienced significant flooding resulting in widespread and prolonged business closures. Although structural improvements along Route 59 were recently completed and the road was raised, the project did not include flood improvement initiatives and as result, still floods during periods of heavy rains. Businesses that are subject to repetitive flooding find it more and more difficult and expensive to repair and rebuild. Insurance coverage becomes exponentially more expensive with every claim that is filed, and in some cases refunds are denied. These challenges can eventually overwhelm local business and service providers, resulting in closure, relocation to other communities and in some cases property abandonment.

For residents, the loss of access to basic goods and services including food, medicine, gas for generators, and banking cripples the economy inhibiting recovery efforts. Because roadways are impassable for extended periods due to flooding, downed trees and power lines, residents are unable to access basic needs within their own neighborhoods, but also cannot travel to adjacent communities to procure critical necessities.

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

Road Closures

Roadway damage and the inability of residents or emergency service providers to travel unimpeded through the Town and the County is a huge obstacle to post-storm recovery efforts in Clarkstown. Prolonged road closures compromise the ability of emergency service providers to reach residents in need, and from accessing critical resources.

Water Flooding West Nyack Road after Hurricane Irene, August 28, 2011 (Michael Gach)

Flooding Near the Train Tracks during Hurricane Irene, August 27, 2011 (Mark Brecher)

Chronic flooding of Route 59, the closure of the northbound lane of the NYS Thruway and the literally hundreds of other roads that were impassable due to inundation, downed trees, and power lines creates short-term havoc, medium-term disruption, and long-term economic impacts.

The Clarkstown NYRCR Planning Committee identified impassable roads, regardless of the cause, as a critical issue requiring focused attention. Residents at the Public Engagement Event noted that the recently completed streetscape improvements around the government center in New City significantly improved the walkability of the area and recommended that similar pedestrian and bicycle friendly initiatives be implemented throughout the Town.

Widespread and Prolonged Power Outages

Widespread and prolonged power outages impact the operation of the entire community, including businesses, residences, and emergency services. Operating without power severely constrains Town facilities and inhibits recovery efforts. In addition, the economic impact of the loss of perishable goods can be devastating and is frequently not covered by insurance. So while the damage isn't necessarily physical, the impact can be enormous, especially to small businesses.

Since 1975, all new construction in Clarkstown requires burial of power lines. However, transmission and residential overhead power lines run through older areas of the Town. High winds from frequent summer thunderstorms damage large, mature trees in areas including, for example, along Havermill Road off New Hempstead Road, resulting in disruptions to power twice per month, on average. Following Superstorm Sandy, the Clarkstown Police Station and Town Hall were without power for eight days, forcing the relocation of the emergency communications operations to Pomona. The Town has since addressed this vulnerability with the installation of permanent generators at both locations.

In the past, widespread power outages that required attention from both utility providers (to secure live power lines) and Town emergency services workers (to remove downed trees and secure safe passage), were slow to be addressed due to disjointed and uncoordinated response efforts. Following the widespread power outages caused by Superstorm Sandy, the Town of Clarkstown recognized the need for an organized response plan coordinated with

representatives from O&R. To address that need, the Town prepared a response protocol, whereby an O&R representative remains in the Emergency Operations Center (EOC) in Clarkstown and Town Highway Department personnel are paired with an O&R representative to coordinate power line work and tree removal. Dispatching these key personnel in teams of two improves efficiency and eliminates the waiting game that inhibited recovery efforts in the past.

Additional measures need to be identified to address this critical issue including: the provision of generators, consideration of alternative energy sources and systematic tree maintenance protocols to ensure the health of the trees.

D. Community Vision

Clarkstown, the economic hub and Rockland County seat, is a safe, centrally-located, diverse and resilient Town. The community is a geographic crossroads between New York City, New Jersey, and the rest of New York State. The Town enjoys access to multi-modal transportation options, diverse housing choices, a variety of small and large commercial venues, and robust educational, recreational, and cultural facilities in a bicycle and pedestrian-friendly environment.

Clarkstown values and will continue to protect its natural resources including the Palisades Ridgeline, Hackensack and Hudson Rivers, wetland systems, and stream corridors that together provide significant benefits to the community including environmental and water quality protection, flood mitigation, recreational opportunities, and preservation of community character.

Our vision is to embrace and enhance the many strengths of our Town while planning for a more resilient community so that we may build back better from future disasters.

Vision and Goals Board from Public Engagement Event 1, July 30, 2014 (Elizabeth Matamoros)

The Clarkstown NYRCR vision statement was developed by the Committee with input from the community. The vision statement relies heavily on Committee Members' familiarity with Clarkstown, the needs of the community relative to the NYRCR geographic scope, and previous planning efforts. A draft of the vision statement was shared with the public at the first Public Engagement Event; feedback from that meeting was incorporated in the final vision statement. More information about public outreach can be found in Section V.C, "Public Engagement Process."

Through the visioning process, the Committee and the public worked to identify, assess, and conceptualize local and regional opportunities for Clarkstown. There was general agreement that the vision statement needed to not only describe the Town of the future, but also needed to identify specific ways to attain that vision. Hence, the Committee and the public prepared goals to help Clarkstown achieve their vision and build back better from future storm events. These goals were developed to address education, emergency preparedness, resilience, partnerships, and natural resource protection.

To realize the vision, Clarkstown NYRCR has developed the following goals:

- Augment emergency services including providing power during storm events;
- Build closer working relationships with the States of New York and New Jersey to address flooding issues associated with the Hackensack River;
- Continue to balance commercial, industrial and residential development with the preservation of open space and agricultural lands;
- Enhance infrastructure and stormwater systems where needed;
- Enhance multi-modal opportunities including safe bicycle and pedestrian facilities;
- Preserve the unique community fabric made up of rural, suburban, and urban settings; and
- Protect natural resources including the Hackensack and Hudson Rivers, wetland systems, stream corridors, and Clarkstown's lakes.

E. Relationship to Regional Plans

The storms and resulting damage from Hurricane Irene, Tropical Storm Lee, and Superstorm Sandy highlighted the need for coordinated planning initiatives and policies that can significantly contribute to long-term regional resilience. Many regional planning efforts have been undertaken both before and after the storms in the Mid-Hudson Region and in Rockland County. In 2013, the *Mid-Hudson Regional Sustainability Plan*[15] was released, presenting short-, mid-, and long-term goals and strategic sustainability priorities for the region's development. The Mid-Hudson Regional Economic Development Council also released a *5-Year Strategic Plan*[16] in 2011, which presented specific goals for the regional economy. In addition, Rockland County developed *Rockland Tomorrow: Rockland County Comprehensive Plan*[17] in 2011 and a *Hazard Mitigation Plan*[18] in 2010.

These regional planning efforts provide the foundation for the NYRCR planning process by identifying critical goals and in some cases specific programs and projects slated for future implementation. Although Committee Members were tasked with representing the interests of Clarkstown, they became increasingly aware of the importance of planning in a regional context. Community Members know the value of creating strategies that are consistent with and supportive of regional goals, including planning for the effects of severe storms and flooding. Many of the regional planning documents, including *Rockland Tomorrow: Rockland County Comprehensive Plan* (2011)[17] and the *Mid-Hudson Regional Sustainability Plan* (2013)[15], identified the need for focused coordination and cooperation among communities to achieve their goals. This sentiment is echoed by the Committee and their willingness to work toward the common goal of mitigating future flood damage and creating a more stable and climate resilient local and regional economy.

The Clarkstown NYRCR Planning Committee selected policies, projects, and programs that addressed critical needs essential to long-term resilience. Some of these initiatives may have been previously identified in completed plans, but had not yet been implemented.

Table I-1 presents all of the local and regional planning documents and resources that were considered. These documents were reviewed for information and data pertaining to the NYRCR planning process and to assist in the identification of goals, needs, opportunities, and potential projects and strategies that could be implemented to help Clarkstown build back better. Regional goals from the plans that have been incorporated into the NYRCR Plan are listed along with a brief description of how the NYRCR Plan relates to or builds upon the regional plans. The findings are summarized in Table I-1.

The goal of this comprehensive document review was to avoid duplication of existing planning studies, recognize gaps, and assess the potential synergies between local and regional needs and opportunities. In doing so, the Committee considered how the NYRCR Plan would support and incorporate regional goals and perspectives.

Key shared local and regional challenges identified by the existing plan review included:

- Lack of effective planning for the effects of climate change, including severe storms and flooding, which result in costly damage to infrastructure, life, and health;
- Lack of available funding restricts County, State, and Federal agencies responsible for infrastructure maintenance, repair, and reconstruction from implementing long-term plans;
- Lack of sufficient coordination and cooperation between municipalities and various Local, State, and Federal agencies to decrease vulnerability and increase resilience; and
- Need for additional upgrades and repair of infrastructure to address areas of chronic flooding, reduce roadway and culvert repair costs and limit road closures.

The development of actions, strategies and projects through the NYRCR planning process support many of the goals set forth in the various previously completed local and regional plans.

Table I-1: Local and Regional Plans

Plan	Author	Date	Relevance	Key Components for NYRCR Process
Local Plans				
Town of Clarkstown Stormwater Management Program Plan	Town of Clarkstown	2004	Goals for protecting water quality and managing water quantity of stormwater runoff in the Town.	Map of major streams and waterways, list of impaired water bodies. Comprehensive public outreach and education program.
Environmental Resource Assessment – Town of Clarkstown	Ecological & Geospatial Services	2008	Inventory of natural resources and outline of conservation efforts for watersheds, forests, and landscapes in the Town.	Habitat and land use data and maps, soil inventory, description of stresses due to stormwater flows. Goals for wetland buffers and invasive species plans.

Table I-1: Local and Regional Plans (cont'd)

Plan	Author	Date	Relevance	Key Components for NYRCR Process
Town of Clarkstown Economic Development Strategy	Economic Development Strategy Advisory Committee with assistance from Saratoga Associates	2008	Extensive analysis of existing business and identification of potential areas for expansion. Analysis of potential growth for both commercial and residential sectors looking at land use and development opportunities.	Demographic data and trends, expansion plan for water supply in the Town, current capacity of sewer/ utilities, mapping of land use and areas for proposed development
Town of Clarkstown Recreation & Parks Master Plan	Clarkstown Parks Board & Recreation Commission with assistance from C.T. Male Associates, P.C.	2008	Planning, programming and implementation to develop and expand upon Clarkstown's extensive parks and recreational facilities and services. Intended to augment Comprehensive Plan	Demographic data and trends, parks and recreation inventory, community preferences and priorities regarding parks and recreation, Goal/ Recommendation for adequate drainage in parks
Town of Clarkstown Comprehensive Plan	Town of Clarkstown	2009	Community vision and goals for long-term growth and development in the Town, focusing on economic development, environmental resources, health, safety and welfare, historic and cultural resources, housing, recreation, parks & open space, transportation.	Community vision; background data; goals and objectives for each subject area; implementation methods and actions
Clarkstown Comprehensive Transportation Plan Final Report	Town of Clarkstown Planning Department with assistance from Cambridge Systematics, Inc.	2009	Overview of existing roads and transportation programs, and identification of target areas for expansion and improvement. Includes extensive bicycle and pedestrian study.	Roadway design must plan for stormwater with paving and catch basins to address runoff. Alternative deicing strategies to protect water quality. Need to publicize emergency evacuation routes. Prioritizes bicycle and pedestrian facilities development.
Clarkstown Police Department Annual Report	Clarkstown Police Department	2013	Statistical inventory and narrative detailing organization of, and activities and actions by the Clarkstown Police Department.	Description of response teams and points of contact for emergency events.
Clarkstown Comprehensive Emergency Management Plan	Town of Clarkstown	2014	Comprehensive emergency operations plan for coordinating emergency response and recovery before and during disasters and minimizing their impact.	Detailed management responsibilities and operating procedures for each coordinator before and during emergency and disaster events, including use of the Incident Command System (ICS); centralized direction of requests for assistance to the County and the State; information on the functioning of the Command Center and Emergency Operations Center; detailed information on hazard mitigation and recovery procedures; details and Q+A on declaring a State of Emergency.

Table I-1: Local and Regional Plans (cont'd)

Plan	Author	Date	Relevance	Key Components for NYRCR Process
Regional Plans				
Rockland County Hazard Mitigation Plan	Rockland County Office of Fire and Emergency Services with assistance from URS	2010	Extensive analysis of hazards that threaten the County and ways to reduce future damages associated with these hazards.	Demographic data; examples of outreach activities; inventory of hazards and risks including flooding/ storm surge, dam failures, earthquakes, wildfires; summary of FEMA Flood data; National Flood Insurance Program (NFIP) Policy and Claim info; mapping of repetitive loss clusters; summary of historical flood events; inventory of critical and emergency facilities, historical and cultural resources; annual loss estimates for each hazard; land use and development trends questionnaire; regulatory capabilities/ resources; list of prioritized actions.
Mid-Hudson Regional Economic Development Council Strategic Plan	Mid-Hudson Region Economic Development Council	2011	Regional economic development strategy and vision for the Mid-Hudson Region that illustrates regional trends, goals, and strategies for desirable growth in the region.	Regional context, goals, aspirations; no discussion of impacts of flooding or storm resiliency; no specific discussion of Clarkstown.
Rockland Tomorrow: County Comprehensive Plan	Rockland County Technical Advisory Committee with assistance from BFJ Planning	2011	County-wide trends and priorities with a focus on development, the economy, and conservation. Includes list of County recommendations and implementation.	Description of Clarkstown land use, mapping of open space, historic resources, community and emergency resources. Identification of watershed areas, surface water issues and regulated streams, Geographic Information System (GIS) data, flood hazards.
Draft Hudson River Estuary Habitat Restoration Plan	Hudson River Estuary Program	2013	General strategies for restoring habitat in the lower Hudson River with description of habitat types along the river.	Description of habitat types along river; does not describe specific projects or locations; no specific discussion of Clarkstown.
Mid-Hudson Regional Sustainability Plan	Mid-Hudson Planning Consortium with assistance from Ecology and Environment, Inc.	2013	Vision for sustainable development that builds on the Region's resources with the goal of promoting economic development, environmental sustainability and enhancing quality of life. Developed strategies, objectives and priority initiatives to achieve the vision.	Regional context, goals, initiatives; very limited discussion of flooding/ natural hazards; no specific discussion of Clarkstown.
Scenic Hudson Sea Level Rise Mapper	Scenic Hudson	2013	Interactive mapper that provides floodplain and inundation data in combination with local assets, hazardous materials sites, wetlands and submerged aquatic vegetation habitats.	Data can be used in Hudson shoreline assessments.

2014
NY RISING COMMUNITY RECONSTRUCTION PLAN

CLARKSTOWN NYRCR

Section II
Assessment of Risk and Needs

II Assessment of Risk and Needs

A. Description of Community Assets and Assessment of Risk

i. Description of Community Assets

An important component of the NY Rising Community Reconstruction (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 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; and
- Natural and Cultural Resources.

The Clarkstown NYRCR Community (Community) 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. 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, neighborhood 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.

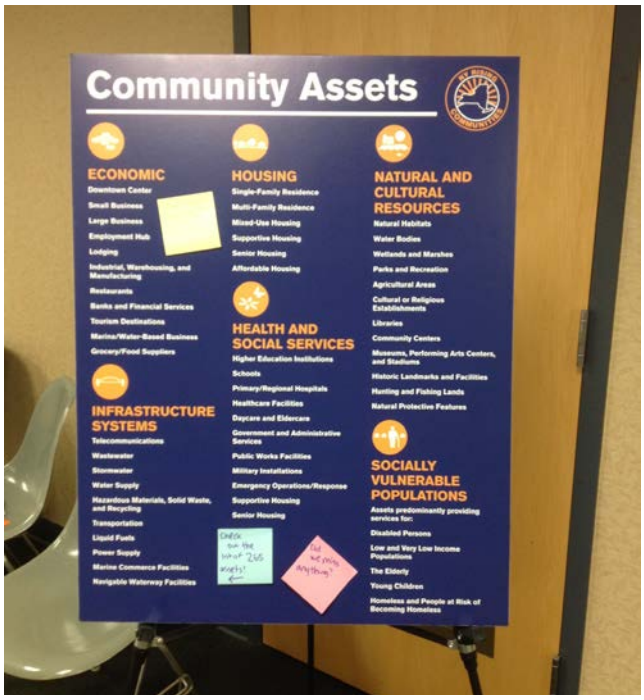
Information was added for each asset, including address, geographic coordinates, risk area, asset class and subcategory, community value, critical facility designation, and whether the asset served socially vulnerable populations, including children, the elderly, and low-income community members. The complete asset inventory can be found in Table V-4 in Section V.D, “Community Asset Inventory.” Addresses and geographic coordinates pinpoint the location of assets for mapping, and once mapped allow for risk area identification. Assets were grouped into five larger classes: economic, health and social services, housing, infrastructure, and natural and cultural resources. They were further categorized into subcategories such as “Large Business” and “Single Family Residence.” The Clarkstown NYRCR Planning Committee (Committee) initially identified the overall importance of each asset to the Clarkstown Community. In addition, the Federal Emergency Management Agency (FEMA) critical facility designations identified assets considered essential to recovery following a flood or storm event. Assets that provide services for socially vulnerable populations were also identified as they are particularly important both before and following a storm. In addition, spatial analysis was used to capture landscape attributes, or features of the landscape around that asset that could either mitigate or exacerbate the impacts of flooding and erosion to an asset.

A two-tiered asset inventory methodology was developed and utilized to ensure collection of a comprehensive inventory. The first tier of the methodology involved culling existing digital datasets and the second tier used local knowledge to refine the list of assets. The preliminary asset inventory and mapping was reviewed by the Town Planning and Geographic Information System (GIS) Departments, the Committee for refinement and by community residents at Public Engagement Events to gain their input and capitalize on their intrinsic understanding of their community. The dataset analysis supplemented the work of the 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. These assets only become obvious when they fail, such as small roadway bridges and smaller government service offices. In addition, assets that may have not been captured in the existing digital datasets or for which digital data did not exist were enumerated by the community at public meetings. The full asset inventory is shown in Figure II-1. Figures II-3 to II-6 show the assets located in each hamlet and organized by Recovery Support Function (RSF).

The six NYRCR Recovery Support Functions were established by President Obama in 2011 through the National Disaster Recovery Framework (NDRF). The objective of the Recovery Support Functions is to facilitate the identification, coordination and delivery of Federal assistance needed to supplement recovery resources and efforts by local, State, Tribal and Territorial governments, as well as private and nonprofit sectors. Each RSF is further defined in Section II.B, "Assessment of Needs and Opportunities."

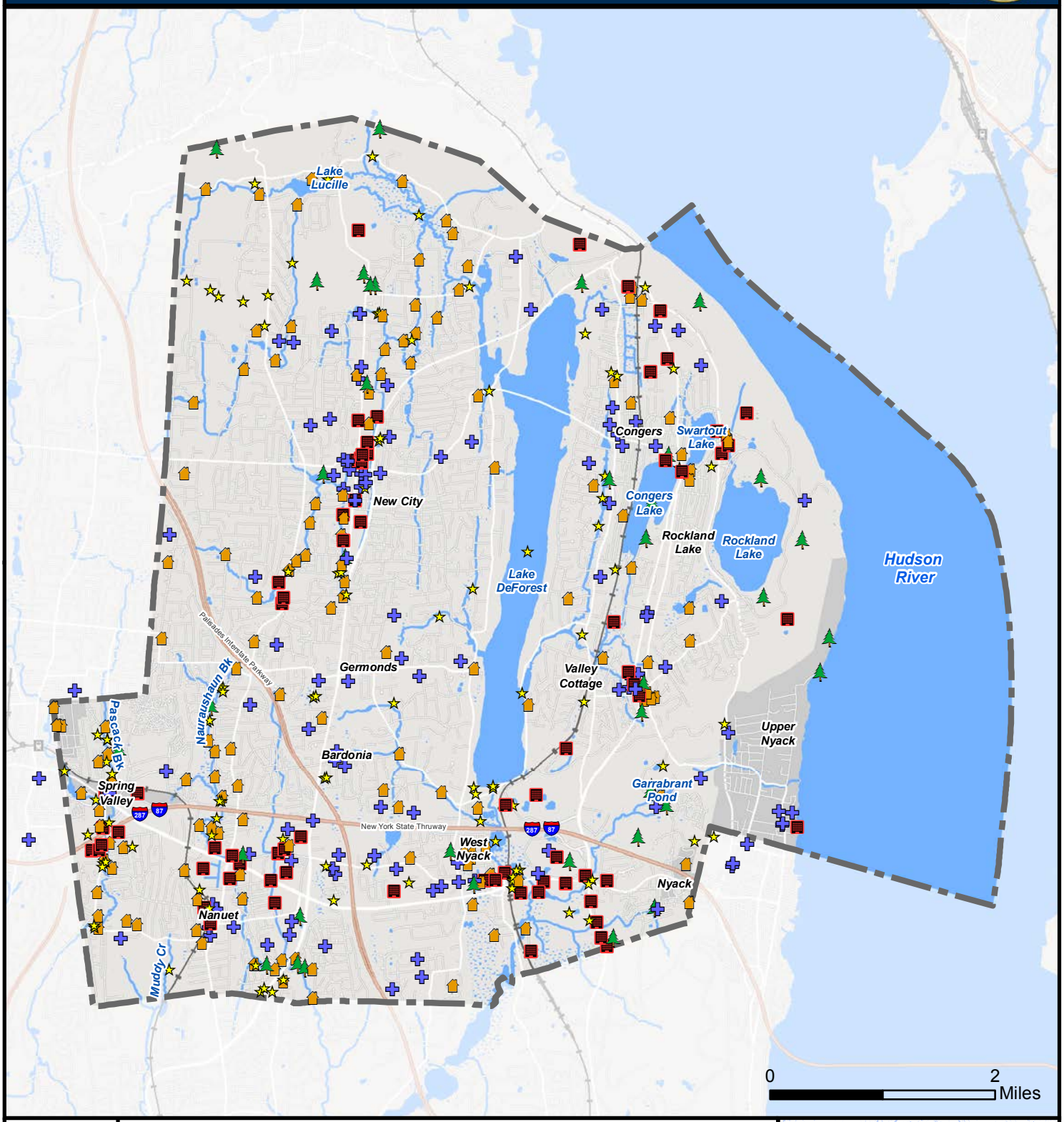
The RSFs were designed to "support local governments by facilitating problem solving, improving access to resources and by fostering coordination among State and Federal agencies, nongovernmental partners and stakeholders."[19]

Asset Mapping Workstation at Public Engagement Event 1 – July 30, 2014 (Arch Street Communications)



Clarkstown Community Asset Board at Public Engagement Event 1 – July 30, 2014 (Arch Street Communications)

Figure II-1
Asset Inventory - Town of Clarkstown



N

Legend

- Town of Clarkstown (Study Area)
- Village
- Rail Station
- Railroads

Assets

- Economic
- Health and Social Services
- Housing
- Infrastructure Systems
- Natural and Cultural Resources
- Major Highways
- Rivers & Streams
- Wetlands
- Water Bodies

Data Sources

ESRI, NYSITS, Rockland County, Town of Clarkstown

Community Value Scoring

As part of the asset inventory process, a Community Value was assigned to the assets. Committee Members participated in an exercise assigning Community Values of High, Medium or Low to asset subcategories. Committee Members were asked to give special attention to assets whose loss or impairment would compromise critical facilities or any essential cultural, social, economic, or environmental functions of the Community. Community value for each asset is listed in Section V.D, "Community Asset Inventory."

General criteria for High, Medium, and Low Community Values were defined by the Committee as follows:

- **High:** Asset(s) that are 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.
- **Medium:** Asset(s) that are important to the functioning of that 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 whose function could be replaced or duplicated in a mid-term time frame without significant burden to a community's long-term health.
- **Low:** Asset(s) that 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.

The Committee Members' responses were then compiled; the value receiving the most member votes was then assigned to all assets within that subcategory. A summary of the results from the exercise are shown in Table II-1.

Risk Area Identification

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

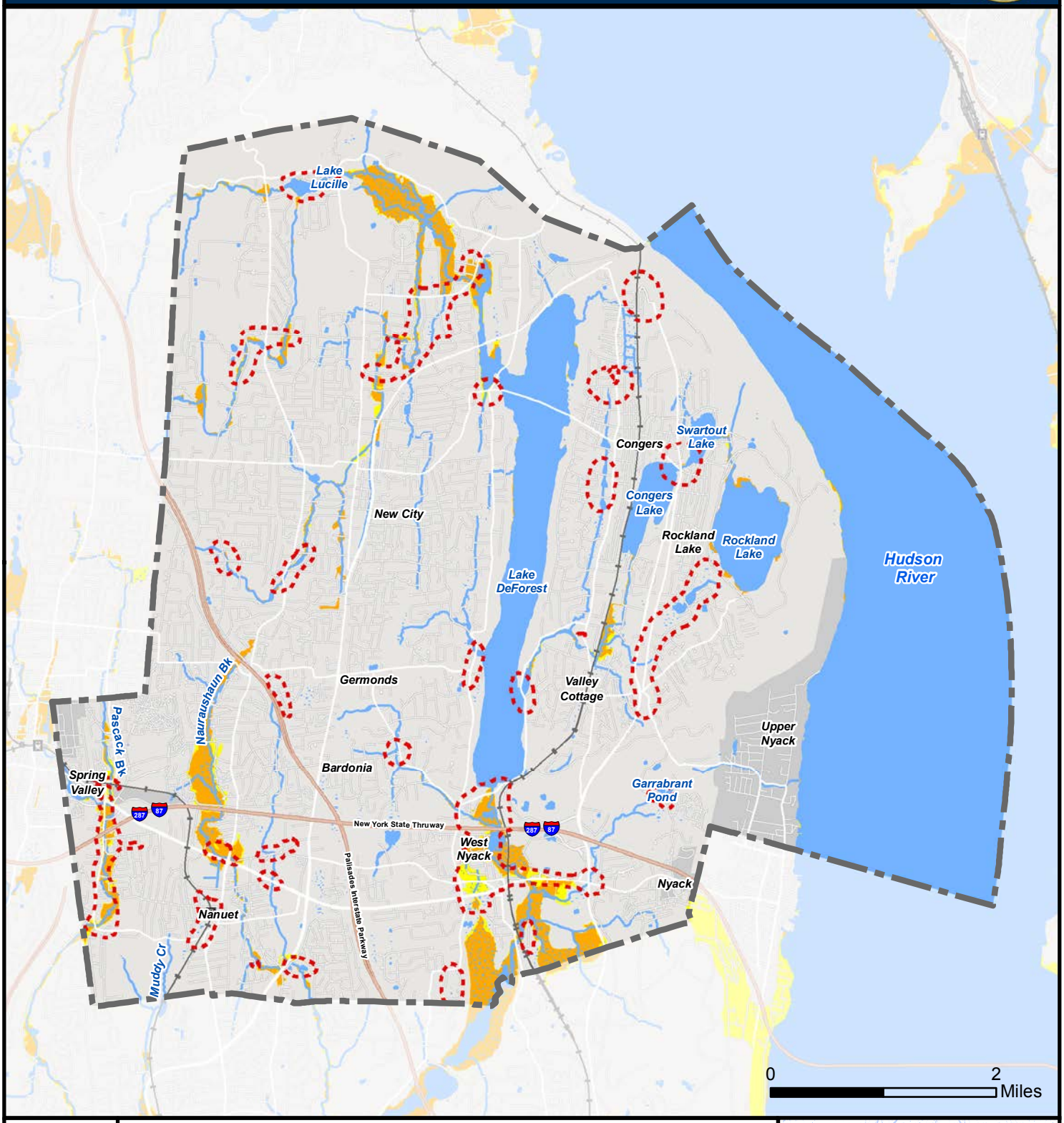
- **Extreme Risk Area:** The most frequently flooded areas are typically found in the 10-year floodplains, which encompass the Extreme Risk Area. In Clarkstown, the 10-year floodplain had not been digitally modeled by FEMA. Input from members of the Committee and the community as to which places have been repetitively inundated and damaged by flooding was used to approximately identify the Extreme Risk Areas within the Town. These areas include portions of the floodplain repeatedly impacted by past storms in the hardest-hit areas of the Community.
- **High Risk Area:** The 100-year floodplains encompass the High Risk Area, and are subject to a 1.0% chance of flooding in any given year. These flood-zones had been digitally mapped by FEMA in Clarkstown, 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 Clarkstown planning area.
- **Moderate Risk Area:** The 500-year floodplains encompass the Moderate Risk Area, and are subject to a 0.2% chance of flooding in any given year. These flood-zones had also been digitally mapped by FEMA in Clarkstown, 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 RSF as follows. Figure II-2 illustrates the Town of Clarkstown Risk Areas.

Table II-1: Asset Subcategory and Community Value

Asset Subcategory	Community Value
Homes and Facilities for Vulnerable Populations*	High
Fire, Police, Emergency Facilities	High
Hospitals	High
Storm Sewer Infrastructure	High
Sanitary Sewer Infrastructure	High
Electric and Gas Infrastructure	High
Communications Infrastructure (Internet, Cellular, Telephone, Cable)	High
Major Roads	High
Government Buildings	Medium
Housing	Medium
Town Department of Public Works	Medium
Business Areas (other than Downtown Business)	Medium
Secondary Roads	Medium
Railroad	Medium
Lakes	Low
Wetlands	Low
Creeks and Rivers	Low
Marinas	Low
Historic Buildings	Low
Cultural/Community Centers	Low
Parks and Recreation Facilities	Low
Industrial Areas	Low
Major Employers	Low
Downtown Business District	Low
Elementary and Secondary Schools	Low
Post-Secondary Schools	Low
Notes: *Vulnerable Populations are defined as people with disabilities, low and very-low income populations, elderly, young children, homeless people and people at risk of becoming homeless and people with limited English proficiency.	

Figure II-2
Risk Areas - Town of Clarkstown



N

Legend

- Town of Clarkstown (Study Area)
- Village
- Railroads
- Rail Station
- Extreme Risk Area* (repetitively flooded)
- Major Highways
- Rivers & Streams
- Wetlands
- Water Bodies

FEMA Floodzones

- High Risk Zone (100-year flood)
- Moderate Risk Zone (500-year flood)

*Extreme Risk Areas identified by Planning Committee

Data Sources

ESRI, FEMA, NYSITS, Rockland County, Town of Clarkstown

Economic Assets

Assets in the Economic category include downtown centers, business clusters, major employers, industrial and manufacturing centers, and tourism destinations. Protecting and enhancing the downtown centers and commercial areas from flood impacts is important to the economic health of the Town. There are no economic assets considered FEMA Critical Facilities. Twenty-nine assets are located in the extreme risk areas including seven large business areas, seven industrial/manufacturing facilities, and 15 small businesses.

Figures II-1 through II-6 illustrate the risk areas and assets, in detail, found within the Clarkstown Planning Area. Tables II-2 lists the Economic assets, organized by Asset Subcategories and by Risk Area from Extreme to Low. The complete community asset inventory, which includes addresses of asset locations, can be found in Table V-4 in Section V.D, "Community Asset Inventory."

Table II-2: Economic Assets

Asset Name	Risk Area
Downtown Centers and Large Businesses	
East NYS Rte. 59 Businesses	Extreme
NYS Rte. 59 / NYS Rte. 303 Businesses	Extreme
Old Middletown Road Businesses	Extreme
Rite Aid, Valley Cottage	Extreme
Rockland Plaza Shopping Center, Nanuet	Extreme
W Nyack Road / Demarest Mill Rd Large Businesses	Extreme
West Prospect Street Businesses	Extreme
Esquire Village Office Condominium	High
The Shops at Nanuet	Moderate
Clarkstown Plaza	Low
Hub Shopping Center, Central Nyack	Low
Kohl's Shopping Plaza, Nanuet	Low
Lake Ridge Plaza, Valley Cottage	Low
Little Tor Shopping Center	Low
N Main Business District, New City	Low
Newton Place Shopping Center	Low
Palisades Center Mall, West Nyack	Low
Palisades Volvo/Mazda	Low
Rockland Center Strip Mall	Low
Rte 304 at Demarest Mill Road Businesses	Low
S Main Business District, New City	Low
Spring Valley Marketplace Shopping Center	Low

Table II-2: Economic Assets (cont'd)

Asset Name	Risk Area
Industrial, Warehousing and Manufacturing	
Beckerle Lumber & Supply, Congers	Extreme
Clean Vehicle Solutions, West Nyack	Extreme
Plastic Craft Products Corporation, West Nyack	Extreme
Public Storage, Inc., Soring Valley	Extreme
Rockland Masonry & Landscape	Extreme
Snake Hill Road Businesses, West Nyack	Extreme
Weill Warehouse, Nanuet	Extreme
Corporate Way / Executive Boulevard Businesses	High
ABC Supply Co., Inc., Valley Cottage	Low
Bram Manufacturing, Congers	Low
Brenner Drive Businesses	Low
Cambridge University Press, West Nyack	Low
General Bearing Corporation, West Nyack	Low
Kohl Industrial Park, Congers	Low
TILCON - West Nyack Stone Processing	Low
TILCON Quarries Haverstraw Plant, New City	Low
UPS Spring Valley Facility	Low
Lodging, Marinas, Restaurants, and Tourist Destinations	
McDonald's, New City	High
Petersen Boat Yard & Marina, Upper Nyack	High
Green Inn Motel On the Lake, Congers	Low
Italiana's Restaurant, New CIty	Low
Paramount Country Club, New City	Low
Rockland Lake Championship Golf Course, Congers	Low
Rockland Lake Executive Golf Course, Valley Cottage	Low
Banks/Financial Services and Grocery/Food Suppliers	
ShopRite of West Nyack	High
Chase Bank, New City	Moderate
ShopRite of New City	Moderate
ShopRite Parking Lot Undermined Area, New City	Moderate
Super Stop & Shop, Nanuet	Low

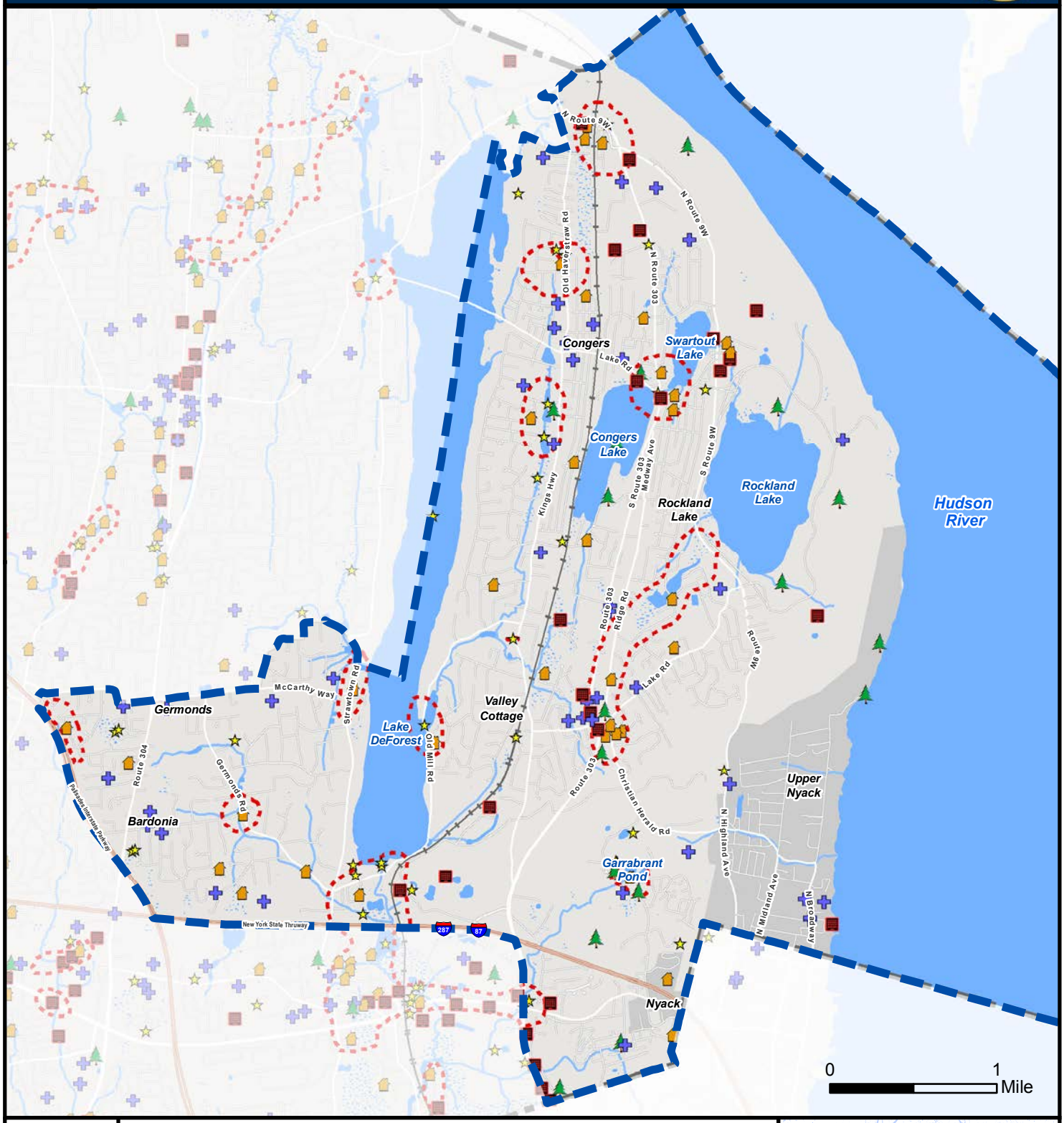
Table II-2: Economic Assets (cont'd)

Asset Name	Risk Area
Small Businesses	
All County Motors, Nanuet	Extreme
Cool Pool & Spa, Nanuet	Extreme
Green Gate Market	Extreme
Lake Road Small Businesses	Extreme
New City Lawn Mower	Extreme
NYS Rte. 303 / Lake Road Small Businesses	Extreme
NYS Rte. 59 Businesses	Extreme
Old Nyack Turnpike Businesses	Extreme
Pascack Plaza, Spring Valley	Extreme
Perlman Drive Office Building	Extreme
Townhouse Office Park,Nanuet	Extreme
W Nyack Rd Mini Mall	Extreme
W Nyack Road / Demarest Mill Rd Small Businesses	Extreme
W Nyack Rd/ Klein Ave Mini Mall	Extreme
W Nyack Road Small Businesses	Extreme
Better Homes and Gardens Rand Reality/Hudson United Insurance, New City	High
East NYS Rte. 59 Commercial Corridor	High
NYS Rte. 303 Small Businesses (auto-related)	High
Fesco Fence Corporation, West Nyack	Moderate
Getty Gas Station, New City	Moderate
L&N Cabinets & Furniture, Spring Valley	Moderate
New City Bowl & Batting Cages	Moderate
Snow Church Realty Storage Building, Congers	Moderate
Eidman Agency Inc., West Nyack	Low

Economic Asset: Palisades Center Mall (Elizabeth Matamoros)

Economic Asset: Plastic Craft Productions (Elizabeth Matamoros)

Figure II-3
Asset Inventory - Eastern Clarkstown Area



N

Legend

- Eastern Clarkstown Area
- Village
- Railroads
- Wetlands
- Water Bodies

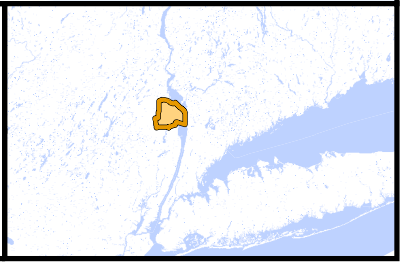
Assets

- Economic
- Health and Social Services
- Housing
- Infrastructure Systems
- Natural and Cultural Resources
- Major Highways
- Extreme Risk Areas*

Data Sources

ESRI, NYSITS, Rockland County, Town of Clarkstown

*Extreme Risk Areas (repetitively flooded) identified by Planning Committee



Health and Social Services Assets

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, reception centers, post offices, and Town 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. Fourteen assets are located in extreme risk areas including a senior care facility, a day-care facility, two ambulance services, an existing and proposed fire station, three post offices, two health centers and two schools. 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. Figures II-1 to II-6 illustrate the risk areas and assets, in detail, found within the Clarkstown Planning Area. Table II-3 lists the Health and Social Services assets, organized by Asset Subcategories and by Risk Area from Extreme to Low. The complete community asset inventory, which includes addresses of asset locations, can be found in Table V-4 in Section V.D, "Community Asset Inventory."

Table II-3: Health and Social Services Assets

Asset Name	Risk Area
Emergency Operations/Response	
Congers-Valley Cottage Vol. Ambulance Corps.	Extreme
Nanuet Community Ambulance Corps.	Extreme
Nanuet Fire Station 1	Extreme
PROPOSED Nanuet FD Facility	Extreme
West Nyack Fire Station 2	Extreme
Congers Fire Station 1	High
Central Nyack Fire Station	Low
Congers Fire Station 2	Low
East Spring Valley Fire Station	Low
Nanuet Fire Station 2	Low
New City Fire Station	Low
New City Vol. Ambulance Corps. & Rescue Squad	Low
Nyack Community Ambulance Corps.	Low
Nyack Fire Station	Low
Rockland Lake Fire Station	Low
Rockland Mobile Care	Low
Rockland Paramedic Services	Low
Town of Clarkstown Police HQ	Low
Valley Cottage Fire Station	Low
West Nyack Fire Station 1	Low
Daycare and Eldercare	
Companions Plus Senior Care	Extreme
Tiny Toe's Day Care, Valley Cottage	Extreme

Table II-3: Health and Social Services Assets (cont'd)

Asset Name	Risk Area
Annmarie Meehan Inc	Low
AuPairCare	Low
Busy Bee Playschool	Low
Clarkstown Kids Childcare	Low
Giving Tree Family Day Care - Nanuet Day Care	Low
Home Instead Senior Care	Low
Kids Clubhouse Daycare	Low
Kids Kingdom	Low
Kreative Kids	Low
Little Ones Playhouse, LLC	Low
Little People's Palace	Low
Loving Angels Child Care	Low
Mazel Day Care	Low
Pigtails Nursery	Low
Playgarten	Low
Prime Time For Kids	Low
Shining Stars Early Child Care	Low
Tutor Time	Low
Tutor Time Child Care	Low
Public Works Facilities	
NYS DOT New City Facility	Low
NYS DOT West Nyack Facility	Low
Town of Clarkstown Highway Garage	Low
Upper Nyack Village Highway Garage	Low
Government and Administrative Services	
Nanuet Post Office	Extreme
Valley Cottage Post Office	Extreme
West Nyack Post Office	Extreme
Rockland County Division of Probation & Correctional Alternatives	High
NYS Department of Labor	Moderate
NYS Office of Child and Family Services	Moderate
Planned Parenthood	Moderate
Rockland County Correctional Facility	Moderate
Rockland County Real Property Offices	Moderate
ARC of Rockland	Low
Bardonia Post Office	Low
Clarkstown Town Hall	Low
Congers Post Office	Low
New City Post Office	Low

Table II-3: Health and Social Services Assets (cont'd)

Asset Name	Risk Area
Palisades Center Post Office	Low
Upper Nyack Village Hall	Low
US Division of Veteran's Affairs	Low
Healthcare Facilities and Hospitals	
Jawonio Health Center, New City	Extreme
Mental Health Assoc. of Rockland Co.	Extreme
Renal Care of Rockland, Inc., Valley Cottage	Extreme
United Hospice of Rockland, New City	High
Mid Rockland Imaging Partners, Inc., New City	Moderate
Advanced Cardiovascular Care	Low
Animal Medical of New City	Low
Helen Hayes Outpatient Rehab Clinic	Low
Integrated Medical Professionals	Low
New City Community Clinic	Low
Nyack Hospital	Low
Nyack Hospital Alcohol & Substance Abuse Clinic	Low
Rockland Cardiology	Low
Salvation Army Adult Rehab Center, West Nyack	Low
Summit Park Hospital Alcohol & Substance Abuse Clinic	Low
Valley Cottage Animal Hospital	Low
Schools	
Strawtown Elementary School, West Nyack	Extreme
Woodglen Elementary School, New City	Extreme
A MacArthur Barr Middle School	Low
Albertus Magnus High School	Low
Bardonia Elementary School	Low
Birchwood School	Low
Blue Rock School	Low
Chestnut Grove School	Low
Clarkstown North Senior High School	Low
Clarkstown South Senior High School	Low
Congers Elementary School	Low
Felix Festa Middle School	Low
Highview Elementary School	Low
Hillcrest Elementary School (closed)	Low
Lakewood Elementary School	Low
Laurel Plains Elementary School	Low
Liberty Elementary School	Low
Link Elementary School	Low

Table II-3: Health and Social Services Assets (cont'd)

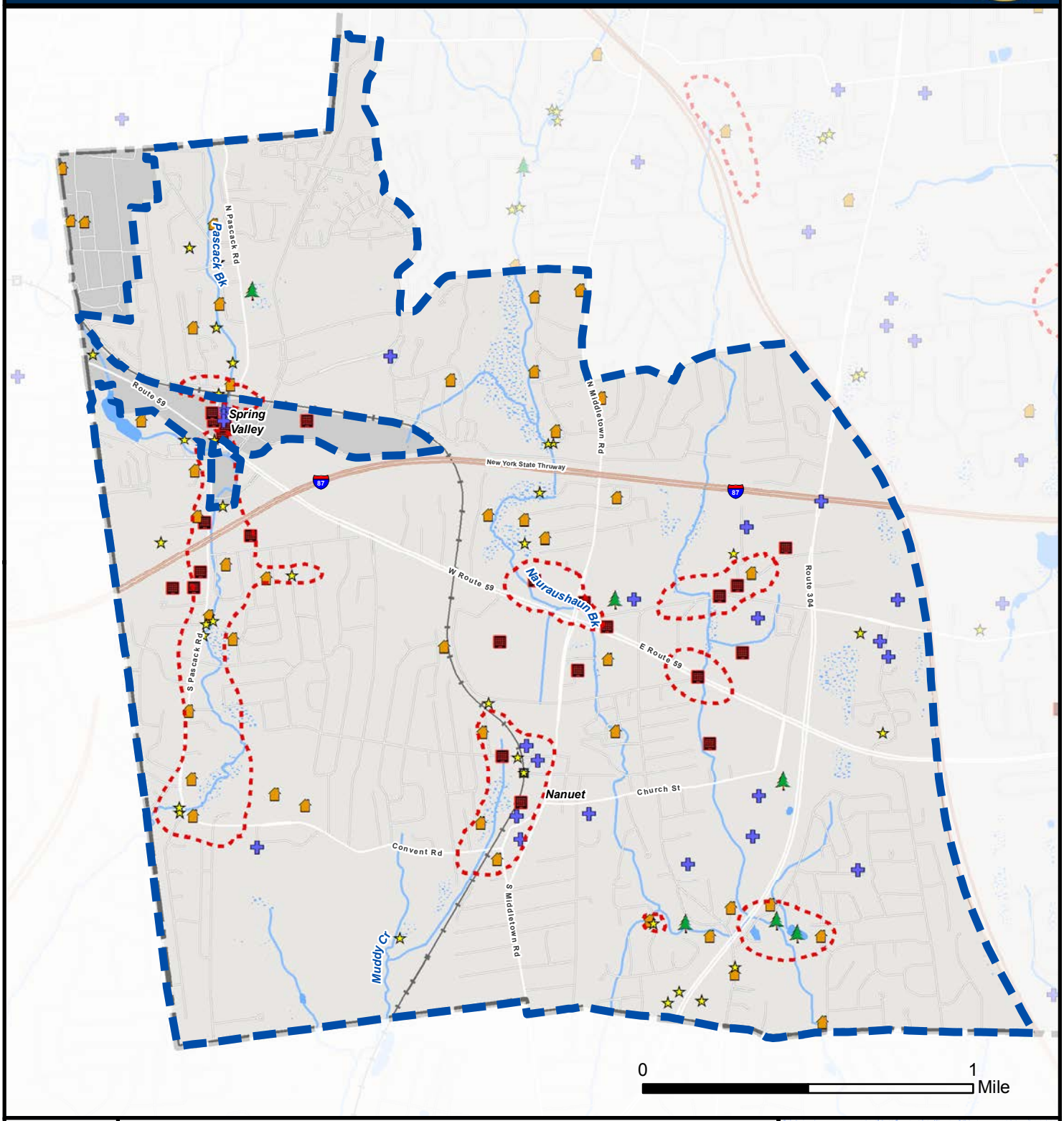
Asset Name	Risk Area
Little Tor Elementary School	Low
Miller Elementary School	Low
Nanuet School District Outdoor Education Center	Low
Nanuet Senior High School	Low
New City Elementary School	Low
Nyack High School	Low
Rockland BOCES	Low
Rockland Country Day School	Low
St. Anthony's School	Low
St. Paul's Christian Day School	Low
St. Paul School	Low
St. Augustine School (closed)	Low
The Summit School at Nyack	Low
Upper Nyack Elementary School	Low
Valley Cottage Elementary School	Low
West Nyack Elementary School	Low

Health and Social Services Asset: Pascack Community Center (Elizabeth Matamoros)

Health and Social Services Asset: West Nyack Fire Station (Elizabeth Matamoros)

Health and Social Service Asset: West Nyack Post Office (Elizabeth Matamoros)

Figure II-4
Asset Inventory - Nanuet Area



N

Legend

- Nanuet
- Village
- Railroads
- Wetlands
- Water Bodies

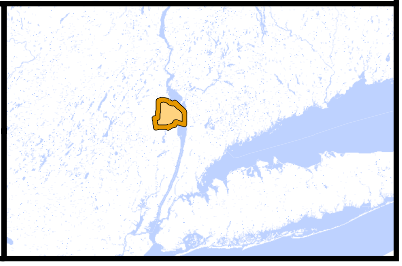
Assets

- Economic
- Health and Social Services
- Housing
- Major Highways
- Infrastructure Systems
- Natural and Cultural Resources
- Extreme Risk Areas*

Data Sources

ESRI, NYSITS, Rockland County, Town of Clarkstown

*Extreme Risk Areas (repetitively flooded) identified by Planning Committee



Housing Assets

A significant number of residential assets within the Town are at risk of future flooding. These assets include single-family and multi-family neighborhoods. Assets in extreme risk areas include an affordable housing area, 10 multi-family residences, two senior housing facilities, a supportive housing facility, and 49 clusters of single-family homes. Affordable, senior and supportive housing assets are considered FEMA Critical Facilities.

Figures II-1 to II-6 illustrate the risk areas and assets, in detail, found within the Clarkstown Planning Area. Table II-4 lists the Housing assets, organized by Asset Subcategories and by Risk Area from Extreme to Low. The complete community asset inventory, which includes addresses of asset locations, can be found in Table V-4 in Section V.D, "Community Asset Inventory."

Housing Asset: Cranford Drive Residential Neighborhood (Elizabeth Matamoros)

Table II-4: Housing Assets

Asset Name	Risk Area
Affordable Housing	
Spring Valley Village Mobile Home Park	Extreme
Lakeview Village Apartments, Spring Valley	High
Lawrence Street Affordable Housing, Congers	Low
N Middletown Road Affordable Housing, Nanuet	Low
Multi-Family Residence	
Cedar Grove Corners Condominiums, New City	Extreme
Christian Herald Road Apartments, Valley Cottage	Extreme
Hidden Valley Condominiums, New City	Extreme
High Street / W Nyack Road Homes, West Nyack	Extreme
New City Condo Complex	Extreme
New Holland Village Condominiums, Nanuet	Extreme
Swartout Lake Condominiums, Congers	Extreme
Tudor Hill Condominiums, Nanuet	Extreme
Turnpike Woods Condominiums, Nanuet	Extreme
W Nyack Rd Apts & Condos	Extreme
Braemar Lane Condominiums, New City	High
Bridgewater Condominiums, Congers	High
Normandy Village Apartments, Nanuet	High
Town Hill Condominiums, Nanuet	High
Virginia Street / Braemar Court Homes	High
W Cavalry Dr Apartments, New City	High
Eaves Apartments, Bardonia	Moderate
Gramercy Park Apartments,Nanuet	Moderate

Table II-4: Housing Assets (cont'd)

Asset Name	Risk Area
Senior Housing	
Nyack Manor Nursing Home, Valley Cottage	Extreme
Spring Valley Rest Home	Extreme
Squadron Garden Apartments, New City	High
Evergreen Court, Spring Valley	Low
Hyenga Lake Apartments, Spring Valley	Low
L'dor Assisted Living, New City	Low
Middlewood Apartments, Nanuet	Low
Monterey Gardens, Nanuet	Low
Northern Manor Multicare Center, Nanuet	Low
Seton Village, Nanuet	Low
Sunrise of New City	Low
Tappan Zee Manor, Nyack	Low
Supportive Housing	
Children's Village Home, Congers	Extreme
Camp Venture - Kenneth P. Zebrowski Center	Low
Camp Venture Home #1	Low
Camp Venture Home #2	Low
Loeb House Group Home	Low
OPWDD Nanuet Group Home	Low
OPWDD New City Group Home #1	Low
OPWDD New City Group Home #2	Low
OPWDD Valley Cottage Group Home #1	Low
OPWDD Valley Cottage Group Home #2	Low
OPWDD West Nyack Group Home	Low
Tolstoy Foundation Rehab and Nursing Center	Low
Single-Family Residence	
Adele Road Homes, West Nyack	Extreme
Charles Street to Freedman Avenue Homes, Nanuet	Extreme
Christian Herald Road/ Lake Road Homes, Valley Cottage	Extreme
Collyer Avenue Homes, New City	Extreme
Congers Road / Goebel Road Homes	Extreme
Convent Rd / Newport Dr / Morgan Ct Homes, Nanuet	Extreme
Corners Road Homes, New City	Extreme
Cranford Drive / Termakay Drive Home, New City	Extreme
Cranford Drive Homes, New City	Extreme
Cypress Street / Cranford Drive Homes, New City	Extreme
Demarest Mill Road Home, Nanuet	Extreme
East Allison Avenue Homes	Extreme
E Hall Avenue / S Little Tor Road Homes	Extreme
Fisher Ave Homes	Extreme

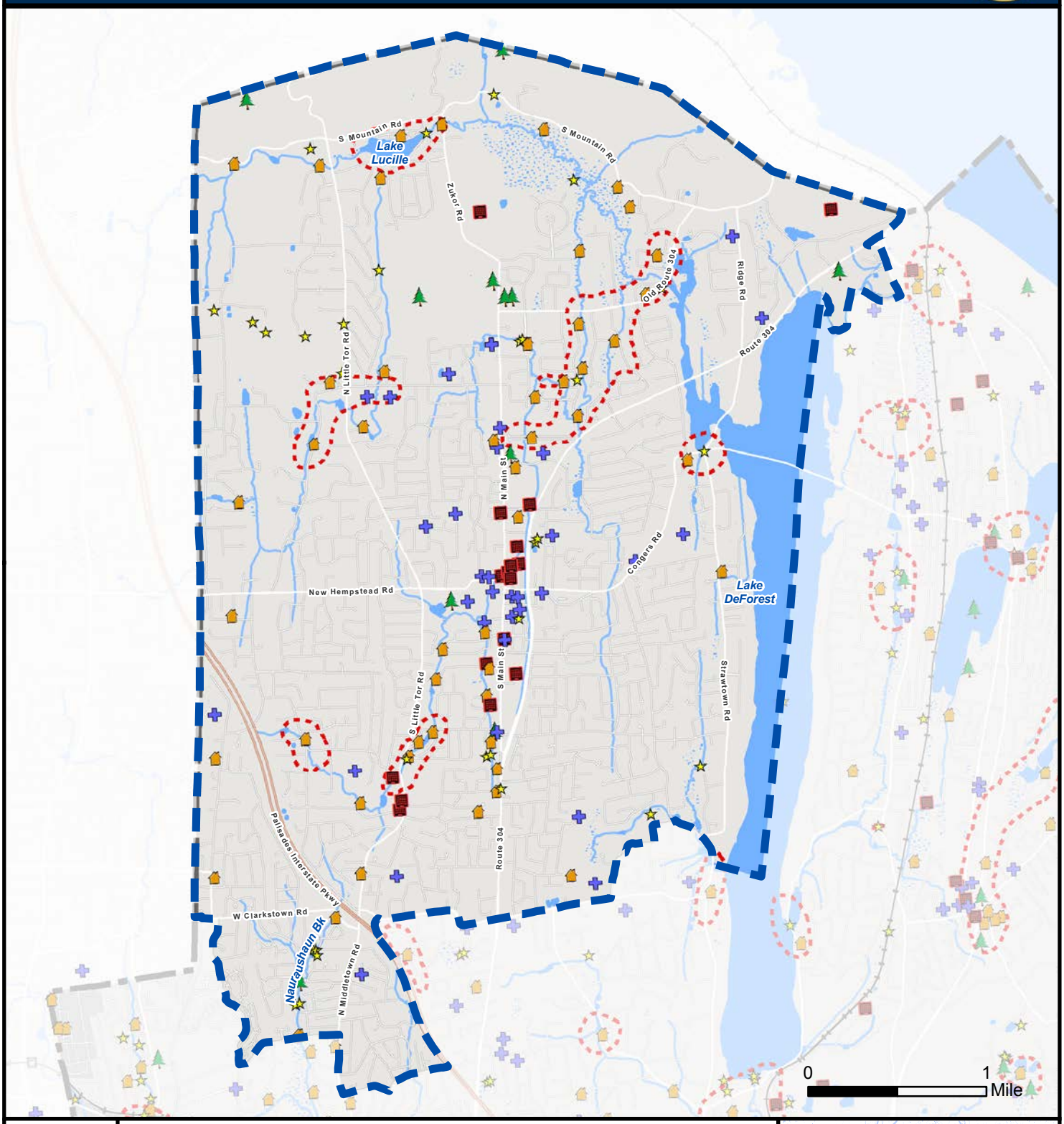
Table II-4: Housing Assets (cont'd)

Asset Name	Risk Area
Flitt Street / Fir Court Homes	Extreme
Germonds Road / Bardonia Road Homes	Extreme
Highway Avenue / Lenox Avenue Homes	Extreme
Jeffrey Court Homes, West Nyack	Extreme
Jerry's Avenue Homes	Extreme
Klein Avenue Homes, West Nyack	Extreme
Lake Lucille Homes	Extreme
Lake Nanuet Drive Homes	Extreme
Lakewood Drive / NYS Rte. 303 Homes	Extreme
Manor Court Homes	Extreme
Massachusetts Avenue / Sedge Road Homes	Extreme
Mill Creek Road / Cypress Street Homes	Extreme
Mountainview Avenue Homes	Extreme
North Pascack Road Homes	Extreme
Old Haverstraw Road Homes	Extreme
Old Mill Road / Branchville Road Homes	Extreme
Park Terrace Homes	Extreme
Parkside Drive / Bluebird Drive Homes	Extreme
Pearl Lane / Old Route 304 Homes	Extreme
Phillips Hill Road Homes	Extreme
Phillips Lane / Benson Avenue Homes	Extreme
Pineview Road Homes	Extreme
Quail Hollow Lane / Sickletown Road Homes	Extreme
Red Hill Road Homes	Extreme
Ridge Road Homes	Extreme
S Pascack Road Homes	Extreme
Sable Court Homes	Extreme
Strawtown Road / Hillcrest Road Homes	Extreme
Theresa Drive Homes	Extreme
Timothy Court Homes	Extreme
West Street Homes	Extreme
Westlyn Drive / Cider Mill Circle Homes	Extreme
Will Rogers Lane / S Pascack Road Homes	Extreme
Windermere Lane / Pine Lane Homes	Extreme
Zukor Road / Brook Lane Homes	Extreme
Cragmere / Bush Ct Homes	Extreme
Alton Ct Homes	High
Bittern Drive Homes	High
Blauvelt Road Homes	High
Brookhaven Court Homes	High

Table II-4: Housing Assets (cont'd)

Asset Name	Risk Area
Brookside Drive Homes	High
Capral Lane Homes	High
Cottage Place / Smith Road Homes	High
Denver Dr Homes	High
Elinor Place Homes	High
Elks Drive / April Lane Homes	High
Forest Brook / Springbrook Road Homes	High
Germonds Road Homes	High
Gilchrest Road Homes	High
Glen Lane / Leona Ave Homes	High
Gloria Court Homes	High
Lowell Dr/ Ridgefield Dr Homes	High
McLeod Terrace Homes	High
Memorial Park Drive Homes	High
New Haven Avenue Homes	High
New Valley Road Homes	High
Palmer Avenue / Fenner Lane Homes	High
River Rise Road / Doral Court Homes	High
Roberts Road / Woodhaven Drive Homes	High
Schriever Lane Homes	High
Schriever Lane / Kristoffer Court Homes	High
Seneca Court Homes	High
South Little Tor Road Homes	High
South Mountain Road Home	High
The Promenade Homes	High
Tioga Court Homes	High
Twin Elms Homes	High
Wales / Norge Ave Homes	High
Westgate Blvd Homes	High
Wolf Place Homes	High
Hilltop Rd Homes w/ Access Issue	High
Argow Place Home	Moderate
Birchwood Court Homes	Moderate
Birchwood Terrace Homes	Moderate
Clark Drive Homes	Moderate
Doctor Davies Road Home	Moderate
Dykes Park Road Homes	Moderate
Green Road Homes	Moderate
Hall Avenue Homes	Moderate
S Harrison Ave Homes	Low

Figure II-5
Asset Inventory - New City Area



N

Legend

- New City
- Railroads
- Wetlands
- Water Bodies

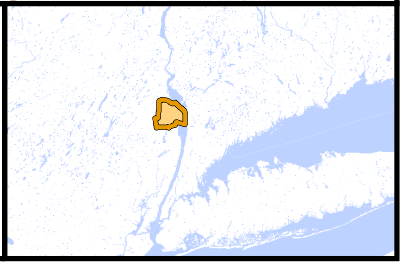
Assets

- Economic
- Health and Social Services
- Housing
- Major Highways
- Infrastructure Systems
- Natural and Cultural Resources
- Extreme Risk Areas*

Data Sources

ESRI, NYSITS, Rockland County, Town of Clarkstown

*Extreme Risk Areas (repetitively flooded) identified by Planning Committee



Infrastructure Systems Assets

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 Town. 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, when a principal component of a system is located in a risk area, it can make the entire system vulnerable. Therefore, it is more useful to assess the risk to components of the system, such as specific plants, pump stations, substations, and other key facilities that are critical to the functioning of the overall network. Past storms have impacted infrastructure systems in Clarkstown, causing power outages, road washouts, and flooding that hindered travel within the Town for residents and emergency service providers.

Twenty-eight assets are located in an extreme risk area as follows: a power supply center, a telecommunications facility, four bridges or underpasses, four commuter parking lots and a commuter rail station, six roads or intersections, a culvert, four flood control parcels, two pump stations, and four water supply facilities. Principal components of the wastewater, water supply, and power supply networks inventoried are considered FEMA Critical Facilities, such as sewage treatment plants, water resources, telecommunications facilities, and electric substations.

Infrastructure Asset: Lake Deforest Dam (Elizabeth Matamoros)

Figures II-1 to II-6 illustrate the risk areas and assets, in detail, found within the Clarkstown Planning Area. Table II-5 lists the Infrastructure Systems assets, organized by Asset Subcategories and by Risk Area from Extreme to Low. The complete community asset inventory, which includes addresses of asset locations, can be found in Table V-4 in Section V.D, "Community Asset Inventory."

Table II-5: Infrastructure Systems Assets

Asset Name	Risk Area
Hazardous Materials, Solid Waste, and Recycling	
Rockland County Solid Waste Mgmt. Authority Transfer Station on Route 303 in West Nyack	High
Clarkstown Town Landfill	Moderate
Power Supply	
O&R West Nyack Operating Center	Extreme
O&R Burns Substations	Low
O&R Congers Substation	Low
O&R Gas Transmission Facility	Low
O&R Little Tor Electric Utilities	Low
O&R Nanuet Substation	Low
O&R Snakehill Substation	Low
O&R West Nyack Substation	Low

Table II-5: Infrastructure Systems Assets (cont'd)

Asset Name	Risk Area
Telecommunications	
Verizon Wireless Snake Hill Facility	Extreme
Cablevision West Nyack Facility	Low
Cablevision West Nyack Facility 2	Low
Clearwire Spectrum Holdings Microwave Tower	Low
CSC TKR Television Antenna	Low
O&R Microwave Tower	Low
Rockland County Telephone Utilities	Low
Verizon Congers Facility	Low
Verizon New City Facility	Low
Verizon Wireless Spring Valley Facility	Low
Verizon Wireless West Nyack Facility	Low
Transportation	
Bluebird Drive Bridge	Extreme
Charles Street to Freedman Avenue Floodprone Areas	Extreme
Commuter Parking Lot, West Nyack	Extreme
Cranford Drive	Extreme
East Allison Avenue Floodprone Area	Extreme
East Hall Avenue Floodprone Area	Extreme
I-87 Exit 14A Ramp	Extreme
Jeffrey Place Floodprone Area	Extreme
Nanuet Commuter Station	Extreme
Nanuet Station Commuter Lots (3 lots)	Extreme
NYS Rte. 59 / 303 Floodprone Area	Extreme
NYS Rte. 303 & Lake Rd Floodprone Area	Extreme
Old Haverstraw Rd Flood prone Area	Extreme
Old Mill Road Causeway	Extreme
Parkside Drive Bridge	Extreme
Pascack Road Underpass beneath Railroad	Extreme
Patricia Avenue	Extreme
S Pascack Rd Underpass beneath NYS Rte. 59	Extreme
Strawtown Rd / Ridge Rd / Cty Rt 80 Intersection	Extreme
US Rte. 9W Flood prone Area	Extreme
Blauvelt Road Floodprone Area	High
Brenner Drive Undermined Area	High
South Mountain Road	High
Virginia Street / NYS Rte. 304 Floodprone Area	High
Valley Cottage Freight Station	Low

Table II-5: Infrastructure Systems Assets (cont'd)

Asset Name	Risk Area
Stormwater	
Baby Lake Dam	Extreme
Water Detention / Flood Control Parcel (4 parcels)	Extreme
Water Detention / Flood Control Parcels (26 parcels)	Low
Wastewater	
Sewer Pumping Station – Nanuet	Extreme
Centenary Pumping Station	Extreme
Water Supply	
United Water Drinking Water Intake (West Nyack)	Extreme
United Water Drinking Water Treatment Plant (2 locations, West Nyack and Bardonia)	Extreme
United Water Drinking Water Well (Bardonia)	Extreme
United Water Drinking Water Treatment Plant (4 locations, #1-3 Bardonia, #4 New City)	High
United Water Drinking Water Well (4 locations, #1-3 Bardonia, #4 New City)	High
United Water Drinking Water Treatment Plant (Nanuet)	Moderate
United Water Drinking Water Well (Nanuet)	Moderate
Deforest Lake Filtration Plant	Low
Deforest Lake Reservoir	Low
O&R Snakehill Substation	Low
O&R West Nyack Substation	Low
United Water Drinking Water Treatment Plant (6 locations, #1-3 Bardonia, #4 Grand View-On-Hudson, #5-6 New City)	Low
United Water Drinking Water Well (6 locations, #1-2 Bardonia, #3-4 New City, #5-6 Nanuet)	Low
United Water Water Tower (2 locations in Valley Cottage)	Low
United Water West Nyack Office Facility	Low

Natural and Cultural Resources Assets

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. Hurricane Irene, Tropical Storm Lee, Superstorm Sandy and the frequent high intensity, short duration storm events have impacted multiple recreational, cultural, and historic assets in Clarkstown's natural and built environment. Nine natural and cultural resources within the Town are in extreme risk areas: four religious facilities, a library, and four parks including a pool.

Many of the waterbodies and waterways of Clarkstown have historically been, and continue to be, a natural and recreational resource. However, these same waters 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. Of the Natural and Cultural Resource Assets inventoried, five are FEMA Critical Facilities: the Central Nyack Community Center, Congers Community Center, Palisades Center Mall Community Room, Pascack Community Center, and Street Community Center.

Figures II-1 to II-6 illustrate the risk areas and assets, in detail, found within the Clarkstown Planning Area. Table II-6 lists the Natural and Cultural Resources assets, organized by Asset Subcategories and by Risk Area from Extreme to Low. The complete community asset inventory, which includes addresses of asset locations, can be found in Table V-4 in Section V.D, "Community Asset Inventory."

Table II-6: Natural and Cultural Resources Assets

Asset Name	Risk Area
Community Centers	
Central Nyack Community Center	Low
Congers Community Center	Low
Palisades Center Mall Community Rooms, West Nyack	Low
Pascack Community Center, Nanuet	Low
Street Community Center, New City	Low
Museums, Performing Arts Centers and Historical Landmarks and Facilities	
Law Enforcement Museum	Low
Rockland Lake Museum	Low
The Historical Society of Rockland County	Low
The Jacob Blauvelt Farmhouse	Low
Cultural or Religious Establishments	
Central Nyack Congregational Church	Extreme
Islamic Center of Rockland	Extreme
Ridge Road Churches	Extreme
St. Paul's Catholic Church, Congers	Extreme
Saint Anthony's Church, Nanuet	High
St. Paul's Lutheran Church, New City	High
Elks Lodge	Moderate

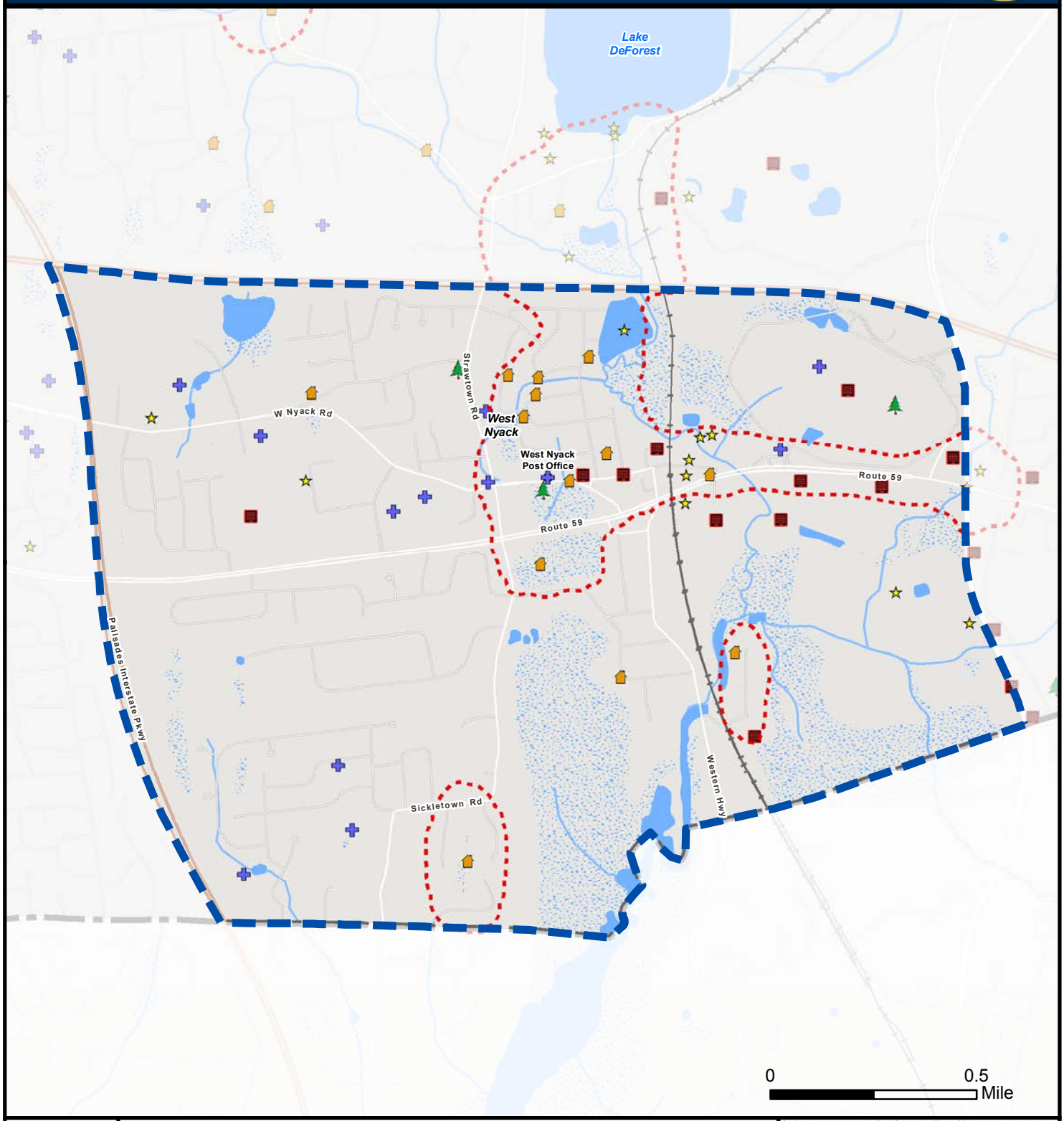
Table II-6: Natural and Cultural Resources Assets (cont'd)

Asset Name	Risk Area
Libraries	
Valley Cottage Library	Extreme
Nanuet Library	Low
New City Free Library	Low
West Nyack Free Library	Low
Parks and Recreation and Agricultural Areas	
Kings Park	Extreme
Lake Nanuet Park	Extreme
Lake Nanuet Park Pool	Extreme
West Nyack Hamlet Green	Extreme
Tennyson Drive Town Park	High
Buttermilk Falls Park	Low
Congers Lake Memorial State Park	Low
Dr. Davies Farm	Low
High Tor State Park	Low
Hook Mountain State Park	Low
Kennedy Dells County Park	Low
Mountain View Park	Low
Nyack Beach State Park	Low
Nyack Beach State Park Facilities	Low
Rockland Lake State Park	Low
Rockland Lake State Park Facilities	Low
South Mountain County Park	Low

Natural and Cultural Resource Asset: Congers Lake (Elizabeth Matamoros)

Natural and Cultural Resource Asset: West Nyack Hamlet Green (Elizabeth Matamoros)

Figure II-6
Asset Inventory - West Nyack Area



N

Legend

- West Nyack
- Railroads
- Wetlands
- Water Bodies

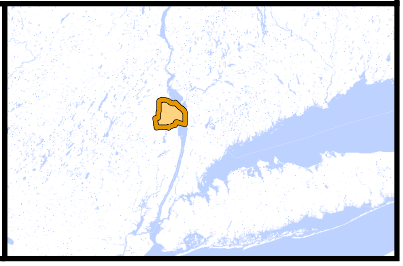
Assets

- Economic
- Health and Social Services
- Housing
- Major Highways
- Infrastructure Systems
- Natural and Cultural Resources
- Extreme Risk Areas*

Data Sources

ESRI, NYSITS, Rockland County, Town of Clarkstown

*Extreme Risk Areas (repetitively flooded) identified by Planning Committee



ii. Assessment of Risk to Assets and Systems

In order to mitigate flood risk associated with local water resources and improve community 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 Clarkstown by applying a standardized risk assessment procedure to each. In the Town of Clarkstown, flooding is associated with an extensive network of water bodies and waterways, the largest being the Hudson River, which flows along the length of the Town's eastern boundary. Lake Deforest is a 5.6-billion-gallon reservoir with a north-south orientation in the central part of the Town. The reservoir, which is owned and operated by United Water New York, was created by impounding the Hackensack River to supply water to Rockland County and northern New Jersey. Other major water bodies in the Town that contribute to both flood risk and flood control include Congers Lake, Swartout Lake, Rockland Lake, and Lake Lucille.

Flood risk areas are predominantly located south of the Lake Deforest dam and along waterways in the Town, including primarily the Hackensack River and Pascack Brook and their tributaries. The concentrated location of assets within areas that are highly exposed to flooding, results in high and severe risk scores for many of the community's important assets. The highest concentration of identified assets in Clarkstown is in West Nyack, south of the Lake Deforest dam in the residential areas of Klein Avenue and Jeffery Court and commercial areas near NYS Route 59 and W Nyack Road. This area includes homes along Klein Avenue, the Orange and Rockland Operating Center, transportation, water supply and communications infrastructure, many businesses and other residential neighborhoods. There are also clusters of assets in western Nanuet along the Pascack Brook, in Congers between Congers and Swartout Lakes and near the Congers Lake Memorial Park, and in northern New City between Route 304 and Old Route 304 as well as surrounding Lake Lucille. These locations of concentrated development correspond closely to the identified flood risk areas within the community.

Preliminary risk assessment results indicate that the majority of Clarkstown assets located within flood risk areas are at high risk, with the remainder at extreme and moderate risk. Four of the assets evaluated in the preliminary risk assessment had a severe risk score and include three residential areas and one infrastructure asset. Assets at high risk are represented in all six Recovery Support Functions, with the most being housing and infrastructure assets. This is likely due to the fact that many neighborhoods and road networks are in close proximity to the Lake Deforest dam, Hackensack River, and Pascack Brook. There are also 20 economic assets at high risk, primarily businesses and retail centers, as well as nine health and social services, almost all of which are FEMA critical facilities, and nine natural and cultural resources. There are assets in each Recovery Support Function that are at moderate risk as well.

Risk Assessment

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. For many Clarkstown residents, especially those directly affected by past storms, specific areas of flood risk within the Town may appear to be obvious. While experiences during past storms reasonably indicate areas most susceptible to flooding, they are not necessarily a good predictor of the level of impacts or the type of damage that may result from future storms. Furthermore, the relative degree of risk to one neighborhood or building as compared to another is not always readily apparent. The risk assessment tool developed by the NYRCR Program and the New York State Department of State (NYS DOS) 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.

Based on information from the asset inventory, flood hazard maps and qualitative exposure assessments, the risk assessment tool enables the calculation of hazard, exposure, and vulnerability scores. These factors are further defined below.

- **Hazard Score:** Hazard represents the likelihood and magnitude of future storm event impacts. Typically, an asset located in an Extreme risk area experiences hazards with greater frequency and intensity than assets in a High or Moderate risk area. The Hazard Score directly corresponds to the 100-year and 500-year storm events.
- **Exposure:** Exposure characterizes the moderating effect of local topographic and protective features. If assets are more exposed (e.g., situated in low-lying floodplains), they are more likely to suffer storm effects than similar assets located at a higher elevation. The landscape attributes captured during the asset inventory are quantified and summed in the Risk Assessment Tool to produce an Exposure Score.
- **Vulnerability:** Vulnerability expresses the level of impairment or consequences that assets may experience from a storm event. If an asset recovers quickly with limited interruption in service it has low vulnerability, while extended service loss or permanently reduced capacity would be synonymous with high vulnerability. Input from Committee Members at Public Engagement Events was utilized to identify the Vulnerabilities of assets and systems across the Town.

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:

Hazard Score x Exposure Score x Vulnerability Score = Risk Score

The derived risk scores help to quantify the associated risk to each asset in detail and can be used to illustrate and examine the distribution and types of assets least resilient to flooding.

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 Clarkstown NYRCR Planning Committee, the public and local officials, analysis of local, regional, and national datasets, and examination of maps, aerial imagery, and site imagery.

The first step in applying the risk assessment tool is to calculate "unmitigated" risk scores, which represent the risk to assets and systems in their current condition, without proposed mitigation projects in place.

In an effort to focus on those Clarkstown assets that are most at risk, unmitigated risk scores were prepared for assets identified on the asset inventory that are located within the 100-year flood zone and extreme risk areas, otherwise identified as areas subject to repeated flooding.

The unmitigated risk scores present a profile of the current risk to assets identified in Clarkstown. Analysis of these results provides insight into the factors driving flood risk in Clarkstown and what strategies could be most effective in improving the long-term resiliency of assets.

Unmitigated Risk Score Results

In total, 208 assets located within extreme and high flood risk areas were identified and evaluated in the unmitigated risk assessment. These assets were generally concentrated in West Nyack south of the Lake Deforest dam, western Nanuet near the Pascack Brook, and other smaller clusters throughout the Town, including in Congers between Congers Lake and Swartout Lake. Of these assets, 4 scored in the extreme risk category and 132 scored in the high risk

category, while the remaining 72 scored in the moderate risk category. This outcome is not unexpected, as only those assets located in high and extreme risk areas were considered for risk assessment. The unmitigated risk score results are presented in Table II-7 by Recovery Support Function and by Risk Score Level from Severe to Moderate. Risk level scores are indicated by the following shading:

Risk Score Level
Severe
High
Moderate

The complete community asset inventory, which includes addresses of asset locations, can be found in Table V-4 in Section V.D, "Community Asset Inventory."

Table II-7: Unmitigated Risk Score Results

Asset	Risk Score Level
Economic Assets	
All County Motors, Nanuet	High
Better Homes and Gardens Rand Reality/Hudson United Insurance, New City	High
Cool Pool & Spa, Nanuet	High
Corporate Way / Executive Boulevard Businesses	High
East NYS Rte. 59 Commercial Corridor	High
Esquire Village Office Condominium	High
Green Gate Market	High
Lake Road Small Businesses	High
NY Rte 59 Businesses	High
Old Nyack Turnpike Businesses	High
Pascack Plaza, Spring Valley	High
Plastic Craft Products Corporation, West Nyack	High
Rockland Plaza Shopping Center, Nanuet	High
ShopRite of West Nyack	High
W Nyack Rd / Klein Ave Mini Mall	High
W Nyack Rd Mini Mall	High
W Nyack Rd Small Businesses	High
W Nyack Road / Demarest Mill Rd Large Businesses	High
W Nyack Road / Demarest Mill Rd Small Businesses	High
W Nyack Road / Demarest Mill Rd Small Businesses	High
Beckerle Lumber & Supply, Congers	Moderate
Clean Vehicle Solutions, West Nyack	Moderate
East NYS Rte. 59 Businesses	Moderate
McDonald's, New City	Moderate
New City Lawn Mower	Moderate
Rite Aid, Valley Cottage	Moderate
NYS Rte. 303 / Lake Road Small Businesses	Moderate
NYS Rte. 59 / 303 Businesses	Moderate
Old Middletown Road Businesses	Moderate
Petersen Boat Yard & Marina, Upper Nyack	Moderate
Public Storage, Inc., Spring Valley	Moderate
Rockland Masonry & Landscape	Moderate
NYS Rte. 303 Small Businesses (auto-related)	Moderate

Table II-7: Unmitigated Risk Score Results (cont'd)

Asset	Risk Score Level
Snake Hill Road Businesses	Moderate
Town House Office Park	Moderate
Weill Warehouse, Nanuet	Moderate
West Prospect Street Businesses	Moderate
Health and Social Service Assets	
Companions Plus Senior Care	High
Congers-Valley Cottage Vol. Ambulance Corps.	High
Jawonio	High
Mental Health Assoc. of Rockland Co.	High
Strawtown Elementary School	High
Tiny Toe's Day Care	High
West Nyack Fire Station 2	High
West Nyack Post Office	High
Woodglen Elementary School	High
Nanuet Community Ambulance Corps.	Moderate
Nanuet Fire Station 1	Moderate
Nanuet Post Office	Moderate
PROPOSED Nanuet FD Facility	Moderate
Renal Care of Rockland, Inc.	Moderate
Rockland Co. Division of Probation & Correctional Alternatives	Moderate
United Hospice of Rockland	Moderate
Valley Cottage Post Office	Moderate
Housing Assets	
Cranford Drive / Termakay Drive Home	Severe
Klein Avenue Homes, West Nyack	Severe
New Holland Village Condominiums	Severe
Adele Road Homes	High
Blauvelt Road Homes	High
Braemar Lane Condominiums	High
Brookside Drive Homes	High
Capral Lane Homes	High
Collyer Avenue Homes	High
Congers Road / Goebel Road Homes	High
Corners Road Homes	High

Table II-7: Unmitigated Risk Score Results (cont'd)

Asset	Risk Score Level
Cottage Place / Smith Road Homes	High
Cragmere / Bush Ct Homes	High
Cranford Drive Homes	High
Cypress Street / Cranford Drive Homes	High
East Allison Avenue Homes	High
E Hall Avenue / S Little Tor Road Homes	High
Elinor Place Homes	High
Elks Drive / April Lane Homes	High
Flitt Street / Fir Court Homes	High
Forest Brook / Springbrook Road Homes	High
Germonds Road / Bardonia Road Homes	High
Glen Lane / Leona Ave Homes	High
Gloria Court Homes	High
Hidden Valley Condominiums	High
High Street / W Nyack Road Homes	High
Highway Avenue / Lenox Avenue Homes	High
Jeffrey Court Homes, West Nyack	High
Jerry's Avenue Homes	High
Lake Lucille Homes	High
Lake Nanuet Drive Homes	High
Lakewood Drive / NYS Rte. 303 Homes	High
Manor Court Homes	High
Massachusetts Avenue / Sedge Road Homes	High
McLeod Terrace Homes	High
Memorial Park Drive Homes	High
Mill Creek Road / Cypress Street Homes	High
Mountainview Avenue Homes	High
New City Condo Complex	High
Normandy Village Apartments	High
North Pascack Road Homes	High
Palmer Avenue / Fenner Lane Homes	High
Park Terrace Homes	High
Parkside Drive / Bluebird Drive Homes	High
Pearl Lane / Old Route 304 Homes	High

Table II-7: Unmitigated Risk Score Results (cont'd)

Asset	Risk Score Level
Phillips Hill Road Homes	High
Phillips Lane / Benson Avenue Homes	High
Pineview Road Homes	High
Red Hill Road Homes	High
Ridge Road Homes	High
S Pascack Road Homes	High
Sable Court Homes	High
Schriever Lane Homes	High
South Little Tor Road Homes	High
South Mountain Road Home	High
Spring Valley Village Mobile Home Park	High
Squadron Garden Apartments	High
Strawtown Road / Hillcrest Road Homes	High
Swartout Lake Condominiums	High
Theresa Drive Homes	High
Timothy Court Homes	High
Town Hill Condominiums	High
Turnpike Woods Condominiums	High
Twin Elms Homes	High
W Nyack Rd Apts & Condos	High
Wales / Norge Ave Homes	High
West Street Homes	High
Westlyn Drive / Cider Mill Circle Homes	High
Will Rogers Lane / S Pascack Road Homes	High
Windermere Lane / Pine Lane Homes	High
Wolf Place Homes	High
Zukor Road / Brook Lane Residences	High
Alton Court Homes	Moderate
Bittern Drive Homes	Moderate
Bridgewater Condominiums	Moderate
Brookhaven Court Homes	Moderate
Cedar Grove Corners Condominiums	Moderate
Charles Street to Freedman Avenue Homes	Moderate
Children's Village Home	Moderate

Table II-7: Unmitigated Risk Score Results (cont'd)

Asset	Risk Score Level
Christian Herald Road / Lake Road Homes	Moderate
Christian Herald Road Apartments	Moderate
Convent Rd / Newport Dr / Morgan Ct Homes	Moderate
Demarest Mill Road Home	Moderate
Denver Dr Homes	Moderate
Fisher Ave Homes	Moderate
Germonds Road Homes	Moderate
Gilchrest Road Homes	Moderate
Hilltop Rd Homes w/ Access Issue	Moderate
Lakeview Village Apartments	Moderate
Lowell Dr/ Ridgefield Dr Homes	Moderate
New Haven Avenue Homes	Moderate
New Valley Road Homes	Moderate
Nyack Manor Nursing Home	Moderate
Old Haverstraw Road Floodprone Residences	Moderate
Old Mill Road / Branchville Road Homes	Moderate
Quail Hollow Lane / Sickletown Road Homes	Moderate
River Rise Road / Doral Court Homes	Moderate
Roberts Road / Woodhaven Drive Homes	Moderate
Schriever Lane / Kristoffer Court Homes	Moderate
Seneca Court Homes	Moderate
South Mountain Road Homes, New City	Moderate
Spring Valley Rest Home	Moderate
The Promenade Homes	Moderate
Tioga Court Homes	Moderate
Tudor Hill Condominiums	Moderate
Virginia Street / Braemar Court Residences	Moderate
W Cavalry Dr Apartments	Moderate
Westgate Blvd Homes	Moderate
Infrastructure Systems Assets	
Centenary Pumping Station	Severe
Baby Lake Dam	High
Blauvelt Road Floodprone Area	High
Bluebird Drive Bridge	High

Table II-7: Unmitigated Risk Score Results (cont'd)

Asset	Risk Score Level
Commuter Parking Lot	High
Cranford Drive	High
East Allison Avenue Floodprone Area	High
East Hall Avenue Floodprone Area	High
Deforest Lake Dam	High
Nyack Village Drinking Water Supply Intake	High
Nyack Village Water Supply DWTP	High
NYS Rte. 303 & Lake Rd Floodprone Area	High
O&R West Nyack Operating Center	High
Parkside Drive Bridge	High
Pascack Road Underpass beneath Railroad	High
Rockland County Solid Waste Mgmt. Authority Transfer Station on Route 303, West Nyack	High
S Pascack Rd Underpass beneath NYS Rte. 59	High
Sewer Pumping Station - Nanuet	High
South Mountain Road, New City	High
Strawtown Rd / Ridge Rd / Cty Rt 80 Intersection	High
United Water Drinking Water Intake (West Nyack)	High
United Water Drinking Water Well (Bardonia)	High
United Water Drinking Water Well (3 locations in Bardonia)	High
United Water Drinking Water Well (New City)	High
United Water Drinking Water Treatment Plant (Bardonia)	High
United Water Drinking Water Treatment Plant (3 locations in Bardonia)	High
United Water Drinking Water Treatment Plant (New City)	High
Verizon Wireless SnakeHill Facility	High
Brenner Drive Undermined Area	Moderate
Charles Street to Freedman Avenue Floodprone Areas	Moderate
I-87 Exit 14A Ramp	Moderate
Jeffrey Place Floodprone Area	Moderate
Nanuet Commuter Station (NJ Transit)	Moderate
Nanuet Station Commuter Lots (3) (NJ Transit)	Moderate
NYS Rte. 59 / 303 Floodprone Area	Moderate
Old Haverstraw Rd Floodprone Area	Moderate
Old Mill Road Causeway	Moderate
Patricia Avenue	Moderate

Table II-7: Unmitigated Risk Score Results (cont'd)

Asset	Risk Score Level
United Water Drinking Water Treatment Plant (West Nyack)	Moderate
US Rte. 9W Floodprone Area	Moderate
Virginia Street / NYS Rte. 304 Floodprone Area	Moderate
Natural and Cultural Resources Assets	
Central Nyack Congregational Church	High
Kings Park	High
Islamic Center of Rockland	High
Lake Nanuet Park	High
Lake Nanuet Park Pool	High
Ridge Road Churches	High
St. Anthony's Church, Nanuet	High
Tennyson Drive Town Park	High
West Nyack Hamlet Green	High
St. Paul's Catholic Church, Valley Cottage	Moderate
St. Paul's Lutheran Church, New City	Moderate
Valley Cottage Library	Moderate

The geographic distribution of high risk assets is generally uniform across the riverine sections of Clarkstown. This is consistent with observations of historic flood events, as the Lake Deforest outlet and extensive stream and tributary network have caused significant flooding and damage to surrounding assets.

Key infrastructure systems in the community are at severe and high risk. The Centenary pumping station is at severe risk while the Nanuet sewer pumping station is at high risk. Given the interconnected nature of the wastewater system, if one component of the system fails, the rest of the system is at increased risk of failure as well. Clarkstown's drinking water system is also at risk with many drinking water wells, treatment plants and intakes receiving a high risk score. All of these assets are considered FEMA critical facilities which communities and residents rely on for daily activities.

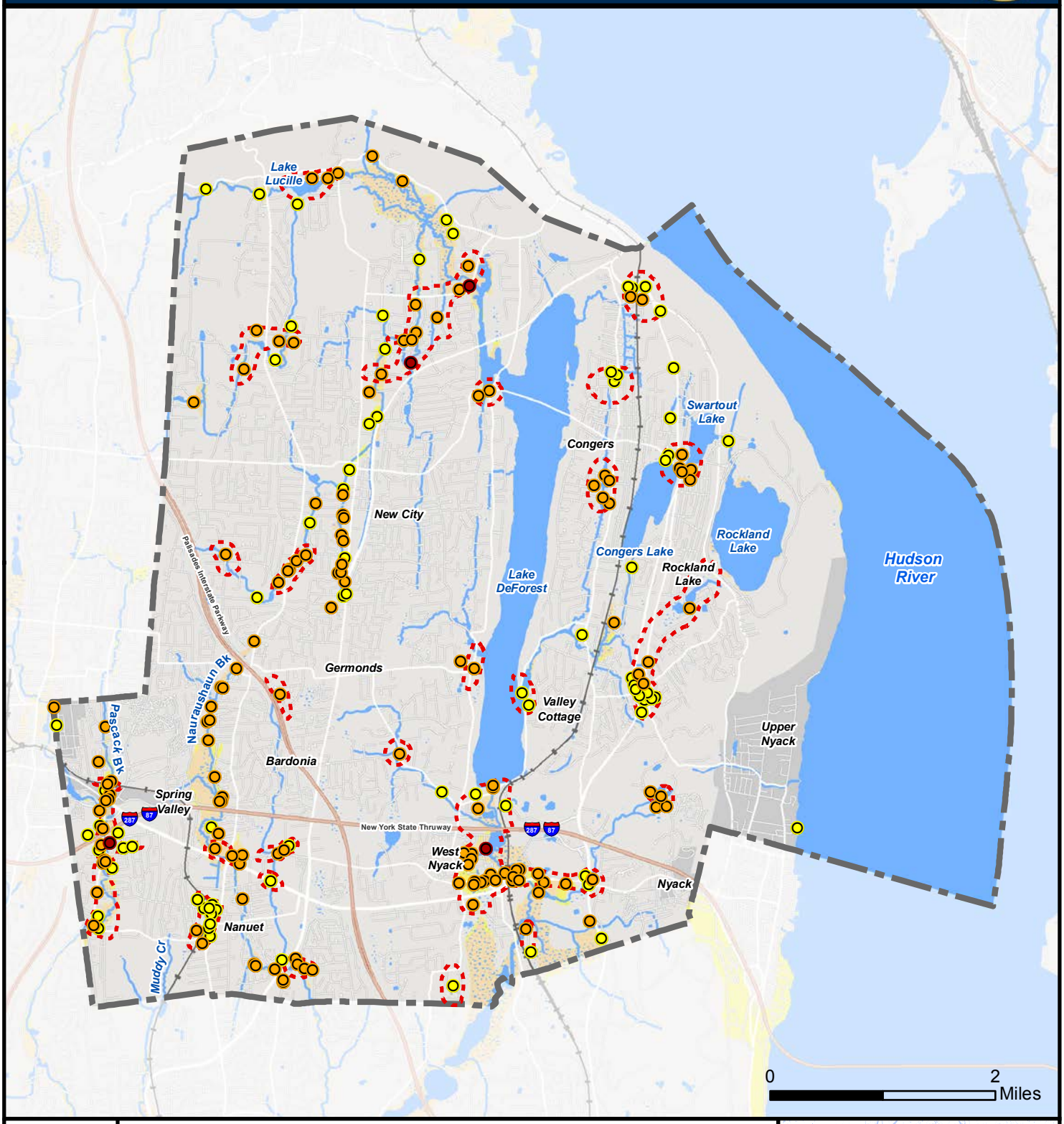
Transportation infrastructure systems in Clarkstown serve a critical function not only within the community, but in the broader regional transportation network as well. Numerous bridges and underpasses, a commuter parking lot and roadways providing access to neighborhoods and throughout the Town are at high risk. The power supply system, including the Orange and Rockland West Nyack Operating Center and a Verizon facility, is at a high risk as well. Loss of power can negatively affect the safety and health or residents while also hindering communication capacities.

A number of neighborhoods within the community are at severe or high risk and include a combination of single family homes, townhomes, apartments and multi-family homes. Cranford Drive/Termakay Drive, Klein Avenue and New Holland Village Condominiums are all at severe risk. In addition, there are 68 neighborhoods at high risk. Many of these areas are at risk

from flooding, but are also at risk due to access issues caused by flooding and damages to infrastructure such as roadways and bridges, electric supply and stormwater, water and sewer facilities.

The geographic distribution of preliminary unmitigated risk scores is presented in Figures II-7 to II-11. Figure II-7 presents the risk areas, and the assets located therein for the whole Town. Figures II-8 through II-11 present focused area maps of risk areas and assets located therein for Eastern Clarkstown, Nanuet, New City and West Nyack. West Nyack, south of the Lake Deforest dam and western Nanuet near the Pascack Brook, are two primary concentrated areas where assets are at severe or high risk. Due to the extensive network of waterways, there are also many smaller clusters of high risk assets including in Congers, between Congers Lake and Swartout Lake. The high risk scores in these areas are driven by the close proximity and exposure of these assets to the primary flood sources in the hamlet and their location within extreme flood hazard areas, as identified on NYS DOS flood hazard area maps. These identified areas of concentrated risk require targeted attention in the evaluation of potential mitigation measures.

Figure II-7
Risk Assessment - Town of Clarkstown



N

Legend

- Town of Clarkstown (Study Area)
- Village
- Major Highways
- Railroads
- Wetlands
- Water Bodies

Assets

- Severe Risk
- High Risk
- Moderate Risk
- Extreme Risk Areas* (repetitively flooded)

FEMA Floodzones

- High Risk Zone (100-year flood)
- Moderate Risk Zone (500-year flood)

Data Sources

ESRI, FEMA, NYSITS, Rockland County, Town of Clarkstown

*Extreme Risk Areas identified by Planning Committee

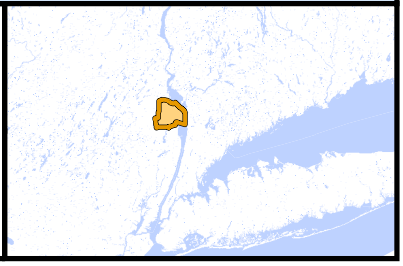
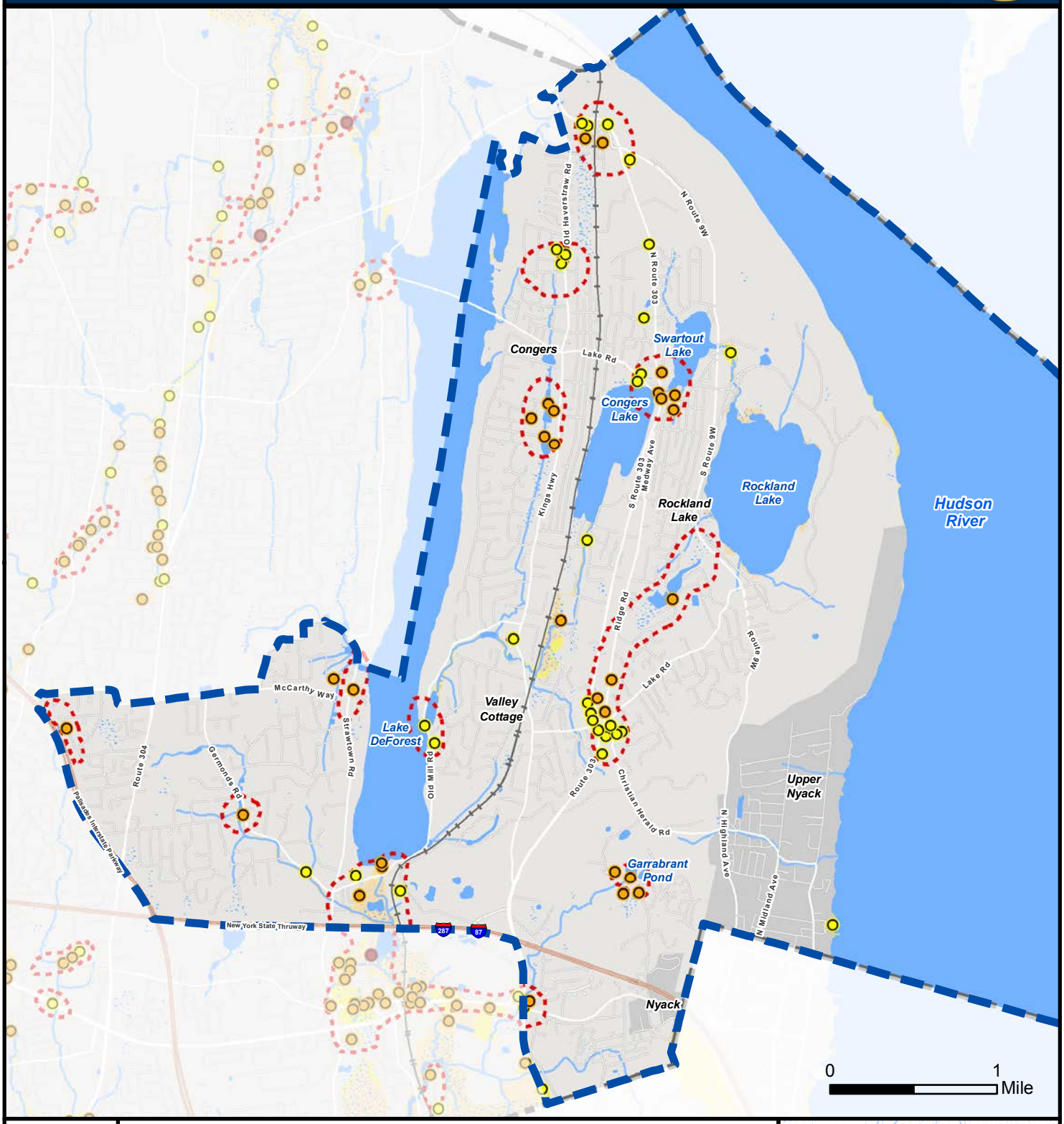


Figure II-8
Risk Assessment - Eastern Clarkstown Area



N

Legend

- Eastern Clarkstown Area
- Village
- Major Highways
- Railroads
- Wetlands
- Water Bodies

Assets

- Severe Risk
- High Risk
- Moderate Risk

- Extreme Risk Areas* (repetitively flooded)

FEMA Floodzones

- High Risk Zone (100-year flood)
- Moderate Risk Zone (500-year flood)

Data Sources

ESRI, FEMA, NYSITS, Rockland County, Town of Clarkstown

*Extreme Risk Areas identified by Planning Committee

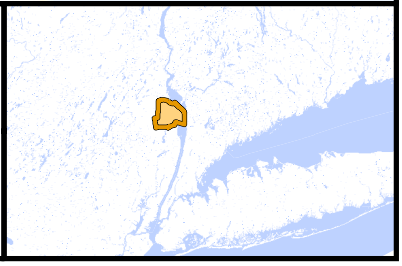
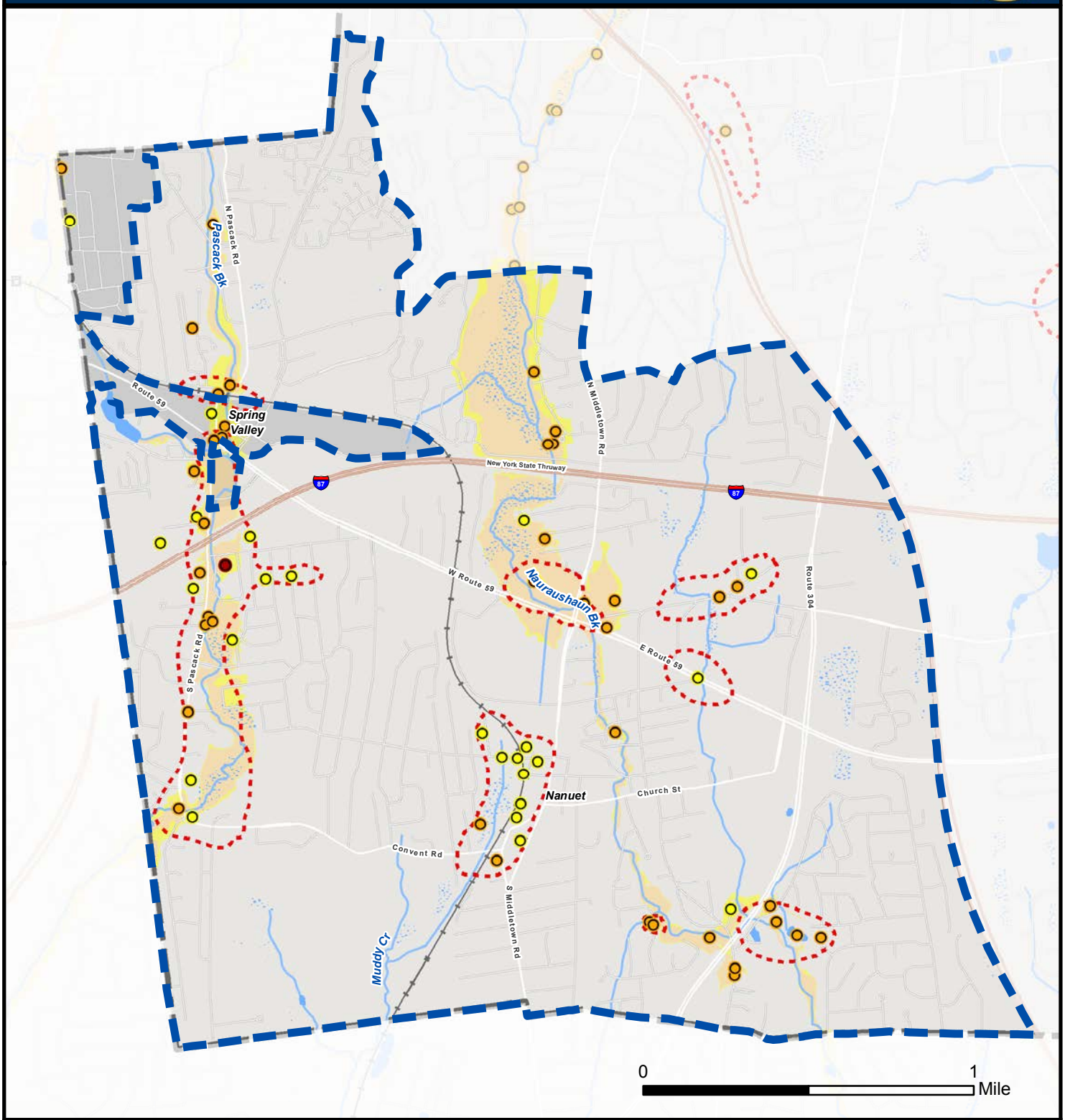


Figure II-9
Risk Assessment - Nanuet Area



N

Legend

- Nanuet
- Village
- Major Highways
- Railroads
- Wetlands
- Water Bodies

Assets

- Severe Risk
- High Risk
- Moderate Risk
- Extreme Risk Areas* (repetitively flooded)

FEMA Floodzones

- High Risk Zone (100-year flood)
- Moderate Risk Zone (500-year flood)

Data Sources

ESRI, FEMA, NYSITS, Rockland County, Town of Clarkstown

*Extreme Risk Areas identified by Planning Committie

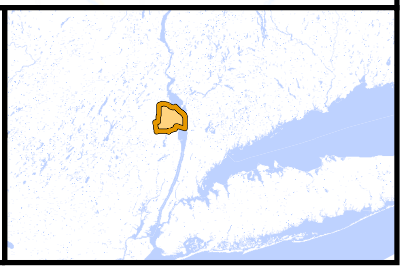
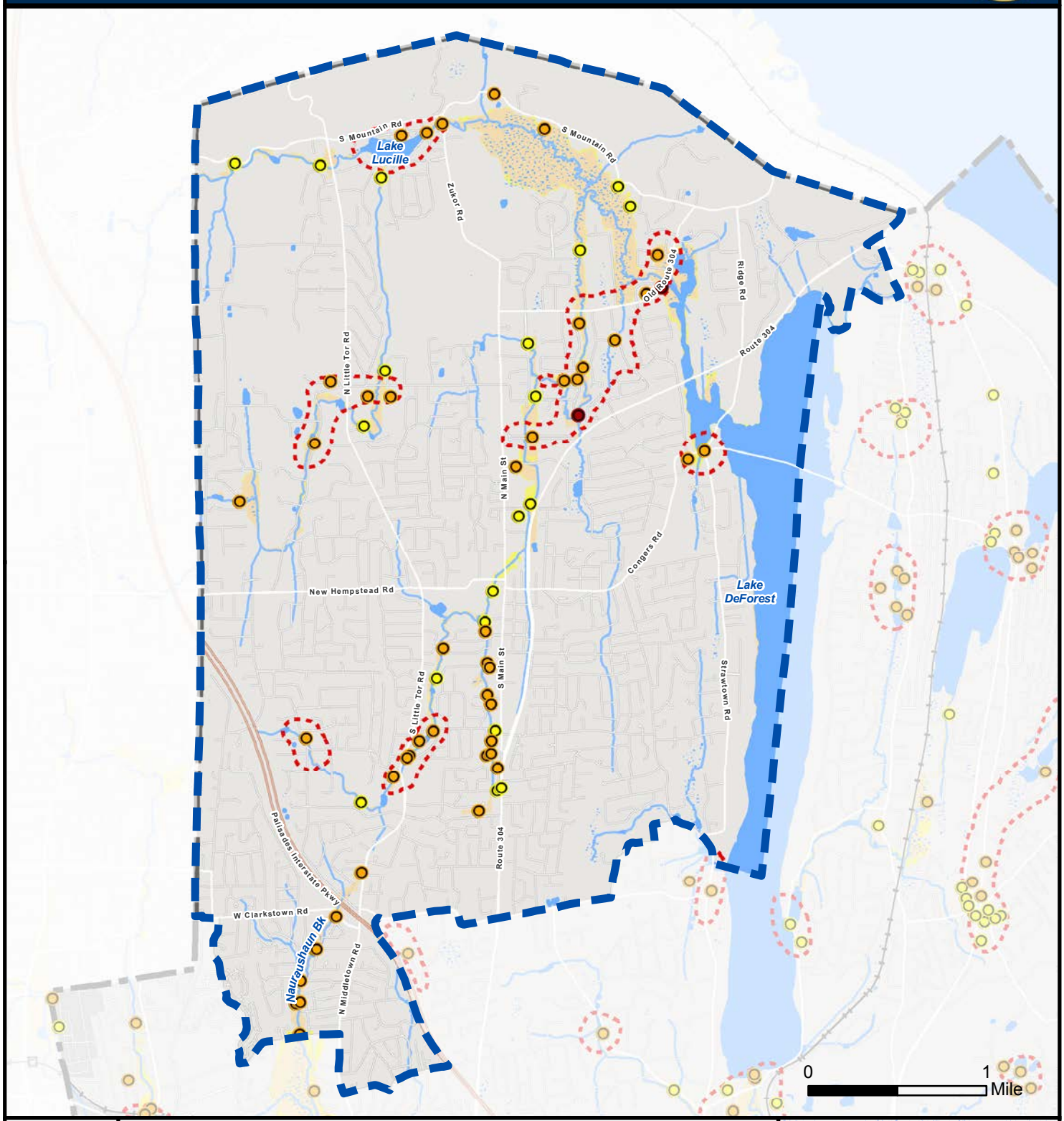


Figure II-10
Risk Assessment - New City Area



N

Legend

- New City
- Village
- Major Highways
- Railroads
- Wetlands
- Water Bodies

Assets

- Severe Risk
- High Risk
- Moderate Risk

- Extreme Risk Areas* (repetitively flooded)

FEMA Floodzones

- High Risk Zone (100-year flood)
- Moderate Risk Zone (500-year flood)

Data Sources

ESRI, FEMA, NYSITS, Rockland County, Town of Clarkstown

*Extreme Risk Areas identified by Planning Committee

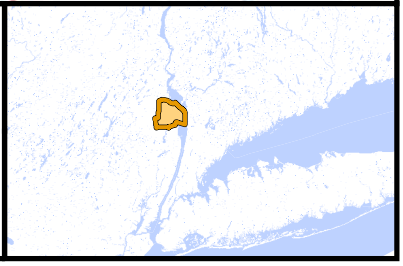
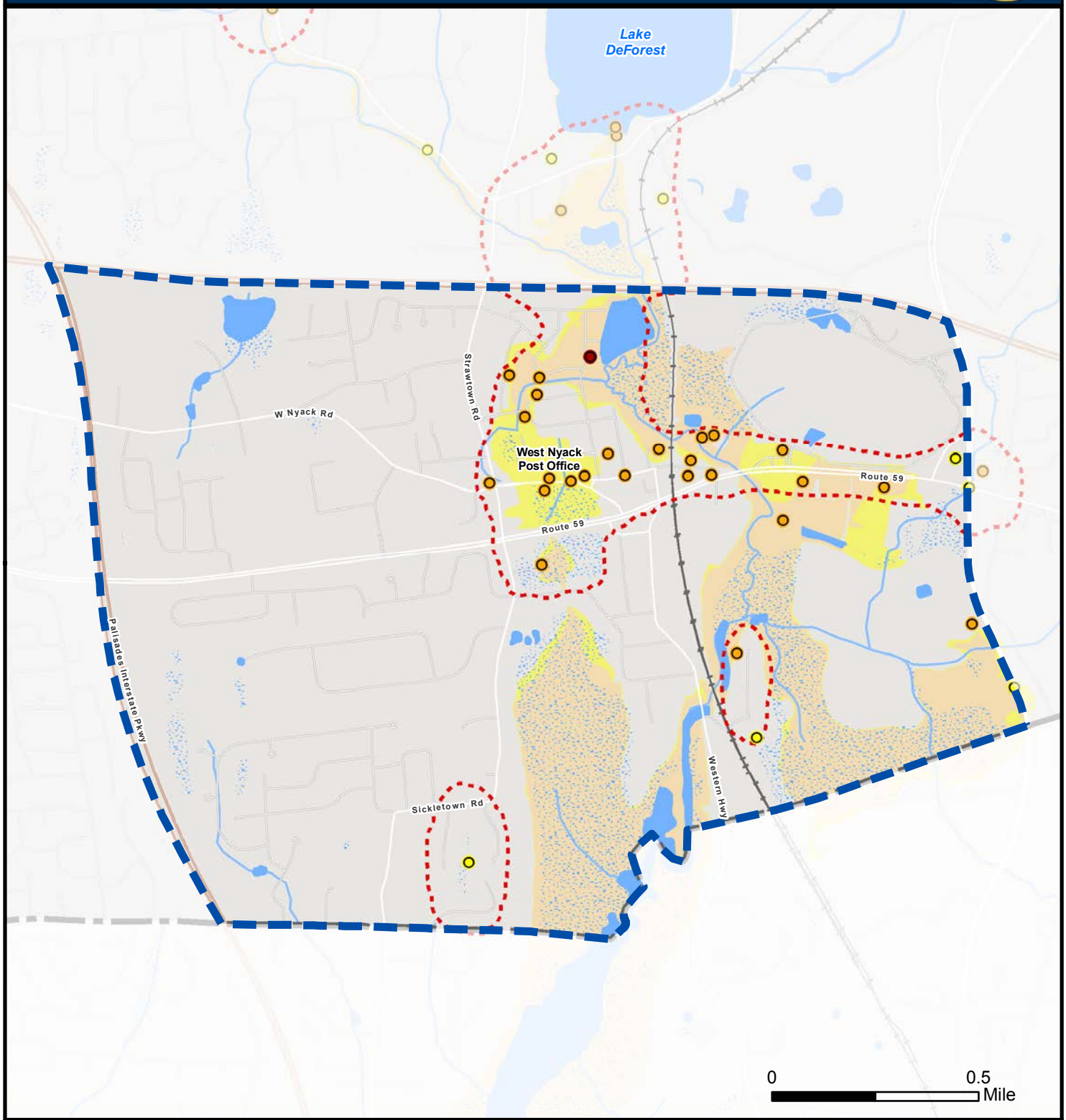


Figure II-11
Risk Assessment - West Nyack Area



N

Legend

- West Nyack
- Village
- Major Highways
- Railroads
- Wetlands
- Water Bodies

Assets

- Severe Risk
- High Risk
- Moderate Risk

- Extreme Risk Areas* (repetitively flooded)

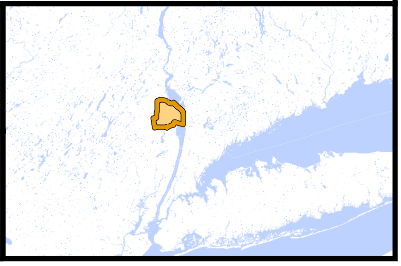
FEMA Floodzones

- High Risk Zone (100-year flood)
- Moderate Risk Zone (500-year flood)

Data Sources

ESRI, FEMA, NYSITS, Rockland County, Town of Clarkstown

*Extreme Risk Areas identified by Planning Committee



B. Assessment of Needs and Opportunities

The Town of Clarkstown has been extremely proactive in reviewing their emergency preparedness protocols before, during and after severe storm events and adjusting their procedures based on lessons learned. Following severe storm events, the Town's elected officials, staff, emergency service personnel, County and State representatives, and utility providers have debriefed on measures that have been effective, and identified areas for improvement. Significant measures have been implemented to help the community become more resilient following not only catastrophic storm events, but also the frequent high intensity, short duration storm events that cause substantial flash floods throughout the community.

This systematic reexamination of emergency preparedness and recovery needs enables the Town to identify weaknesses and gaps and allocate resources where they need to go. The NYRCR Program provides a formal framework for the Town of Clarkstown to further evaluate their emergency preparedness needs. While the emergency response systems proved very strong, maintaining such a high caliber operation is paramount and requires ongoing attention. Also, the need to reach out to and protect vulnerable residents is critical to resiliency planning initiatives. Widespread flooding and the resulting substantial damage to homes, businesses, and Town infrastructure assets revealed vulnerabilities and has enabled the Committee to focus on these challenges and devise viable solutions to develop a more resilient community.

As described in Section I of this Plan, the NYRCR Planning Committee developed a vision for their community and goals to guide the NYRCR Program decision-making process. The vision and goals to achieve that vision provide the footing for this process. Identifying what works well in Clarkstown, and any specific deficiencies in the protective measures, allows the community to refine their critical needs. Identifying short, mid-range, and long-term needs and opportunities to address those needs form the foundation for the strategies, projects, programs, and actions that will be developed later in this process.

The identification of Clarkstown's needs and opportunities grew from the vision, guidance from the Committee and comments and observations from concerned citizens at the first Public Engagement Event held at Town Hall. Identifying key community assets (see Figure II-1, Asset Inventory – Town of Clarkstown), also helped the Committee focus their needs on Clarkstown's vulnerable facilities and features. The Committee identified pressing community resiliency and recovery needs, which were then presented for review to the larger community. The Committee then developed opportunities to address those needs and build the long-term resiliency of the Town. The resulting list was refined through in-depth discussions with municipal officials, community stakeholders, the general public, and Town representatives.

The final needs and opportunities list provides a basis for developing strategies, projects, programs and actions to address community resiliency. Recurring themes of critical concern to the community include: repetitive flooding in residential neighborhoods, inundation of key commercial areas, widespread power outages and coincident road closures due to downed trees and power lines, aging infrastructure including stormwater management and drainage systems, and regional coordination with adjacent municipalities and the state of New Jersey regarding flooding issues.

The following section provides an overview of the identified needs and opportunities organized by the six NYRCR RSFs. The core recovery capability of each RSF and its relevance to the Town of Clarkstown are described below.

Economic Recovery Support Function

This RSF identifies measures to fortify the local and regional economy to increase the resiliency of businesses during acute storm events, and initiatives to assist in efficient and expedient recovery after the storms have subsided. As shown in Figure II-12, Economic Land Uses – Town of Clarkstown, Clarkstown has several key economic/commercial clusters, some of which have been subject to significant damage due to repetitive flooding— including in particular, West Nyack. The ability for a community to recover from disastrous events is inherently tied to how quickly it can return to business-as-usual following these events. Helping businessses that have suffered great irreplaceable loss, and bringing businesses that have been closed due to lack of power and flood damage back to working conditions as soon as possible is critical to recovery.

Needs:

- Protection of businesses and commercial centers subject to repetitive flooding, from future storm damage; and
- Provision of secondary and supplemental power sources for commercial and industrial uses and ensuring that new power sources are environmentally sustainable, flood resistant or flood proof.

Opportunities:

- Evaluate options and various technologies to alleviate flooding conditions to commercial centers; and
- Identify resources, low interest loans and/or grants to assist small businesses to recover from damage, including flooding and prolonged power outages caused by storm events.

Health and Social Services Recovery Support Function

This RSF addresses the community's ability to rebuild and improve vital health and social services, particularly those serving vulnerable populations. Restoring such networks, and making them more resilient, will promote the well-being of residents, ultimately improving the overall health and independence of the whole community.

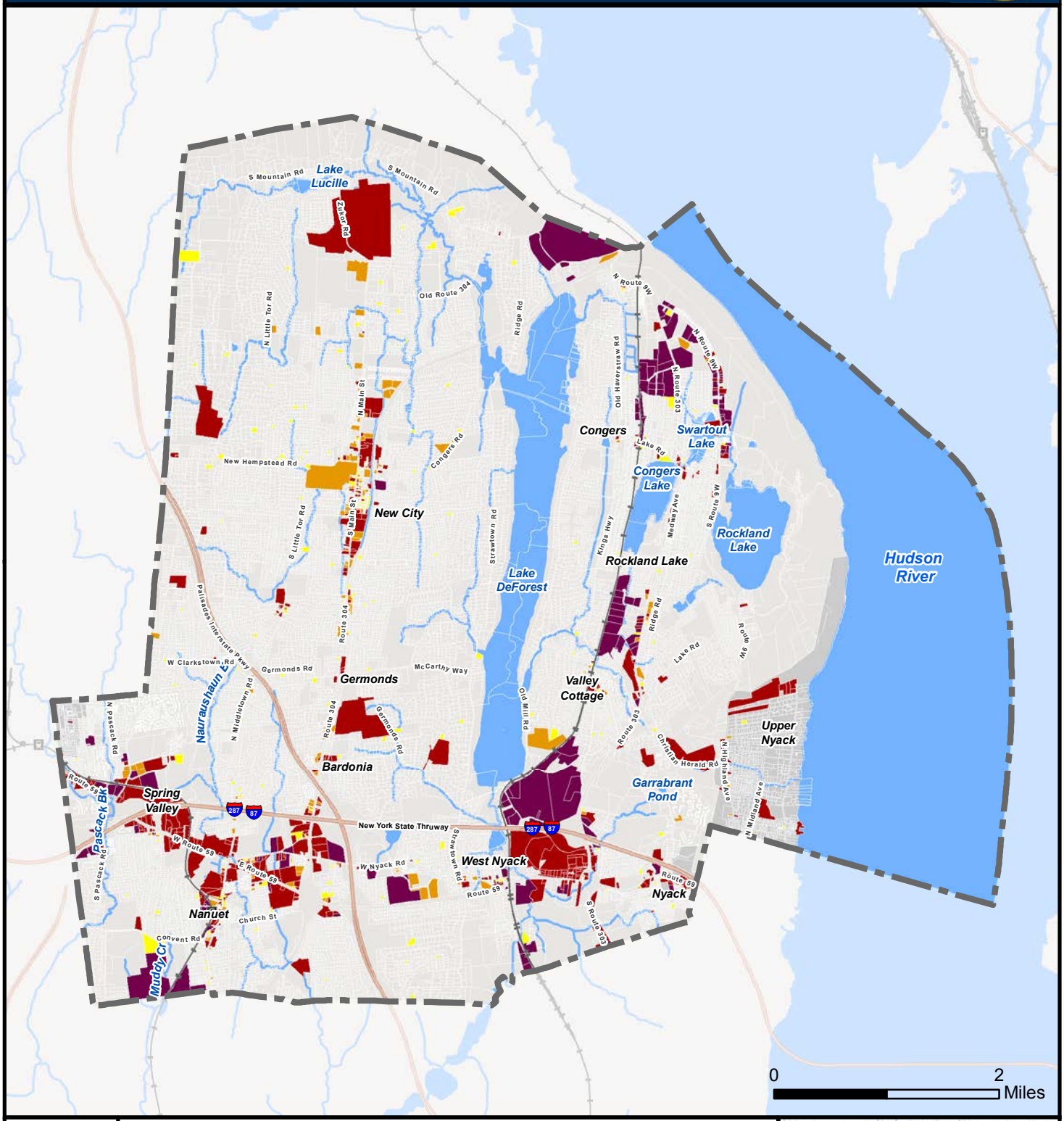
Needs:

- Backup power supply for and installation of permanent generators at key facilities;
- Continued high level emergency services operation and communication among local, county and state responders;
- Established network of 'basic need' providers (i.e., transportation for seniors, shower facilities, food, etc.); and
- Protection of health and social service facilities from future flooding and maintained access to critical supplies including, in particular, medicine, during storm events.

Opportunities:

- Locate and evaluate the vulnerability of health and social service facilities, including access to medicine;
- Identify municipal facilities in need of generators and back-up power sources and investigate funding sources;
- Implement training, education and cutting edge technologies for emergency service operations and communications;

Figure II-12
Economic Land Uses - Town of Clarkstown



N

Legend

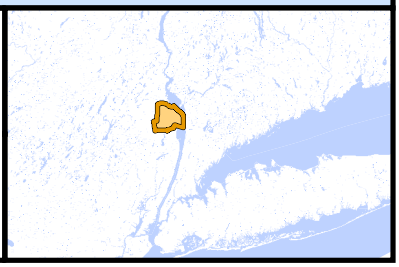
- Town of Clarkstown (Study Area)
- Village
- Rail Station
- Railroads
- Major Highways
- Rivers & Streams
- Water Bodies

Land Uses

- Office
- Mixed-Use
- Retail
- Industrial
- Other Land Use

Data Sources

ESRI, NYSITS, Rockland County, Town of Clarkstown



- Prepare an access management plan during and after storm events (for example by improving the County's paratransit bus service program for the underserved and medically needy, elderly, low income and handicapped community (Transportation Resources, Intra-county, for Physically disabled and Senior citizens [TRIPS]); and
- Prepare information to disseminate to Clarkstown residents regarding access to basic needs during storm events such as transportation for seniors, shower facilities, and access to food.

Housing Recovery Support Function

This RSF considers the entire current housing stock (rental and ownership) and evaluates its vulnerability with regard to storm events. In its evaluation of housing needs, the community considers: measures to mitigate flooding and damage by inundation and winds; revisions to codes to protect existing and future housing stock; the adequacy of emergency preparedness and evacuation plans for all residents, and in particular vulnerable populations including children and the senior community, and the potential for alternative energy sources to minimize the impacts of prolonged power outages.

Needs:

- Education for homeowners on pre-storm preparedness, storm protection procedures and post storm recovery initiatives and programs;
- Implementation of an effective tree maintenance program to reduce downed trees and resulting widespread power outages;
- Protection of single family and multi-family neighborhoods from flooding;
- Provision of resilient housing choices outside of the floodplain for all income levels, focusing in particular on the following residential neighborhoods, which regularly flood: Squadron Garden Apartments, New City Condominium Complex, New Holland Village; and
- Identification of new economically sustainable power sources that are flood-resistant or flood proof.

Opportunities:

- Develop guidance on alternative environmentally sustainable power sources, and backup power supplies;
- Educate residents in homes that repeatedly flood about buyout and relocation programs;
- Identify opportunities outside the floodplain to relocate repeatedly flooded neighborhoods;
- Investigate and pinpoint causes of neighborhood flooding (i.e., stormwater systems, stream alignment, watershed development, location in mapped floodplain, etc.) and develop plans for flood mitigation;
- Provide flood related publications/materials produced by the Town of Clarkstown, FEMA and NYS Office Emergency Management (NYS OEM) to homeowners regarding pre, during and post storm event preparedness and assistance programs; and
- Provide guidance on tree-ownership responsibilities and jurisdiction and create a Master Tree Plan to inventory and assess health, size, and number of trees in the public right-of-way.

Infrastructure Services Recovery Support Function

This RSF seeks to identify the community infrastructure that was damaged during the storms, components and facilities that have been patched up until permanent repair and replacement can occur, facilities that have been replaced, and those that remain untouched since the storm events still requiring significant attention.

Needs:

- Enhanced multi-modal opportunities including bicycle and pedestrian facilities and Town-wide bus services;
- Permanent generators for identified critical uses including, in particular gas stations;
- Restoration and protection of road, bridge, and culvert infrastructure assets; and
- Upgrades to stormwater infrastructure and improvement of drainage systems.

Opportunities:

- Inventory stormwater infrastructure including age and condition of facilities and continue to identify funding sources for maintenance and/or replacement;
- Consider implementation of green infrastructure improvements for stormwater management projects identified by the Clarkstown Storm Drainage Task Force; and
- Implement the multi-modal transportation recommendations provided in previously completed various planning documents, including in particular bicycle and pedestrian facilities and Town-wide bus service.

Natural and Cultural Resources Recovery Support Function

This RSF focuses on protecting and restoring the health of natural systems and cultural resources for continued provision of benefits to the community. These benefits can include stormwater management, recreational opportunities and tourism. Conserving and rehabilitating natural and cultural resources will have direct consequences on reducing the County's vulnerability during storm events while promoting economic development, ultimately having lasting benefits on the community's environmental and economic well-being.

Needs:

- Continued investigation of alternative stormwater management initiatives (i.e., green technology);
- Improved coordination with NY and NJ state agencies, neighboring communities, and other agencies such as the Soil and Water Conservation District on water-related issues related to the Hackensack River;
- Protection of open space assets for recreation and tourism, and as a means to assist with stormwater management; and
- Protection of Lake DeForest, Rockland Lake, Congers Lake, and other water bodies and wetland systems.

Opportunities:

- Consider additional protective measures for recreation and open space through land use regulation or other means, such as conservation easements;
- Create a Regional Coordination Committee to address flooding issues across state and municipal boundaries;

- Determine impacts on recreational assets from flooding and evaluate protection measures to protect from future flood events;
- Identify areas where green infrastructure techniques can be used to alleviate flooding from stormwater runoff; and
- Prepare a Watershed Protection Plan(s) focused on Lake DeForest, Rockland Lake, Congers Lake, and other water bodies.

Community Planning and Capacity Building Recovery Support Function

This RSF addresses a communities' ability to respond to and implement short and long term recovery measures, including: policy initiatives, laws, regulations, and planning activities, as well as civic engagement and public education.

Needs:

- Development balanced with open space preservation;
- Continued upgrades to communication and operational infrastructure at Town Facilities including the Emergency Operations Center;
- Education and outreach campaign to enlist more participation in the "Ready Clarkstown Emergency Notification System";
- Restricting new development in floodplain areas;
- Improved regional coordination with state, federal, and municipal agencies to protect the community and plan for future disasters;
- Informational outreach regarding local and regional shelter locations, shower facilities, and local reception centers, facilities for eating and sleeping; and
- Updated stormwater infrastructure inventory, mapping, and file storage.

Opportunities:

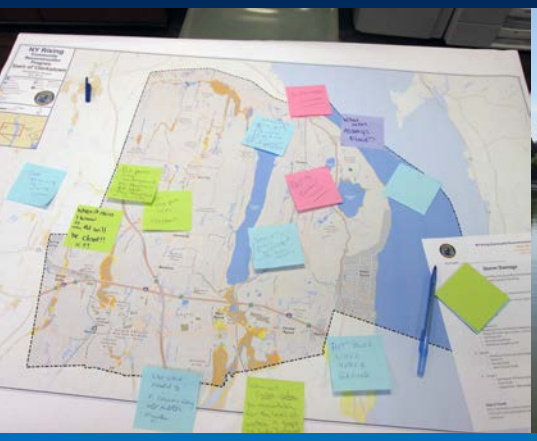
- Create a comprehensive Town-wide digital inventory of stormwater infrastructure (i.e., catch basins, storm drains);
- Ensure every resident of Clarkstown is aware of the location of the regional shelters and local reception centers for use during storm events and is enrolled in the "Ready Clarkstown Emergency Notification System";
- Establish public-private partnerships (with health clubs, gyms, and other private facilities) to provide showers and other essential services to Town residents with long term power outages;
- Evaluate local regulations to ensure a proper balance is maintained between new development and open space protection;
- Form a Regional Coordination Committee to address flooding issues across state and municipal boundaries; and
- Continue initiatives to provide state of the art communication and operational infrastructure at Town facilities, the Police Station, and Emergency Operations Center.

Downed Tree and Wires at Gable Road and Tavo Lane Intersection – Superstorm Sandy, October 30, 2012 (Michelle Olson)

2014
NY RISING COMMUNITY RECONSTRUCTION PLAN

CLARKSTOWN NYRCR

Section III
Reconstruction and Resiliency Strategies



III Reconstruction and Resiliency Strategies

The NYRCR Clarkstown Planning Committee (Committee) developed the following strategies to support reconstruction and promote resiliency in the Clarkstown community. This list considers existing known areas of vulnerability due to flood, wind, and other storm damage from Superstorm Sandy and Hurricane Irene.

The vision, goals, needs, and opportunities presented in Section I of this NY Rising Community Reconstruction (NYRCR) Plan were identified by the Committee with input from the larger Clarkstown community and collaboration with the Consultant Team and provide the foundation for this list of strategies.

The strategies help identify and resolve critical issues identified in Section I of this NYRCR Plan, address risks to assets explored in Section II and consider flood mitigation, disaster recovery and long-term resiliency 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 identified opportunities and meet short, medium, and long-term goals identified during the NYRCR planning process.

The following section presents a description of each strategy followed by a table listing the projects that help realize that strategy. While not every strategy has a specific Proposed or Featured Project identified to accomplish that strategy, the intent and the goal of the strategy remains an important guide for the Community in their future planning efforts. Similarly, many of the Proposed and Featured Projects developed by the Committee address multiple strategies. For ease of reference, this NYRCR Plan presents the Proposed and/or Featured Project—only once—under the strategy to which it is most relevant and most applicable. Table V-2 in Section V.B, "Master Table of Projects," presents detailed descriptions of all Proposed Projects, Featured Projects, and Additional Resiliency Recommendations proposed in this NYRCR Plan.

Strategy A: Restore and protect critical infrastructure and transportation assets

Implementing measures to restore and permanently protect critical infrastructure and transportation routes addresses the Recovery Support Functions of Infrastructure, Community Planning and Capacity Building, Health and Social Services, and Economic Development.

During extreme storm events, many of the Town's waterbodies overflow and flood into their natural floodplains resulting in the closures of major through roads, and in some cases require the rescue of travelers stranded in their vehicles. Widespread road closures result in significant disruption to residents and create emergent conditions when emergency service providers cannot access those in need. After the flooding and high winds subside, building material debris and fallen trees leave roads impassable. Stormwater management and drainage infrastructure enhancements along critical roads and evacuation routes minimize the potential for extensive road closures as a consequence of flooding.

Prolonged power outages result not only in disruption to residents and businesses but also impacts street lights, traffic signals and cell towers. This strategy not only addresses the vulnerability of the power system itself, but also the ability of various Clarkstown neighborhoods to reduce vulnerabilities created by power outages. Power is a necessary resource for emergency responders and recovery and access to an alternative power sources is vital. In addition to

providing assistance for purchase and installation of back-up power generators, the Town of Clarkstown would amend their zoning code to require, as a matter of policy, back-up power generation for critical facilities including gas stations and cell towers.

Table III-1:
Strategy A: Restore and protect critical infrastructure and transportation assets

Project Name	Short Project Description	Estimated Cost	Proposed or Featured Project	Regional Project (Y/N)
Fredric Street Drainage Improvements	Resize and replace piping for approximately 1,200 linear feet from Fredric Street west through and including the New Holland Village Condominiums. Identified as an urgent need by the Town of Clarkstown Storm Drainage Task Force.	Engineering and construction is estimated to cost $1,400,000.	Proposed Project	N
Old Haverstraw Road Drainage Improvements	Resize and replace existing deteriorated and undersized drainage lines to adequately drain areas along Old Haverstraw Road. Identified as an urgent need by the Town of Clarkstown Storm Drainage Task Force.	Construction is estimated to cost $750,000.	Proposed Project	N

Strategy B: Develop initiatives and financial assistance programs to better protect residents, businesses, and commercial centers from future storm damage and to allow them to recover more quickly

Substantial storm events like Superstorm Sandy and Hurricane Irene impose a significant burden on small business owners, particularly those who have been flooded or frequently lose power. These burdens are exacerbated when business owners are also struggling with flood damage to their homes. Ensuring the financial stability of residents and businesses is critical to efficient and expedient economic development and recovery. This strategy addresses the Recovery Support Functions of Economic Development, Housing and Community Planning, and Capacity Building.

While there are a variety of organizations and resources available to assist residents and business owners in their pre-storm preparedness and post-storm recovery, it is sometimes difficult to find out from whom help can be sought and where to turn. This strategy promotes the consolidation of information and provides detailed roadmaps for finding information, technical advice, storm preparation assistance, emergency resources, and residential and business post storm recovery assistance including low-interest loans and grants. Several projects would address various components of this strategy including: the "Comprehensive Town-wide Education and Alert Program," which addresses storm preparedness, implementation, emergency assistance, and recovery; the "Ready Clarkstown Emergency Assistance Program," which would encourage enrollment in the Town's emergency notification system; and "Operational and Communication Infrastructure Improvements," which would commit resources to better data collection.

Strategy C: Improve stormwater infrastructure and drainage systems using green infrastructure practices where possible and cost-effective

Stormwater management and drainage system improvements are critical to minimizing the widespread damage caused by episodic, flash-flood, and surge-related flooding events. Infrastructure improvements address several needs identified by the Committee and the community and specifically address the Infrastructure and Natural and Cultural Resource Recovery Support Functions. Improvements to the management and drainage of storm water also result in enhanced water quality, particularly where green measures are implemented. Green infrastructure programs could include bioswales, infiltration ponds, rain-gardens, retention basins, and permeable paths and pavers. Using natural systems to control and manage floodwaters is an inherently long term initiative supporting lasting community resiliency.

Stormwater management and drainage system projects include the preparation of a comprehensive digital inventory of the Town's infrastructure, including the size, date of installation, and inspection and maintenance schedules for replacement or upgrades. The preparation and adoption of required green infrastructure building and stormwater management regulations would ensure permanent changes. Other projects include resizing and replacement of stormwater management drainage infrastructure in various areas throughout the Town. Implementation of a comprehensive "green" redesign of 143 cul-de-sacs throughout the Town to eliminate raised, planted medians and replace them with bio-filtration and retention systems would not only capture roadway run-off but also improve water quality throughout Clarkstown.

Table III-2:
Strategy C: Improve stormwater infrastructure and drainage systems using green infrastructure practices where possible and cost-effective

Project Name	Short Project Description	Estimated Cost	Proposed or Featured Project	Regional Project (Y/N)
Cranford Drive Drainage Improvements	Resize stormwater management drainage infrastructure and implement green infrastructure practices (regrading and placement of fiber rolls, rock weirs and vanes, boulder revetment), along Cranford Drive from north of Old Route 304 to the intersection of Cranford Drive and Route 304.	Construction is estimated to cost $2,100,000.	Proposed Project	N
Drainage Improvements to the Demarest Kill Stream	Stormwater management improvements to redesign, rightsize, and modify the existing drainage infrastructure in and around the Demarest Kill, including: replacing a failed culvert and collapsed headwall under Hall Avenue just west of Lake Drive; design and construction of basins and berms at the Virginia Street detention area; and modifications to existing drainage lines and underground detention areas along Virginia Street to prevent surcharging of the system.	Construction is estimated to cost $810,000 including $360,000 for the Hall Avenue Culvert and Headwall, $150,000 for the Virginia Street Detention Area, and $300,000 for the drainage improvements along Virginia Street.	Proposed Project	N
Drainage Improvements to the Nauraushaun Brook Basin	Redesign and resizing of storm drainage infrastructure under East Alison Avenue, on Blauvelt Road from Townline Road to Lake Nanuet Drive and stream bank restoration measures along the Nauraushaun Brook. Identified as an urgent need by the Town of Clarkstown Storm Drainage Task Force.	Construction is estimated to cost $500,000.	Proposed Project	N
South Mountain Road Drainage Improvements	Evaluate the South Mountain Road corridor to identify coordinated “green” and “gray” stormwater management improvement projects, which could be implemented in phases. Identified as an urgent need by the Town of Clarkstown Storm Drainage Task Force.	Feasibility analysis, engineering and construction estimated to cost $1,000,000.	Proposed Project	N
Cul-de-sac Island Reconstruction	Redesign 143 cul-de-sac islands to remove raised planted medians and replace them with green-infrastructure systems to improve water quality and reduce peak rates of run-off and streamflow quantities and velocities.	Engineering and construction are estimated to cost $35,000-$45,000 per planted island	Featured Project	N
Jeffrey Place Drainage Improvements	Excavate an 11-foot trench to relieve flooding during rain storm events on Jeffrey Place, just south of Old Mill Road. Identified as an urgent need by the Town of Clarkstown Storm Drainage Task Force.	Construction is estimated to cost $500,000.	Featured Project	N
Pineview Road Storm Drainage Improvements	Install a levee structure to provide flood protection to properties that repeatedly flood along Pineview Road. Identified as an urgent need by Town of Clarkstown Storm Drainage Task Force.	Construction is estimated to cost $500,000.	Featured Project	N

Strategy D: Ensure access to and improve resiliency of critical health and social service facilities and safe-havens during and after storm events

To supplement existing County and Regional emergency notification systems, the Town of Clarkstown offers its own emergency notification system called "Ready Clarkstown." This program is managed by the Clarkstown Police Department and enables the police department to contact residents via phone and/or email, about storm recovery efforts including road closures, flood and snow emergencies, burglaries, and other emergent community situations. The program is entirely voluntary and specific measures are in place to accommodate those residents who are visually and hearing impaired. In addition, the Town offers various reception centers or "safe-havens" throughout the community, to supplement Red Cross emergency shelters. Reception centers are designated by the Town and provide coordinated assistance and information, and serve as warming and cooling centers to Clarkstown residents. The reception centers are generally open for a few days during and after extreme events.

Despite the current availability of these resources and organizations, residents who were displaced from their homes during and after Superstorm Sandy and Hurricane Irene due to flooding or prolonged power outages were unsure about the resources that were available to them. Educating the community about existing assistance programs is critical to ensuring their safety. This strategy addresses various stated community needs and several Recovery Support Functions, but focuses on Health and Social Services, and Community Planning and Capacity Building. The Comprehensive Town-wide Education and Alert Program will provide direct information links via the Town's website, and via smartphone apps, for residents seeking a variety of information assistance, including safe travel routes, shelter locations, and supplies.

Disseminating critical information and enlisting more resident participation in the Ready Clarkstown program will increase pre-storm preparedness and minimize the fear that often accompanies a lack of information on where to turn when an emergency occurs. In addition, to address this strategy, the Town will investigate the potential to use their existing Mini-Trans systems for use as a "Mobile Help Unit" during and after storm events. The Mobile Help Unit would be staffed by emergency service personnel who would travel to affected neighborhoods and provide various services to residents, including: electronic device charging stations, information regarding road closures, restoration of power services, and potentially provide transportation for the elderly and more vulnerable members of the community to County and Red Cross shelters and Town of Clarkstown reception centers.

Strategy E: Preserve open spaces and restore natural resources to better support flood mitigation

In addition to implementing green infrastructure policy changes, the Town of Clarkstown has many opportunities to use existing parks and natural areas to further manage inundation during storm and flood events. This strategy addresses the Recovery Support Functions of Natural and Cultural Resources, and Community Planning and Capacity Building. The Town has mapped and prioritized parcels with the potential for future acquisition for use as open space and flood control. Projects to implement this strategy would include design and implementation of flood control measures on existing open space and parkland parcels and also properties that may be acquired in the future. The formation of a regional watershed management organization and implementation of protection measures developed by that organization would also further the goals of this strategy.

Table III-3:
Strategy E: Preserve open spaces and restore natural resources to better support flood mitigation

Project Name	Short Project Description	Estimated Cost	Proposed or Featured Project	Regional Project (Y/N)
Implementation of Post-Residential Buyout Program Measures for Flood Protection	Evaluate and design flood mitigation and flood control uses for appropriate parcels acquired by the Town through FEMA's HMGP Buyout Program. These properties must remain undeveloped in perpetuity and can therefore be repurposed for use as public open space, and potentially for flood control.	This feasibility study is estimated to cost $50,000.	Featured Project	N

Strategy F: Provide education, outreach and implementation assistance regarding pre-storm preparedness (including proper maintenance of waterbodies and stormwater runoff mitigation on private properties), storm protection procedures and post-storm recovery initiatives to protect from future flooding

This strategy addresses virtually every need expressed by the Committee and the community regarding flood resiliency and recovery. Because it is a comprehensive outreach initiative that accommodates pre, mid- and post storm recovery assistance with education, financial and physical assistance, the strategy addresses the following Recovery Support Functions: Community Planning and Capacity Building, Housing, Health and Social Services, Natural and Cultural Resources.

There are four key components of storm resiliency: pre-storm preparedness education, pre-storm preparedness assistance for vulnerable residents, storm response procedures, and post-storm recovery initiatives. Pre-storm preparedness measures would include providing information to residents on how to prepare themselves and their properties in advance of storms with long-term and in some cases permanent solutions, including: general stream management, floodproofing for homes and businesses (elevating mechanical and electrical equipment, sealing basement walls with waterproofing compounds, and securing propane tanks), and location and contact information for Town resources. The information could be presented in hard copy, through links on the Town's website or through seminars and Town sponsored meetings to educate the public.

The Committee asserted that it is critical to also provide physical pre-storm preparedness assistance to more vulnerable residents. As such, implementation assistance is the second component of this strategy. Assistance could include dispatching teams of volunteers to help residents clear their gutters, move or otherwise secure outdoor furniture, and make sure that streams or waterbodies that flow through their properties are generally clear of debris.

The third component to address this strategy includes informing and equipping residents with the information they need to assist them during storms. A key currently unmet need identified by the Committee was access to location information for phone charging stations and shower facilities. Measures to address this need include developing evacuation plans, providing information regarding the closest emergency shelters and what facilities are offered at County and Red Cross shelters versus local Town supported reception centers. Residents would also be provided with a list of materials and equipment for emergency kits (flashlights, batteries, drinking water, and canned foods). Preparedness and response projects would also

include the potential for repurposing the Mini-Trans system to serve as a Mobile Help Unit during and after storm events. A Mobile Help Unit could provide information, necessities and also potentially transportation for the elderly or handicapped to shelters and reception centers.

The fourth initiative to address this strategy provides education, financial and physical assistance in the aftermath of storms. Residents and business owners who suffer property damage, are out of power, and are facing other flood related difficulties need to know what to do and whom to call for all manners of assistance. Creating a comprehensive list of assistance agencies for technical advice and funding, through a link on the Town's website, would provide immediate reference to residents.

Strategy G: Promote resilience and flood management best practices through land-use planning, policy, and regulation

Permanent changes to Town regulations are critical to ensure long-term resiliency. Adopting amendments to existing Town policy documents addresses various needs expressed by the Committee including the need for a permanent change in the way the Town regulates new construction to significantly limit development in the floodplain. This strategy addresses the Recovery Support Functions of Community Planning and Capacity Building, Infrastructure, Housing, and Natural and Cultural Resources.

The *Town of Clarkstown Comprehensive Plan (2009)*[12] recommended that the Town develop and adopt stream corridor protection measures, improved stormwater treatment and on-site detention requirements through modifications to the zoning code. Consequently, the Town's Zoning Code now offers density bonuses if an applicant provides on-site treatment and stormwater detention in excess of the volume produced by the proposed development project. The Town has committed to create additional protections to streams, lakes, and wetlands by revising the Zoning Code.

Once a Town-wide digital inventory of stormwater infrastructure is complete, decisions regarding storm flows and the impact and siting of stormwater infrastructure can be better managed. A comprehensive tree maintenance program for trees located in the public right-of-way would minimize damage and disruption from downed trees and power lines following high wind events. To enact permanent change, the Town can adopt code amendments requiring use of flood resilient materials, incentivize flood-resilient building construction and renovation, and allow housing retrofits to support senior and multi-family housing.

Table III-4: Strategy G: Promote resilience and flood management best practices through land-use planning, policy and regulation

Project Name	Short Project Description	Estimated Cost	Proposed or Featured Project	Regional Project (Y/N)
Digital Inventory of Stormwater Infrastructure	Retain professional services to collect data on the Town's roughly 12,000 catch basins. Information to be collected would include: size, date of installation, and inspection and maintenance schedules for replacement or upgrades.	Inventory and monitoring system services are estimated to cost $200,000.	Featured Project	N
Tree Maintenance Program	Proactively manage trees located in the public right-of-way to reduce incidents of road closures and power interruptions resulting from downed trees during storm conditions.	Administrative program costs are estimated to cost $30,000.	Featured Project	N

Strategy H: Improve regional coordination with neighboring communities and local and state agencies for watershed management to better mitigate flooding and plan for future disasters

Regional initiatives that address the entire watershed are critical to effective resiliency planning. The Committee identified the need for improved regional coordination with State, Federal, and municipal agencies to protect the Town and plan for future disasters. To address this need, the Committee and the community recognized the opportunity to create regionally coordinated resiliency plans. This strategy addresses several Recovery Support Functions, but focuses on Natural and Cultural Resources and Community Planning and Capacity Building.

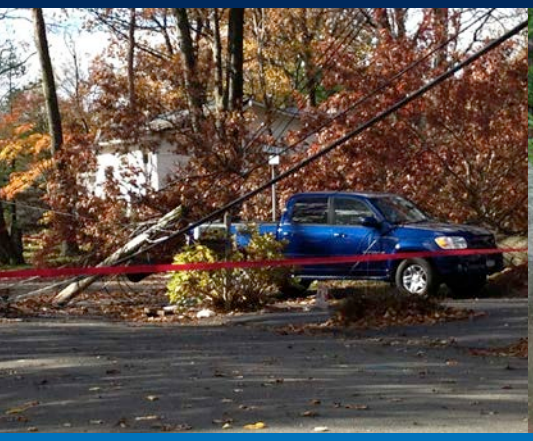
Recognizing the need for comprehensive flood prevention approaches to ensure the preservation of the environmental benefits of various watersheds, in 2012, the State of New Jersey passed legislation to create a bi-state organization and framework for regional coordination of potential flood hazards along the Hackensack River, Sparkill Brook/Creek, Saddle River, Ramapo/Mahwah River, and their tributaries. In April 2014, the New York State Legislature included $100,000 in the 2014-2015 Budget to enact the Rockland-Bergen Commission (Commission). The Commission would comprise 12 voting members (six from each state) and New York's and New Jersey's Environmental Commissioner and a representative of United Water as non-voting members. The Commission is mandated to issue a report by June 2016 to include recommendations for legislation, administrative action, and local government action. This legislation furthered a history of cooperation among State and local governmental entities and various private organizations and individuals in the vicinity of these water bodies and watersheds. The creation of a bi-state commission represents an appropriate means to accomplish these very important goals.

A multi-jurisdictional flood coordination commission could authorize watershed modelling to identify natural infrastructure practices, environmentally sensitive stream management programs including components of emergency stream intervention with project implementation, and education and outreach to municipal and County officials, and residents. To ensure that the proposed initiatives meet permitting standards, the management entity can comprise representatives from State and County agencies. The Town of Clarkstown seeks to be an active participant in this process and disseminate information back to Town residents. The Town would consider committing resources for the local implementation of the regional watershed management recommendations developed by the Commission.

2014
NY RISING COMMUNITY RECONSTRUCTION PLAN

CLARKSTOWN NYRCR

Section IV
Implementation – Project Profiles



IV Implementation – Project Profiles

The Town of Clarkstown is eligible to receive up to $3 million in U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant—Disaster Recovery (CDBG-DR) funds to implement reconstruction and resiliency projects. While developing projects for inclusion in this NYRCR Plan, the Planning Committee took into account alignment with reconstruction and resiliency strategies, cost estimates, cost-benefit analyses, the effectiveness of each project in reducing risk to populations and critical assets, feasibility, and community support.

This section presents a complete project profile for each Proposed and Featured Project identified by the Committee throughout the six-month planning process. The NYRCR Plan also includes "Additional Resiliency Recommendations" presented in Section V.A, "Additional Resiliency Recommendations."

- Proposed Projects are proposed for funding through a Community's allotment of CDBG-DR funding.
- Featured Projects are innovative projects where an initial study or discrete first phase of the project is proposed for CDBG-DR funding or other identified funding; and regulatory reforms and other programs that do not involve capital expenditures.
- Additional Resiliency Recommendations are resiliency projects and actions the Committee would like to highlight and are not categorized as Proposed or Featured Projects.

Risk Mitigation Analysis

Projects with potential flood risk reduction benefits were analyzed through a mitigated risk assessment process. Project locations were mapped using available documentation, designs, and plans to establish the geographic area to be analyzed for each project and the proximity to assets. Additional data including aerial imagery, flood risk areas, and topography were also utilized to gain a more complete understanding of the surrounding site characteristics. After the project locations were mapped, project documentation was reviewed to identify how proposed project actions may decrease flood risks to nearby assets through improvements to stormwater conveyance systems and flood mitigation measures.

Once projects were reviewed, asset locations mapped previously in the Asset Inventory and Unmitigated Risk Assessment tasks were analyzed to locate and evaluate those assets that would be affected by each project. The Mitigated Risk Assessment task builds on the Unmitigated Risk Assessment by analyzing how proposed projects may decrease flood risks to assets. Assets are entered into the New York State Department of State (NYS DOS) Risk Assessment Tool; however the flood risk areas, landscape attributes, and vulnerability rankings are modified to reflect anticipated effects of proposed projects. For example, localized flooding on a poorly-drained street could be remedied with a proposed catch basin and culvert pipe; thereby reducing risk to assets or eliminating an existing flood risk area. In the Risk Assessment Tool, removing that flooding hazard would result in a Mitigated Risk Score lower than the original Unmitigated Risk score. By generating and comparing the Mitigated / Unmitigated Risk Scores, the potential risk reduction benefits of projects can be assessed.

The Project Profiles provide an overview of Anticipated Reduction of Risk. For details on the Risk Assessment results, see Section V.D, "Community Asset Inventory."

Cost-Benefit Analysis Methodology

The Cost-Benefit Analysis (CBA) developed the benefits and costs associated with Proposed and Featured Projects. The CBA provides the anticipated cost of implementation and an evaluation of the benefits of the Proposed and Featured Projects. The purpose of the CBA is to inform the Clarkstown NYRCR Planning Committee as it formulates projects for implementation; and to help the community prepare grant applications for CDBG-DR funds and other funding opportunities identified in the future. The effectiveness of each project in reducing risk to populations and critical assets, feasibility, and community support were taken into account as well as discussions with Committee Members, community members and Town staff. Based on this, the cost-effectiveness of a project was assessed.

The costs and benefits used to evaluate projects through the CBA are explained further below.

Project Costs

The Proposed and Featured Project Profiles include a summary of anticipated project costs. For some Proposed and Featured Projects, estimated costs were provided by the municipal engineering staff and consultants. Where information was not available, the Consultant Team developed preliminary project cost estimates, which included evaluation, design and/or construction where appropriate. Due to various uncertainties, the estimates are just that—estimates: they provide the community with a practical understanding of the potential estimated costs of project implementation.

The following three factors were used to evaluate costs and benefits:

- Capital Cost;
- Life-Cycle Cost – annual maintenance cost for upkeep and operations for the useful life of the project (if applicable); and
- Useful Life of Strategy – number of years before replacement is required (if applicable).

The CBA not only provides an assessment of the cost of implementing the projects, but also provides a description of the future costs of not implementing the Proposed and Featured Projects. If projects are not implemented, long-term viability of municipalities to withstand and rebound following significant storm events may be negatively impacted. The costs of not implementing projects are more difficult to quantify, but are nonetheless critical to the analysis and are therefore addressed qualitatively. These costs include: repetitive damage to personal property and public infrastructure resulting from frequent recurring flooding and future storm events; economic loss to residents, local and regional employers as a result of the inability to work; and obstacles or limitations to the provision of life safety and emergency services due to road closure that result in repeated inability to access areas of the community.

Project Co-Benefits

The types of benefits evaluated in the CBA are summarized below:

Risk Mitigation: The extent to which a Proposed or Featured Project mitigates the risk of damage to an identified community asset from a future storm event.

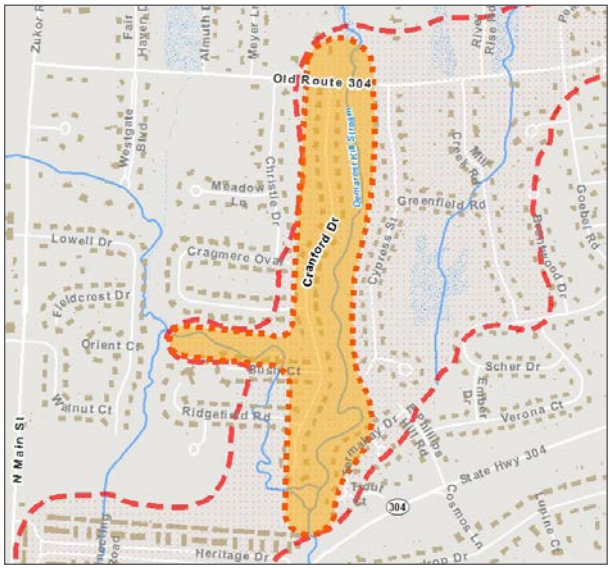
Economic Impacts: The potential for a Proposed or Featured Project to minimize costs and reduce the time required for the local economy to rebound from a storm event. Economic assessment data included, where applicable: an estimate of permanent jobs secured/added; relationship to, and/or furtherance of,

plans in the *Mid-Hudson Regional Economic Development Council Strategic Plan (2011)*[16] and the *Mid-Hudson Regional Economic Development Council's 2014 Progress Report*;[20] potential for additional economic activity; and the net effect on local municipal expenditures.

Environmental Benefits: The potential for a Proposed or Featured Project to protect critical environmental assets, high-priority habitat, threatened and endangered species, migration or habitat connectivity; any cleanup resulting from the action; and creation of open space or a new recreational assets.

Health and Social Benefits: The potential for a Proposed or Featured Project to benefit the overall population due to improved access to health and social service facilities and public safety services; type and size of socially vulnerable population secured; and degree to which essential health and social service facilities are able to provide services to a community during a future storm or weather event as a result of the implementation of a Proposed or Featured Project.

Cranford Drive Drainage Improvements



Cranford Drive Project Area (MJ Engineering and Land Surveying, P.C.)

Demarest Kill at Cranford Drive (Elizabeth Matamoros)

Project Description:

This stormwater management improvement project includes the redesign of existing on-site drainage infrastructure and installation of new drainage using green infrastructure practices on Cranford Drive—north of Old Route 304 to the intersection of Cranford Drive with Route 304. Improvements will include: stream restoration and stabilization through regrading and placement of armored channel lining, brush matting, fiber rolls, rock weirs and vanes, boulder revetment, and retaining walls; regrading for approximately 5,500 linear feet; armored channel sections totaling approximately 500' (D50 12" Stone, 18" thick); replacement of various existing drainage pipes (15-18"); planted areas for flood storage include grass, shrubs, and trees; and safety fencing near retaining walls and steep slopes. This area has been identified as an area of extreme risk due to repetitive flooding by the Demarest Kill and has been identified by the Town of Clarkstown Storm Drainage Task Force as an urgent need.

Project Location

New City

Estimated Cost

The total project cost is $3.5 million, of which $1,400,000 has been committed by Rockland County. Engineering design will be completed in house by the Clarkstown Department of Environmental Control and therefore engineering design fees are not anticipated.

Economic Benefits

Stormwater pollution prevention, management, and treatment creates costs for communities and residents. These costs can be offset or reduced by ensuring appropriately sized stormwater infrastructure and incorporating green infrastructure practices, which in some cases can be less costly. Better management of stormwater runoff reduces energy costs, diminishes the impacts of flooding and flood related damages to residences and businesses, and reduces overall infrastructure costs.

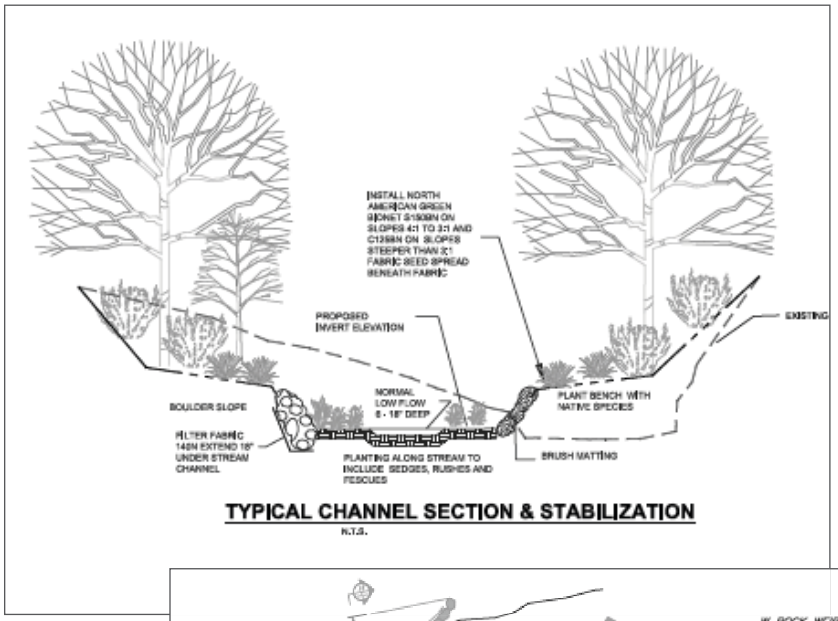
Environmental Benefits

Ensuring that stormwater infrastructure is functioning properly and implementing green infrastructure practices, which rely on natural processes like evaporation, infiltration, and plant transpiration, effectively and affordably complements traditional "gray" infrastructure, giving stormwater managers the ability to create integrated solutions to better serve the community and its residents. A widespread initiative to use both "green" and "gray" stormwater management practices creates more sustainable communities, that are more resilient to storm events.

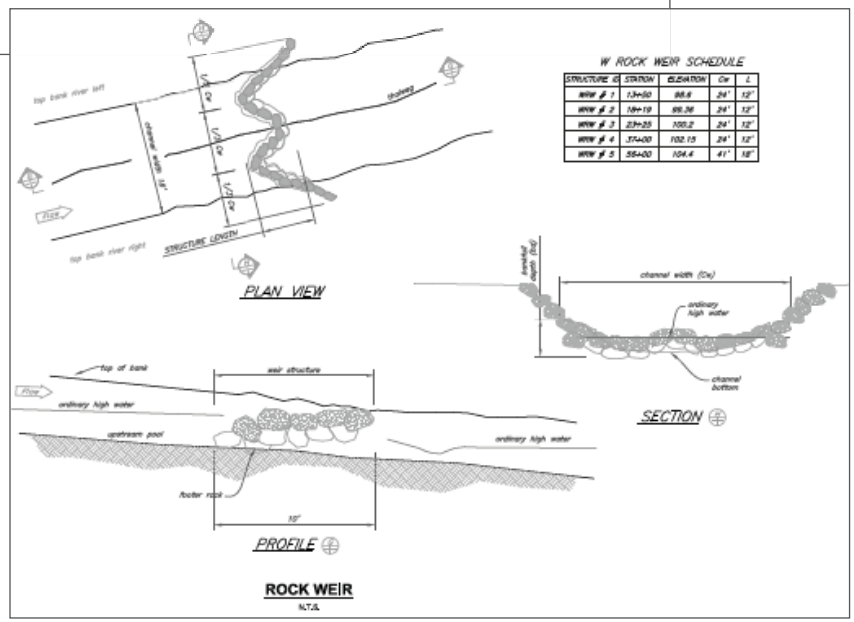
Health and Social Service Benefits

The project will improve drainage to an area that has been identified by the community as an extreme risk due to repetitive flooding that frequently results in road closure, which impedes through-travel by residents and

Cranford Drive Drainage Improvements (cont'd)



Typical Channel Section & Stabilization, Cranford Drive Detail, June 11, 2014 (Town of Clarkstown, Department of Environmental Control)



Rock Weir Detail, Cranford Drive Detail, June 11, 2014 (Town of Clarkstown, Department of Environmental Control)

emergency service providers. Implementation of drainage improvements will minimize roadway flooding and closure. A widespread initiative to use both "green" and "gray" stormwater management practices will positively affect air and water quality, resulting in local and regional health benefits. Additional street level vegetation offers significant benefits in the reduction of air pollution - serving an efficient urban pollutant filter, yielding rapid and sustained improvements in street-level air quality.

Cost-Benefit Analysis

Implementation of this project will mitigate flooding along the stream corridor, increasing resiliency and sustainability. Flood mitigation will improve access for emergency services, reduce the risk of potential damage to property and approximately 47 homes, and reduce the cost of reconstruction and rehabilitation after storm events. It is anticipated these improvements will provide significant savings in municipal expenditures, such as roadway repair, repetitive drainage systems repair and provision of emergency services. Although no permanent jobs are likely to be created, the project is expected to result in approximately 25 full-time equivalent (FTE) short-term construction related jobs.

The useful life of this flood mitigation project would be over a period of 80-100 years. The anticipated routine maintenance of these improvements will be scheduled within the existing maintenance programs within the Town, and are anticipated to be covered within existing or future operating budgets without a specific cost increase required. Based on this analysis, the potential benefits of this project are believed to outweigh the financial investment of implementation.

Cranford Drive Drainage Improvements (cont'd)

Anticipated Reduction of Risk

Project improvements and fortifications along the stream channel corridor are anticipated to improve Exposure and Vulnerability conditions thereby reducing risk to five nearby assets. However, risk is not completely mitigated because assets remain in close proximity to the waterway.

General Timeframe for Implementing Actions

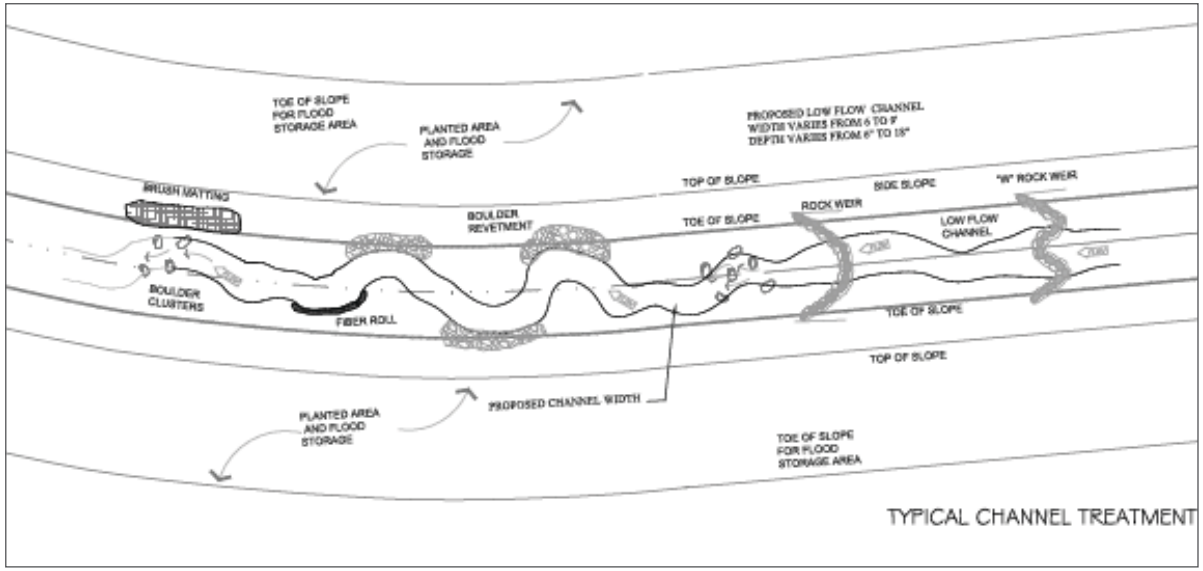
This project has been identified by the Town of Clarkstown Storm Drainage Task Force as an urgent need. The construction documents for this project are nearly complete and New York State Department of Environmental Conservation (NYS DEC) is currently reviewing the Town's proposal for this project in the context of their Article 15 Permit review. Upon project approval, it is anticipated that permits will be secured within approximately six months (NYS DEC is currently reviewing the application for permits). The project will be publicly bid and awarded through a competitive process. Project construction is estimated to take 12 months.

Government Regulatory Requirements

NYS DEC is currently reviewing the Town's proposal for an Article 15, Protection of Waters (6NYCRR Part 608), and a Water Quality Certification permit for the "Cranford Drive Flood Amelioration Project" because a NYS DEC protected stream runs parallel to and crosses Cranford Drive. A U.S. Army Corps of Engineers (USACE) Article 10 Water Quality Certification. A permit from the Rockland County Drainage Agency may also be required.

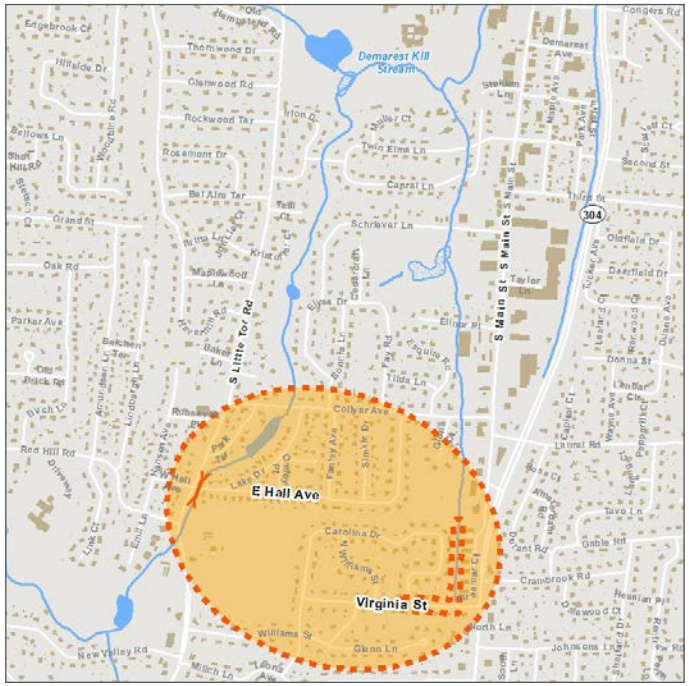
Entity with Jurisdiction

Town of Clarkstown.



Typical Channel Treatment, Cranford Drive Detail, June 11, 2014 (Town of Clarkstown, Department of Environmental Control)

Drainage Improvements to the Demarest Kill Stream



Demarest Kill Stream Project Area (MJ Engineering and Land Surveying, P.C.)

Project Description

Flooding of and along various tributaries to the Demarest Kill Stream during Hurricane Irene resulted in significant damage to property and infrastructure in New City. This project includes stormwater management improvements to: redesign, rightsize, and modify the existing drainage infrastructure; reduce the potential for flood-related damages to residences and businesses; and reduce costs associated with their repair. The failure of the culvert under Hall Avenue adjacent to homes along Little Tor Road has resulted in the collapse of the headwall and a sink hole has formed. The Town of Clarkstown Storm Drainage Task Force identified this project as an urgent need.

The project will involve the rightsizing and replacement of the failed culvert and collapsed headwall on Hall Avenue just west of Lake Drive and diversion of the stormwater into the Virginia Street detention area. Improvements to the Virginia Street detention area to accommodate the additional flow will include construction of basins and berms. Additional stormwater infrastructure improvements along Virginia Street include the modification of existing drainage lines and underground detention chambers to upgrade the existing system to higher detention capacity and prevent surcharging of the system which currently causes flooding of properties and New York State (NYS) Route 304.

Project Location

New City

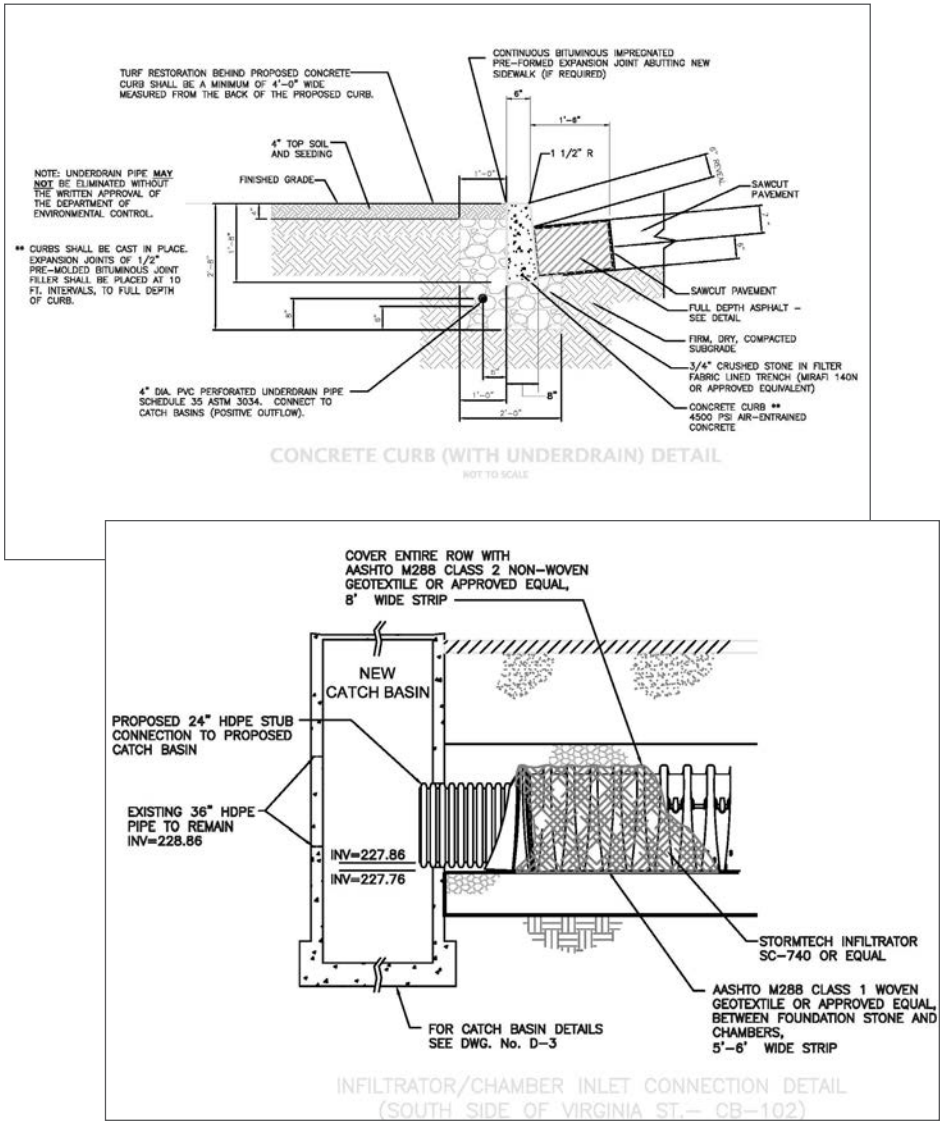
Estimated Cost

The capital cost to construct these improvements is estimated to be $810,000 in total. This includes $360,000 for the Hall Avenue Culvert and Headwall, $150,000 for the Virginia Street Detention Area, and $300,000 for the drainage improvements along Virginia Street.

Economic Benefits

During storm events, large volumes of stormwater exceed the capacity of the existing network of culverts, pipes, tunnels, and ditches along and adjacent to the Demarest Kill Stream. The overflow volumes have not only damaged the infrastructure, but their failure has also resulted in significant property and roadway damages. Implementing infrastructure improvements will reduce the potential for flooding related damages to residences and businesses, as well as costs associated with their repair.

Drainage Improvements to the Demarest Kill Stream (cont'd)



Concrete Curb and Catch Basin Details - Virginia Street Proposed Sewer Plan, September 27, 2014 (Town of Clarkstown Department of Environmental Control)

Environmental Benefits

Undersized drainage infrastructure can impede storm flows and consequently exacerbate upstream and downstream flooding conditions. Appropriately-sized infrastructure in the context of an overall assessment of storm flow routing is an important component of reducing flood damage. Replacing undersized infrastructure with appropriately-sized infrastructure improves stream function by increasing capacity in the channel to accommodate additional demand created by stormwater. Maintaining the natural channel will improve water quality and also prevent detrimental impacts to habitat for flora and fauna.

Health and Social Service Benefits

The project will improve drainage to a broad, dense residential area that has been identified by the Community as at extreme risk due to repetitive flooding, that frequently results in road closure, which impedes through travel by residents and emergency service providers. Implementation of drainage improvements will minimize roadway flooding and closure.

Cost-Benefit Analysis

This project will provide long-term benefits through flood mitigation near the Demarest Kill, especially in the area of East Hall Avenue, South Little Tor Road, and Virginia Street. By mitigating flooding, this project will provide for improved emergency response to areas that may otherwise be cut off during storm events, including approximately 34 homes. By reducing the risk of damage to roadways, infrastructure and property from flooding, this project will limit associated rehabilitation and reconstruction costs, resulting in significant savings in local government expenditure. Although no permanent jobs are likely to be created, the project is expected to create approximately six short-term full-time equivalent (FTE) construction jobs.

Drainage Improvements to the Demarest Kill Stream (cont'd)

The useful life of this flood mitigation project would be over a period of 80 years. The anticipated routine maintenance of these improvements will be scheduled within the existing maintenance programs within the Town, and are anticipated to be covered within existing or future operating budgets without a specific cost increase required. Based on this analysis, the potential benefits of this project are believed to outweigh the financial investment of implementation.

Anticipated Reduction of Risk

The culvert widening and headwall replacement on East Hall Avenue is anticipated to return the infrastructure to a functional condition. Implementation of this project will reduce risk the to three adjacent assets through improved Vulnerability conditions. However, some risk remains present because the Demarest Kill Stream still passes beneath the roadway, making it a potential constriction during a storm event. While improvements will increase the detention capacity of the stormwater system, the two Virginia Street assets remain located within the system's discharge area, so they will still be susceptible to flooding.

General Timeframe for Implementing Actions

Culvert and headwall: The survey work is 100% complete; preliminary design is underway. Preliminary design of the Virginia Street drainage modifications is nearly complete. The project has been identified by the Town of Clarkstown Storm Drainage Task Force as an urgent need. Immediately upon project approval, the final engineering design, construction drawings and project specifications will be completed (anticipated three months); the project will be publicly bid and awarded through a competitive process. It is anticipated that project construction would take approximately three to six months.

Government Regulatory Requirements

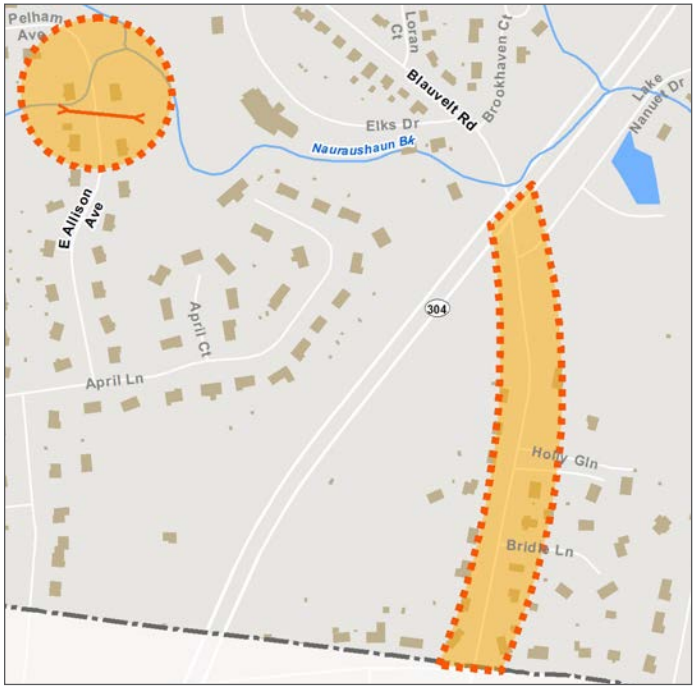
The Demarest Kill Stream is a Class "C" non-protected stream and therefore an Article 15 Permit, Protection of Waters Permit from New York State Department of Environmental Conservation (NYS DEC) is not required. However the project would likely require an U.S. Army Corps of Engineers (USACE) Clean Water Act Section 404 Permit for disturbance to "waters of the U.S.", which also requires Water Quality Certification (WQC) from NYS DEC. Local communities are required by the Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP) to prepare data for a revision to the Flood Insurance Rate Map (FIRM) within six months of the completion of any project that changes the base flood elevation at any location. This process is accomplished through a Letter of Map Revision to FEMA. A Town Highway Road Opening Permit will also be necessary.

Entity with Jurisdiction

Town of Clarkstown.

Culvert at Hall Avenue (Elizabeth Matamoros)

Drainage Improvements to the Nauraushaun Brook Basin



Nauraushaun Brook Basin Project Area (MJ Engineering and Land Surveying, P.C.)

Culvert at East Allison Avenue (Elizabeth Matamoros)

Project Description

The overtopping of the adjacent unnamed tributary to the nearby Nauraushaun Brook and resulting roadway flooding on East Alison Avenue during storms causes widespread flooding, road closures, and severely limits through travel for residents and emergency service workers to this densely developed residential neighborhood. The project will include redesign and resizing of the culvert under East Alison Avenue, resizing and replacement of stormwater drainage infrastructure on Blauvelt Road, from Townline Road to Lake Nanuet Drive including implementation of green infrastructure components, such as: vegetated swales, bioretention, and stream bank restoration measures along the Nauraushaun Brook. The Town will be constructing a berm on the channel to serve as an interim flood mitigation measure until this design and construction of the full mitigation project is complete. This project has been recognized as an urgent need by the Town of Clarkstown Storm Drainage Task Force.

Project Location

Nanuet

Estimated Cost

The capital cost to construct these improvements is estimated to be $500,000.

Economic Benefits

Rightsizing stormwater infrastructure reduces stress to the system by accommodating increased volume, and extends the useful lifetime of the drainage system. When the system is sized appropriately, the potential for damage and early replacement and the labor and materials costs associated with this work is minimized.

Environmental Benefits

Undersized drainage infrastructure can impede storm flows and consequently exacerbate upstream and downstream flooding conditions. Appropriately-sized infrastructure in the context of an overall assessment of storm flow routing, is an important component of reducing flood damage. Replacing undersized infrastructure with appropriately-sized infrastructure improves stream function by increasing capacity in the channel to accommodate additional demand created by stormwater. Maintaining the natural channel will improve water quality and also prevent detrimental impacts to habitat for flora and fauna.

Drainage Improvements to the Nauraushaun Brook Basin (cont'd)

Health and Social Service Benefits

The project will improve drainage to an area that has been identified by the community as an extreme risk due to repetitive flooding. Implementation of drainage improvements will significantly improve system behavior maximizing efficiency of the surrounding municipal infrastructure, protecting homes and residents, and maintaining roadway and emergency vehicle access to vulnerable neighborhoods during a disaster or flooding event.

Cost-Benefit Analysis

This project will provide long-term benefits through flood mitigation in the Nauraushaun Brook Basin, particularly in the area of East Alison Avenue and Blauvelt Road. By mitigating flooding, emergency response to areas that may otherwise be cut off during storm events including approximately 16 homes, will be improved. By reducing the risk of damage to roadways, infrastructure and property from flooding, this project will limit associated rehabilitation and reconstruction costs, resulting in major savings in local government expenditure. Although no permanent jobs are likely to be created, the project is expected to create approximately four full time equivalent (FTE) short-term construction jobs.

The useful life of this project is estimated to be over a period of 80 years for the concrete culvert on East Allison Avenue and over 40 years for the drainage infrastructure on Blauvelt Road. The anticipated routine maintenance of these improvements will be scheduled within the existing maintenance programs within the Town, and are anticipated to be covered within existing or future operating budgets without a specific cost increase required. Based on this analysis, the potential benefits of this project are believed to outweigh the financial investment of implementation.

Anticipated Reduction of Risk

While a larger culvert on East Allison Avenue will increase flow capacity, the curve in the stream at the culvert inlet could still lead to eddying, pooling, and scouring issues during extreme storm events. Implementation of this project is conservatively estimated to reduce risk to four Blauvelt Road assets because final design has not yet been completed. This reduction in risk is reflective of improved Vulnerability conditions.

General Timeframe for Implementing Actions

The conceptual design for the interim measure, the culvert resizing and the stream channel improvements is 100% complete. Preliminary design for the Blauvelt Road improvements is underway. The project has been identified by the Town of Clarkstown Storm Drainage Task Force as an urgent need. Immediately upon project approval, the final engineering design, construction drawings and project specifications will be completed (anticipated two months); and the project will be publicly bid and awarded through a competitive process. Project construction is estimated to last approximately three to six months.

Government Regulatory Requirements

The project may require an Article 15 (6NYCRR Part 608), Protection of Waters Permit from the New York State Department of Environmental Conservation (NYS DEC). If the project includes in-stream work, it will also require a U.S. Army Corps of Engineers (USACE), Clean Water Act (Section 404) Permit. Local communities are required by the Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP) to prepare data for a revision to the Flood Insurance Rate Map (FIRM) within six months of the completion of any project that changes the base flood elevation at any location. This process is accomplished through a FEMA Letter of Map Revision. A Town Highway Road Opening Permit will also be necessary.

Entity with Jurisdiction

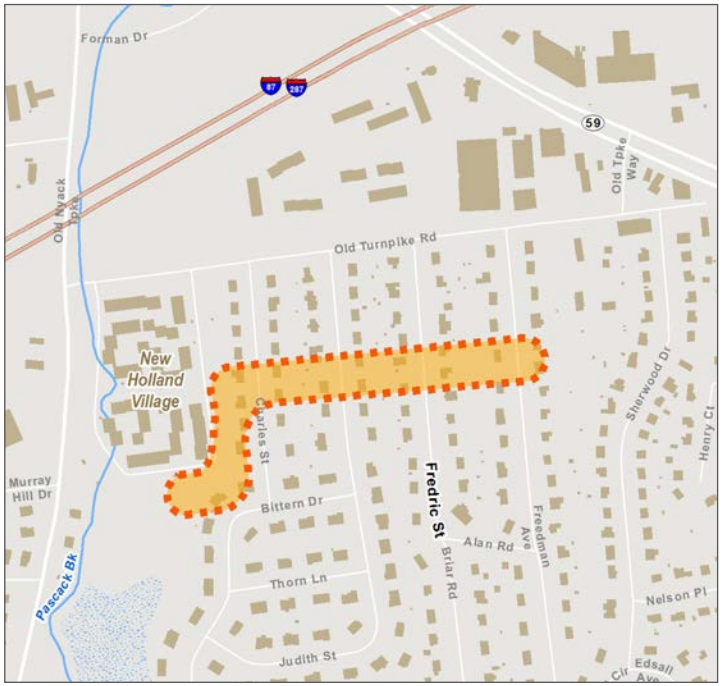
Town of Clarkstown.

Drainage Improvements to the Nauraushaun Brook Basin (cont'd)

East Allison Avenue Drainage Area (Town of Clarkstown Department of Environmental Control)

East Allison Avenue Culvert Outlet and Drainage Area (Elizabeth Matamoros)

Fredric Street Drainage Improvements



Frederic Street Drainage Improvement Project Area (MJ Engineering and Land Surveying, P.C.)

Project Description

This drainage project will involve engineering and construction of stormwater infrastructure improvements from Fredric Street west through and including the New Holland Village Condominiums and is critical to addressing flooding conditions from undersized stormwater infrastructure in this area of extreme flood risk. The project includes resizing and replacing piping for approximately 1,200 linear feet through various residential neighborhoods, crossing several critical through roads. This project has been recognized as an urgent need by the Town of Clarkstown Storm Drainage Task Force.

Project Location

Nanuet

Estimated Cost

The capital cost to complete the engineering and construction of these improvements is estimated to be $1,400,000.

Economic Benefits

Rightsizing stormwater infrastructure reduces stress to the system by accommodating increased demand, and extends the useful lifetime of the drainage system. When the system is sized appropriately, the potential for damage and early replacement and the labor and materials costs associated with this work is minimized.

Environmental Benefits

Undersized drainage infrastructure can impede storm flows and consequently exacerbate upstream and downstream flooding conditions. Appropriately-sized infrastructure in the context of an overall assessment of storm flow routing, is an important component of reducing flood damage. Replacing undersized infrastructure with appropriately-sized infrastructure improves stream function by increasing capacity in the channel to accommodate additional demand created by stormwater.

Health and Social Service Benefits

The project will improve drainage to an area that has been identified by the community as at extreme risk due to repetitive flooding. Implementation of drainage improvements will significantly improve system behavior maximizing efficiency of the surrounding municipal infrastructure, protecting homes and residents, and maintaining roadway and emergency vehicle access to vulnerable neighborhoods during a disaster or flooding event.

Fredric Street Drainage Improvements (cont'd)

Cost-Benefit Analysis

Implementation of this project will result in long-term sustainable benefits by reducing the risk of flooding of the roadways and approximately 50 homes in the target area for the foreseeable future. Although no permanent jobs are likely to be created, the project is expected to create approximately 10 full-time equivalent (FTE) short-term construction related jobs. In addition, the reduction in flooding on roadways, infrastructure and property will result in more efficient emergency response to the adjacent residential areas that would be otherwise cut off during flooding events, increasing the Town's resiliency and ability to recover more quickly.

The useful life of this flood mitigation project would be over a period of 40 years. The anticipated routine maintenance of these improvements will be scheduled within the existing maintenance programs of the Town, and are anticipated to be covered within existing or future operating budgets without a specific cost increase required. Based on this analysis, the potential benefits of this project are believed to outweigh the financial investment of implementation.

Anticipated Reduction of Risk

Following implementation of the proposed project, the estimated risk reduction for the New Holland Village Condominiums asset would be significant, with risk reduction to three assets and likely elimination of risk to two assets. However, even with upslope runoff diverted, flood risks from the nearby Pascack Brook will remain. The estimated risk reduction for the Charles Street assets is dramatic because project actions are anticipated to remedy the localized drainage issues, thereby eliminating the risk to the area. The reduction in risk is achieved through improved Exposure and Vulnerability conditions.

General Timeframe for Implementing Actions

Hydraulic analysis and preliminary design is 100% complete (Construction Documents are 30% complete). The project has been identified by the Town of Clarkstown Storm Drainage Task Force as an urgent need. Immediately upon project approval, the final engineering design, construction drawings and project specifications will be completed (anticipated three months); and the project will be publicly bid and awarded through a competitive process. Project construction is estimated to take 6-12 months.

Government Regulatory Requirements

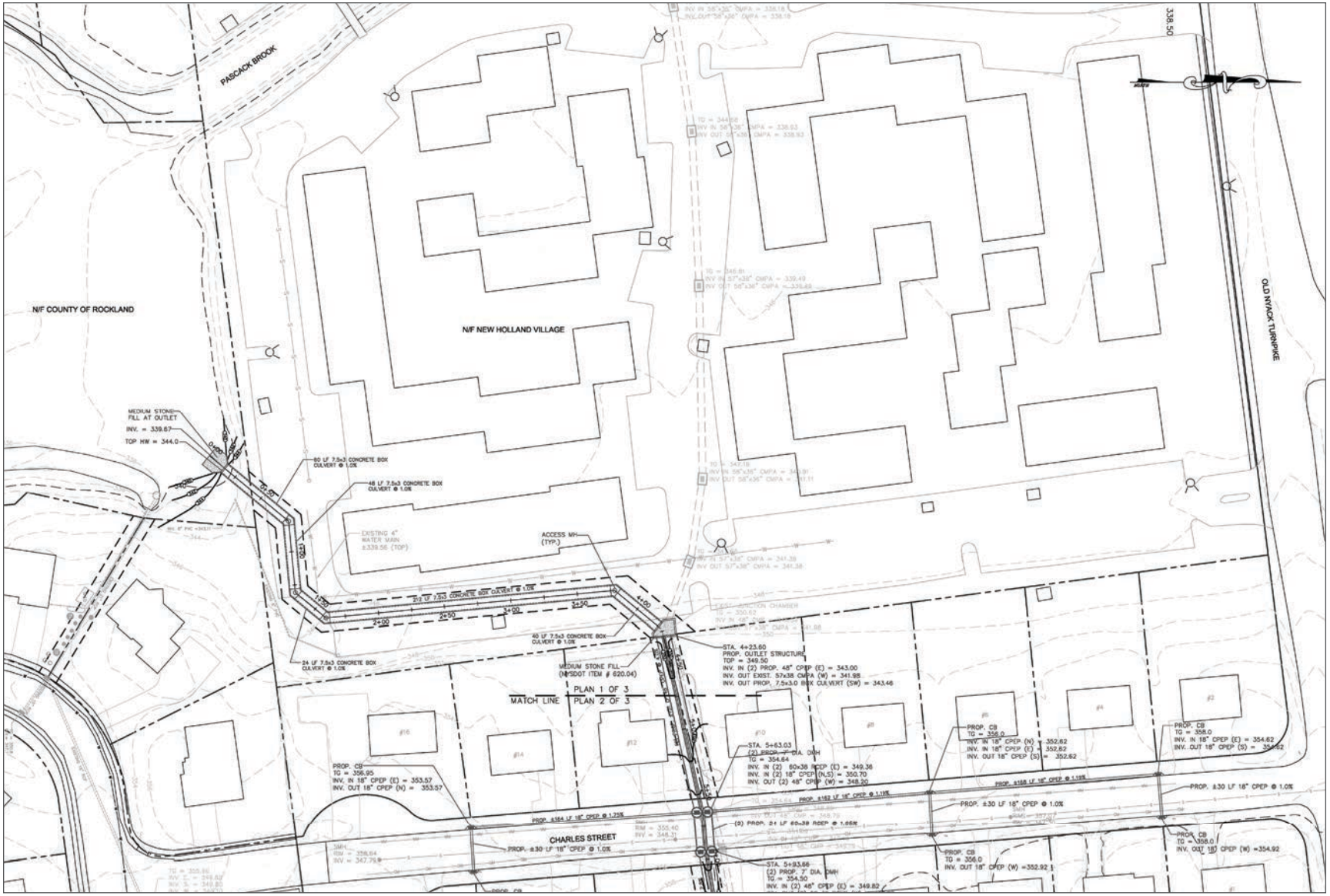
Although the Town currently holds several drainage easements within the New Holland Village Condominiums residential development, another such easement is required. The project may require an Article 15 (NYCRR Part 608), Protection of Waters Permit and a Water Quality Certification (WQC) from the New York State Department of Environmental Conservation (NYS DEC) and will likely require an Army Corps of Engineers (USACE) Clean Water Act Section 404 permit for disturbance to "waters of the U.S." A permit from the Rockland County Drainage Agency and a Town Highway Road Opening permit will also be required.

Entity with Jurisdiction

Town of Clarkstown.

Residences along Fredric Street (Elizabeth Matamoros)

Fredric Street Drainage Improvements (cont'd)



Fredric Street Drainage Improvements, April 23, 2013 (Town of Clarkstown, Department of Environmental Control)

Old Haverstraw Road Drainage Improvements

Sitting Area at Swartwout Lake near Old Haverstraw Road (Elizabeth Matamoros)

Project Description

This stormwater infrastructure project involves resizing and replacing existing deteriorated and undersized drainage lines to adequately drain areas along Old Haverstraw Road. This project has been recognized as an urgent need by the Town of Clarkstown Storm Drainage Task Force.

Project Location

Congers

Estimated Cost

The capital cost to construct these improvements is estimated to be $750,000.

Economic Benefits

Rightsizing stormwater infrastructure reduces stress to the system by accommodating increased demand, and extends the useful lifetime of the drainage system. When the system is sized appropriately, the potential for damage and early replacement and the labor and materials costs associated with this work is minimized.

Environmental Benefits

Undersized drainage infrastructure can impede storm flows and consequently exacerbate upstream and downstream flooding conditions. Appropriately-sized infrastructure in the context of an overall assessment of storm flow routing is an important component of reducing flood damage. Replacing undersized infrastructure with appropriately-sized infrastructure improves stream function by increasing capacity in the channel to accommodate additional demand created by stormwater.

Health and Social Service Benefits

The project will improve drainage to an area that has been identified by the community as at extreme risk due to repetitive flooding. Implementation of drainage improvements will significantly improve system behavior maximizing efficiency of the surrounding municipal infrastructure, protecting homes and residents, and maintaining roadway and emergency vehicle access to vulnerable neighborhoods.

Cost-Benefit Analysis

Implementation of this project will result in long-term sustainable benefits by reducing the risk of flooding of the roadways and approximately 15 homes in the target area for the foreseeable future. Although no permanent jobs are likely to be created, the project is expected to create approximately five full-time equivalent (FTE) short-term construction jobs. In addition, the reduction in flooding on roadways, infrastructure and property will result in more efficient emergency response to adjacent residential areas that would be otherwise cut off during flooding events, increasing the Town's resiliency and ability to recover more quickly.

Old Haverstraw Road Drainage Improvements (cont'd)

The useful life of this flood mitigation project would be over a period of 40 years. The anticipated routine maintenance of these improvements will be scheduled within the existing maintenance programs of the Town, and are anticipated to be covered within existing or future operating budgets without a specific cost increase required. Based on this analysis, the potential benefits of this project are believed to outweigh the financial investment of implementation.

Anticipated Reduction of Risk

The estimated risk reduction to three assets with project implementation is anticipated to be significant. The project is anticipated to remedy the localized drainage issues, thereby likely eliminating the risk to the area. Both Exposure conditions are eliminated and Vulnerability factors are greatly reduced.

General Timeframe for Implementing Actions

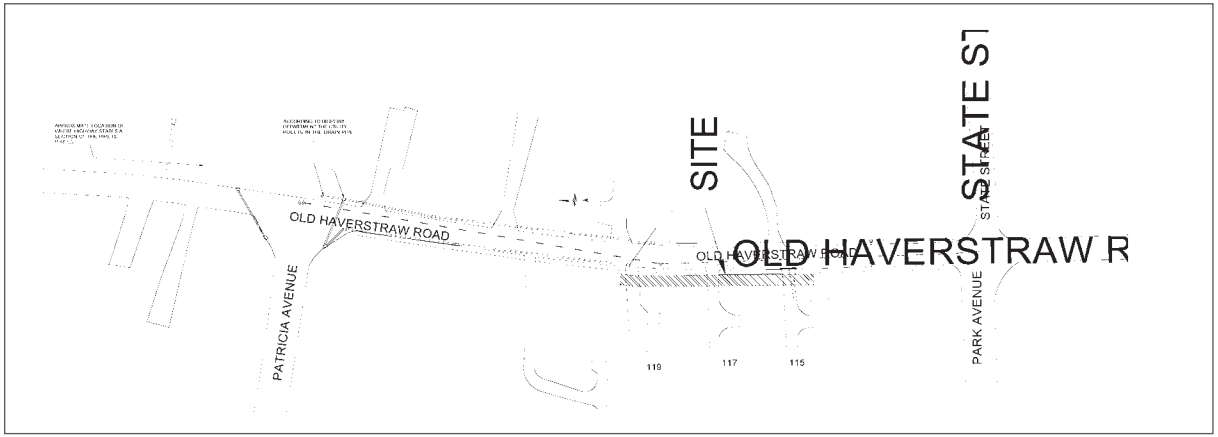
The project has been identified by the Storm Drainage Task Force as an urgent need. Immediately upon project approval, the final engineering design, construction drawings and project specifications will be completed (anticipated two months); the project will be publicly bid and awarded through a competitive process. Project construction is estimated to take three to six months.

Government Regulatory Requirements

Depending on the exact location of the proposed improvements, there may be a need for Article 15 (NYCRR Part 608), Protection of Waters and Article 24 Freshwater Wetlands (HS-8) Permits from the New York State Department of Environmental Conservation (NYS DEC). A Town Highway Road Opening permit will also be required.

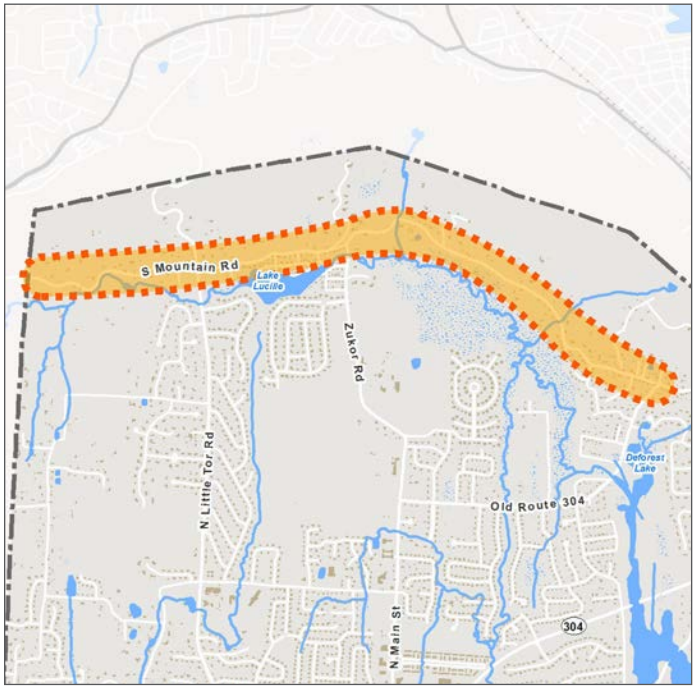
Entity with Jurisdiction

Town of Clarkstown.



Old Haverstraw Road – Drainage Improvement Project Site Plan, October 15, 2014 (Town of Clarkstown Department of Environmental Control)

South Mountain Road Drainage Improvements



South Mountain Road Drainage Improvements Project Area (MJ Engineering and Land Surveying, P.C.)

Project Description

This comprehensive feasibility analysis and construction program will examine the stormwater management and drainage infrastructure along South Mountain Road from its westerly terminus at the Town of Clarkstown municipal border to its eastern intersection with Old Route 304. Although final design has been completed for several smaller projects along South Mountain Road, (Church/Centenary Road; two projects west of North Little Tor Road) a corridor-wide analysis is warranted. The project will include various coordinated "green" and "gray" stormwater management improvements along the entire length of South Mountain Road. Incorporation of bioswales, pervious pavement, and other natural systems to encourage infiltration and reduce peak flows to streets and storm sewers will protect clean drinking water, provide water for irrigation and protect residents and businesses from flooding. This project has been recognized as an urgent need by the Town of Clarkstown Storm Drainage Task Force.

Project Location

New City

Estimated Cost

The capital cost to conduct the feasibility analysis and construct improvements is estimated to be $1,000,000.

Economic Benefits

Designing and implementing a holistic and coordinated system of stormwater management improvements along the South Mountain Road corridor, which will be implemented in phases, is economically more efficient than incorporating improvements on an as-needed basis. Implementing a combination of "gray" and "green" infrastructure improvements will reduce the potential for flooding related damages to residences and businesses, and costs associated with their repair.

Environmental Benefits

Ensuring that stormwater infrastructure is functioning properly and implementing green infrastructure practices—which rely on natural processes like evaporation, infiltration, and plant transpiration—effectively and affordably complements traditional "gray" infrastructure practices and gives stormwater managers the ability to create integrated solutions to better serve the community and its residents. Benefits include improved water quality, reduced stormwater volume, improved air quality, and reduced heat island effect in densely developed areas. A widespread initiative to use "green" and "gray" stormwater management practices creates more sustainable communities, that are more resilient to storm events.

South Mountain Road Drainage Improvements (cont'd)

Health and Social Service Benefits

Improved management of stormwater to an area that has been identified by the community as at extreme risk due to repetitive flooding will minimize widespread road closures that inhibit through-travel for residents and emergency service providers during storm events.

Cost-Benefit Analysis

Implementation of this project will provide flood mitigation to South Mountain Road for the foreseeable future. Such improvement measures will help maintain access for emergency vehicles to the northern portion of the community, and approximately 50 homes. In addition, reduced flooding of roadways, infrastructure, and property will result in lower reconstruction and rehabilitation costs for homeowners and the Town following future storm events. Although no permanent jobs are likely to be created, the project is expected to create approximately seven full-time equivalent (FTE) short-term construction jobs.

The useful life of this flood mitigation project would be over a period of 40 years. The anticipated routine maintenance of these improvements will be scheduled within the existing Town maintenance programs, and are anticipated to be covered within existing or future operating budgets without a specific cost increase required. Based on this analysis, the potential benefits of this project are believed to outweigh the financial investment of implementation.

Anticipated Reduction of Risk

This project will include various coordinated stormwater management improvements along South Mountain Road to increase roadway drainage capacity and reduce localized flooding during heavy storms. Because many of the project components are still in the preliminary design phase, it is difficult to estimate the reduction of risk. Therefore, the estimated reduction of risk is conservative, with risk reduction to two assets.

General Timeframe for Implementing Actions

Preliminary design of several discrete projects along the corridor has been completed. However, this project includes a comprehensive analysis of the entire South Mountain Road corridor. Immediately upon project approval, the hydrology and hydraulics will be analyzed (anticipated four months); the final engineering design, construction drawings and project specifications will be completed (anticipated five months); the project will be publicly bid and awarded through a competitive process. Project construction is estimated to take 12-18 months.

Government Regulatory Requirements

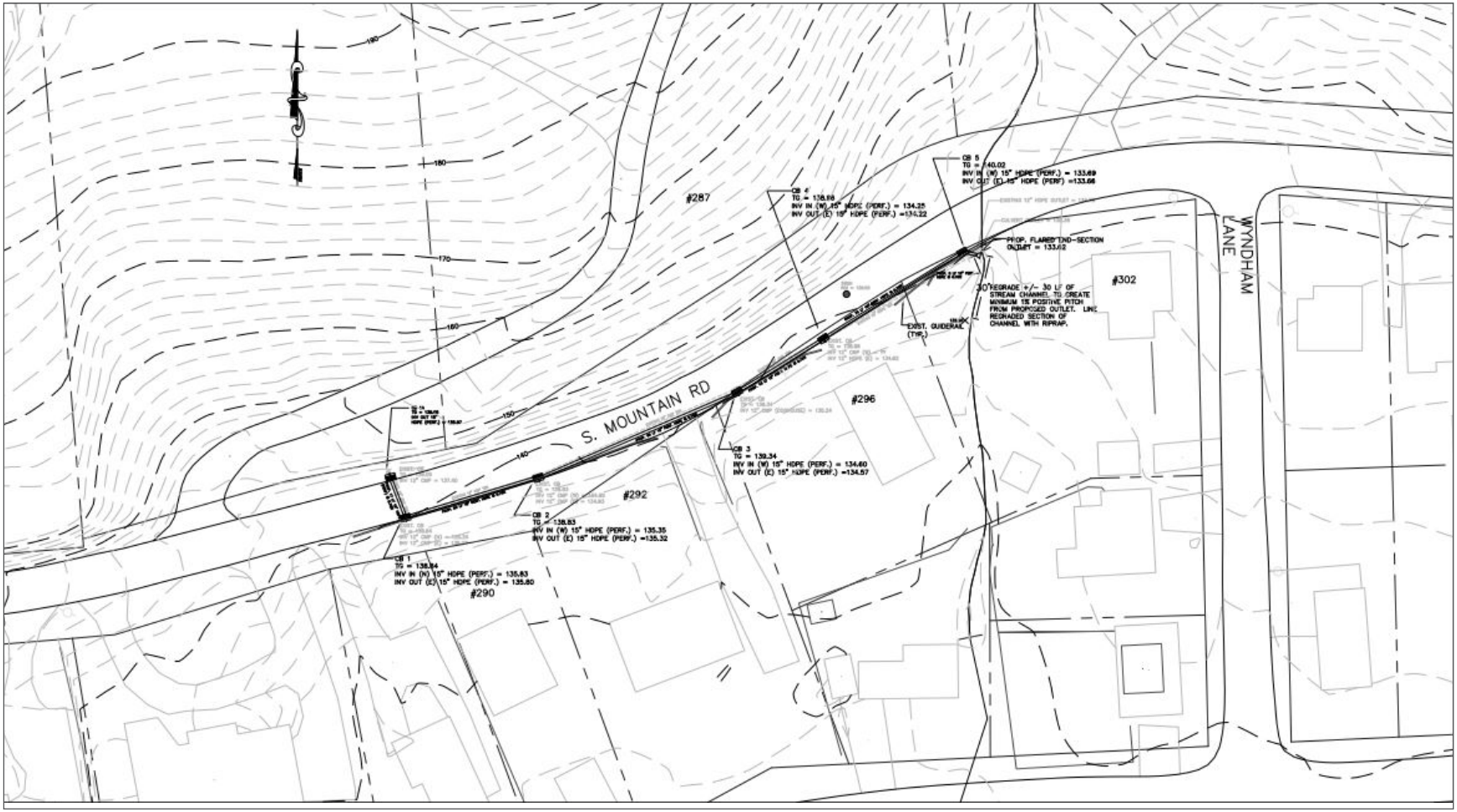
There is a New York State (NYS) Regulated Wetland (HS-7) and Protected Stream adjacent to most of South Mountain Road. The project may require Article 15 (NYCRR Part 608), Protection of Waters and Article 24 Freshwater Wetland Permits from the New York State Department of Environmental Conservation (NYS DEC). A Town Highway Road Opening permit will also be required.

Entity with Jurisdiction

Town of Clarkstown.

South Mountain Road Catch Basin (Elizabeth Matamoros)

South Mountain Road Drainage Improvements (cont'd)



South Mountain Road Drainage Improvements – Site Plan February 22, 2008 (Town of Clarkstown, Department of Environmental Control)

Cul-de-sac Island Reconstruction

Brentwood Drive Cul-de-sac (Dennis Letson)

Project Description

The current design of 143 existing cul-de-sacs consists of raised center islands that significantly impact the drainage profiles of these Town roads causing runoff and ponding issues. This project includes the removal of these raised cul-de-sac planting islands, installation of depressed and replanted bio-filter islands and re-profiling of existing cul-de-sac pavements to route surface drainage to the bio-filter. This project includes testing/analysis of soil infiltration rates in all the cul-de-sacs to determine whether the bio-filters would be designed with or without infiltration. The conversion of these islands will promote "green" infrastructure practices, provide water quality improvement, reduce peak rates of run-off from these paved areas to reduce flooding locally, and reduce streamflow quantities and velocities. The project can be expanded to create new bio-filter areas in cul-de-sacs, which do not presently have center planting islands.

Project Location

Town-wide

Estimated Cost

The capital cost to design and construct these improvements is estimated to be approximately $35,000-$45,000 per planted island.

Economic Benefits

The current configuration of the planted/landscaped medians in 143 cul-de-sacs throughout the Town, requires maintenance and upkeep and associated labor and materials costs to the Town. Removing the planted medians and replacing them with bio-filtration systems/ drainage swales will significantly reduce maintenance costs to the Town.

Environmental Benefits

This project will reprofile the cul-de-sacs, remove the raised planted medians and replace them with bio-filter/bio-retention basins, which

Cul-de-sac Island Reconstruction (cont'd)

will capture roadway run-off resulting in a substantial improvement to water quality. Generally, bioretention/filtration effectively removes suspended solids through concentration reduction. In addition, runoff volume reduction promotes removal of roadway pollutants, and water quality benefits associated with hydrologic performance. A potential additional benefit includes minimizing pavement and the resulting increase in pervious surface.

Health and Social Service Benefits

Reduction of roadway runoff, improved drainage and the resulting reduction in roadway flooding will facilitate uninterrupted access to vital health and social service facilities and providers and ease of access for emergency responders and evacuation of residents.

Cost-Benefit Analysis

Implementing green infrastructure improvements to replace an existing labor- and maintenance-intensive roadway design will save time and Town manpower/financial resources thereby providing significant cost savings. Green infrastructure improvements by design have a very long useful life with annual maintenance monitoring that are significantly less than what is currently required for the infrastructure in place. Based on this analysis, the potential benefits of this project are believed to outweigh the financial investment of implementation. Although no permanent jobs are likely to be created, implementation of improvements for each cul-de-sac would be expected to create one full-time equivalent short-term construction job.

Anticipated Reduction of Risk

Implementing natural stormwater infrastructure reduces the risk of localized flooding caused by storm events, benefitting the entire community by protecting assets, property and infrastructure.

General Timeframe for Implementing Actions

The Town will design and implement several pilot test cases, within approximately three months, once the project is approved. Design and implementation of improvements for all 143 cul-de-sacs, would be completed in several phases within one to three years of initiating the project.

Government Regulatory Requirements

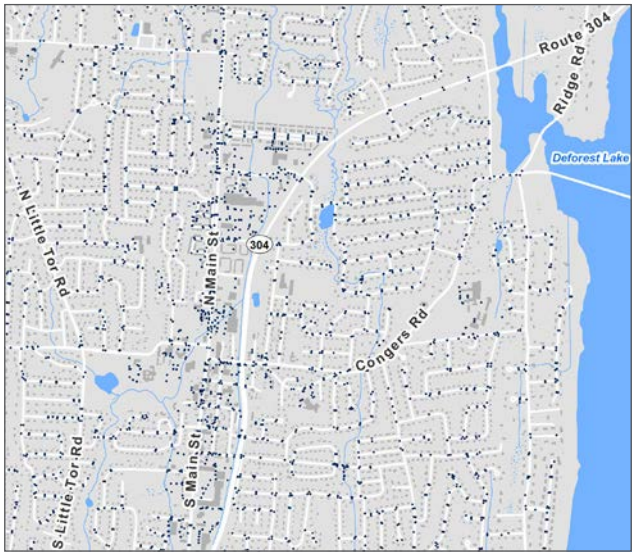
This project will require a Town Road Opening permit. The conversion of the islands will disturb less than one acre, which is below the New York State Department of Environmental Conservation (NYS DEC) General Permit threshold.

Entity with Jurisdiction

Town of Clarkstown.

Digital Inventory of Stormwater Infrastructure

East Allison Avenue Culvert – Example of Stormwater Drainage Infrastructure (Elizabeth Matamoros)



Town of Clarkstown Storm Drainage Infrastructure GIS Database (Town of Clarkstown GIS)

Project Description

The Clarkstown Planning Department has an ongoing project to augment their Geographic Information Systems (GIS) database with a comprehensive digital inventory of the approximately 12,000 catch basins within the Town using hand-held Global Positioning Systems (GPS) locators. Currently, information is collected by a limited number of volunteers working only in the summer months. It is estimated that at the current rate of data collection, the inventory would take approximately ten years to complete. This project will allow the Town to retain professional services to complete the inventory and monitoring system. With the retention of professional services and a defined, contractual schedule, it is anticipated that the project could be completed within one year. When completed, the Town's GIS database will include size, date of installation, inspection and maintenance schedules for replacement or upgrades of catch basins. The system will also be used to track the status of individual projects through final design, permitting, construction, inspection, maintenance and performance monitoring and track various funding initiatives and grant programs to evaluate success. This comprehensive digital inventory is an essential component of pre-storm preparedness, allowing the Town to appropriately size and maintain their infrastructure to accommodate high intensity stream flow, an issue that arose during past storm events.

Project Location

Town-wide

Estimated Cost

The cost to retain professional services to complete this inventory and monitoring system is estimated to be $200,000.

Economic Benefits

Once the stormwater infrastructure database is complete, the personnel and financial resources required to keep the system up to date will be minimal. Having an inventory of the inspection and maintenance schedules for replacement or upgrades of catch basins will allow the Town to budget for these improvements and minimize the necessity for emergency repairs, which can be expensive and disruptive. Proper scheduled maintenance will increase the lifetime of the infrastructure, reducing the frequency of and costs for replacement.

Environmental Benefits

In the event of a hazardous material spill, the Town can use the database to pinpoint the location of drainage infrastructure, intercept spills and provide absorption materials to prevent contamination through the Town's storm drainage systems protecting the environment from hazardous substance contamination.

Digital Inventory of Stormwater Infrastructure (cont'd)

Health and Social Service Benefits

In the event of a hazardous material spill, the Town can access the database and provide absorption materials in adjacent storm drainage infrastructure to prevent contamination through the Town's storm drainage systems, thereby protecting public health from hazardous substances.

Additional Benefits

A comprehensive database of critical stormwater infrastructure allows for better tracking to improve the delivery of future projects, and can be used to create reports to document implementation progress for key funders and stakeholders.

Cost-Benefit Analysis

This project will save time and resources when locating, assessing and repairing infrastructure throughout the Town, thereby providing significant cost savings. By identifying improvements and repairing stormwater infrastructure before a storm, the risk of damage during a storm will be reduced, diminishing post-storm damages. Where repairs are warranted, they could be done in a targeted, cost-efficient manner.

This project will have a very long useful life with inventory updates as needed, likely annually. The anticipated maintenance and performance monitoring of the inventory will be completed within the existing Planning Department utilizing existing GIS staff, and are anticipated to be covered within existing or future operating budgets without a specific cost increase required. Based on this analysis, the potential benefits of this project are believed to outweigh the financial investment of implementation.

Anticipated Reduction of Risk

The digital inventory will indirectly reduce risk to assets by creating an organized accessible database of stormwater infrastructure throughout the Town. The comprehensive inventory can be searched for information on installation, condition, maintenance and replacement schedules, and can identify critical location closures during emergency events.

General Timeframe for Implementing Actions

The current data collection process includes seasonal Ameri-Corps volunteers supervised by the Town of Clarkstown Planning Department and is estimated to be approximately 15% complete, including data entry into the GIS database. With the implementation of this project, professional services will replace the volunteer activities and project completion is estimated at approximately 12-18 months, once the project is approved. A Request for Proposals (RFP) for professional services will be procured to survey locations and sizes of stormwater infrastructure.

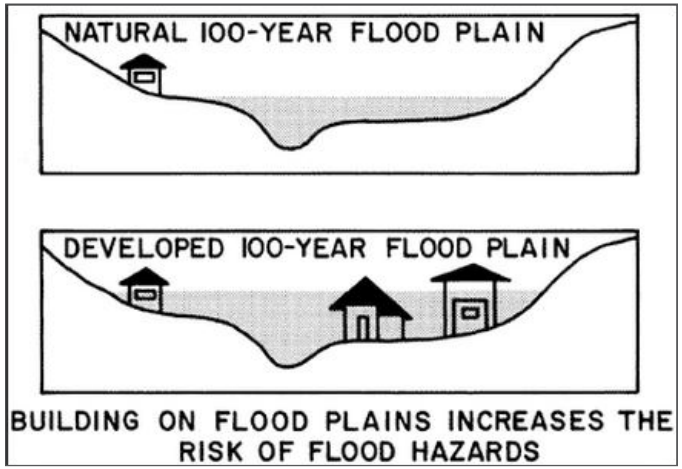
Government Regulatory Requirements

No permits will be necessary to implement this project.

Entity with Jurisdiction

Town of Clarkstown.

Implementation of Post-Residential Buyout Program Measures for Flood Protection



Schematic of Flood Risk to Residences within the Floodplain (USGS)

Project Description

This project proposes conducting a feasibility study for stormwater management initiatives and parks creation projects (repurposing newly acquired open space parcels for flood control improvements) for parcels acquired by the Town through Federal Emergency Management Agency's (FEMA's) Hazard Mitigation Grant Program (HMGP) residential Buyout Program. If the Town chooses to participate in the Buyout Program and receives grant funding, those residential parcels that would be acquired by the Town would need to remain undeveloped in perpetuity. This project will examine the potential for using this newly vacant land as both parkland/open space and flood control. This project will identify candidate parcels, likely to be a subset of the parcels acquired by the Town (i.e., not all parcels will be suitable for repurposing) and design site specific improvements based on geographic conditions, such as topography, adjacent streams or waterbodies and the corresponding floodplain. For those parcels that are not suitable for active use, designs will include minimal landscape improvements for passive use or reclaiming as natural area, including seeding and tree-planting.

Project Location

Town-wide

Estimated Cost

The cost to conduct this feasibility study is estimated to be $50,000. It is anticipated that engineering design for the proposed improvements would be completed in-house.

Economic Benefits

Repurposing open space and parkland for use as natural flood control allows the Town to reap multiple economic benefits, including potential tourism related spending resulting from visitors attracted by newly created recreation areas. Creating an interconnected green space system reduces flood control and stormwater management cost, resulting in a significant financial benefit gained when green infrastructure reduces the need for built infrastructure.

Environmental Benefits

Parks and open spaces protect biological diversity and preserve essential ecological functions while serving as a place for recreation and civic engagement. A network of open spaces and parks provides pathways for wildlife moving from one isolated natural area to another. When designed to include stream networks, wetlands, and other low-lying areas, a well planned green space system can provide numerous stormwater management benefits, including storing, carrying, and filtering storm runoff.

Implementation of Post-Residential Buyout Program Measures for Flood Protection (cont'd)

Depending on the location of and connections between parcels that are acquired and repurposed through the buyout, a green-network may be created.

Health and Social Service Benefits

Creating an interconnected network of parks and greenspaces connects people and neighborhoods, provides opportunities for exercise and enhances emotional well-being by bringing nature "close to home."

Cost-Benefit Analysis

Restoring residential buyout land to greenspace with the inclusion of stormwater measures will create sustainable flood mitigation areas and increase the Community's resilience. These improvements lead to savings in local government expenditures by reducing the risk of flooding to residences, infrastructure and property as well as the level of needed emergency response during storm and flood events.

The risk to homes in the buyout area will be eliminated as they are removed and risk to remaining homes will decrease as flood mitigation measures are implemented. In addition, the reduction in impervious surface will result in greater water detention and less runoff. The useful life of this flood mitigation project would be over a period of 80-100 years. The anticipated routine maintenance of these improvements will be scheduled within the existing Town maintenance programs, and are anticipated to be covered within existing or future operating budgets without a specific cost increase required. Based on this analysis, the potential benefits of this project are believed to outweigh the financial investment of implementation.

Anticipated Reduction of Risk

Creating additional flood control and retention areas in existing and newly acquired parks and open space reduces risk of flooding in residential areas, roadways, and other critical infrastructure prone to flooding by reducing impervious surface and creating additional flood retention areas.

General Timeframe for Implementing Actions

This project would be implemented following the completion of the HMGP residential Buyout Program. While the design/disposition of the newly acquired parcels could occur concurrently with the buyouts and any necessary demolition, projects to repurpose open space for flood control and parkland could be implemented after the land is cleared. Immediately upon project approval, the demolition and restoration designs would begin. Project construction is estimated to take 12-24 months, dependent on FEMA processing.

Government Regulatory Requirements

An Article 24 Freshwater Wetlands permit from the U.S. Army Corps of Engineers (USACE) may also be required depending on the location of the proposed improvements.

Entity with Jurisdiction

Town of Clarkstown, Federal Emergency Management Agency (FEMA), New York State Office of Emergency Management (NYS OEM).

Jeffrey Place Drainage Improvements

Jeffrey Place Project Area (MJ Engineering and Land Surveying, P.C.)

Project Description

This stormwater infrastructure project includes the excavation of an 11-foot trench to allow for the replacement of a drainage culvert. The project is located on Jeffrey Place, just south of Old Mill Road. This project has been recognized as an urgent need by the Town of Clarkstown Storm Drainage Task Force.

Project Location

Valley Cottage

Estimated Cost

The capital cost to construct these improvements is estimated to be $500,000.

Economic Benefits

The replacement of the existing undersized culvert along Jeffrey Place requiring the excavation of a trench at an approximate depth of 11 feet will result in the extension of the useful life of the infrastructure and associated cost savings.

Environmental Benefits

Undersized culverts can impede storm flows and consequently exacerbate upstream and downstream flooding conditions. Resizing culverts, in the context of an overall assessment of storm flow routing, is an important component of reducing flood damage. Replacing an undersized culvert with appropriately sized infrastructure improves stream function by increasing capacity in the channel to accommodate additional demand created by stormwater.

Health and Social Service Benefits

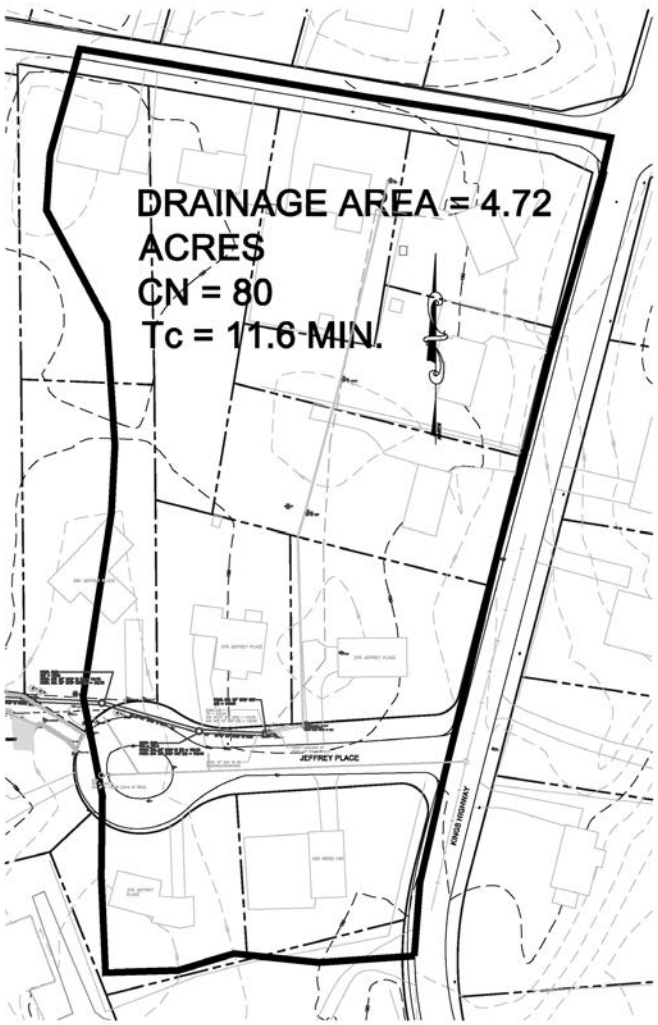
The Town will benefit from improved drainage and the resulting reduction in roadway flooding will provide uninterrupted access to vital health and social service facilities and providers.

Cost-Benefit Analysis

This project will provide long-term benefits through permanent flood mitigation on Jeffrey Place. By mitigating flooding, this project will improve emergency response to areas that may otherwise be cut off during storm events. The reduced risk of flooding resulting from this project will lower the potential damage to roadways, infrastructure, and property, limiting rehabilitation and reconstruction costs, thus resulting in savings of local government expenditures. Although no permanent jobs are likely to be created, the project is expected to create approximately four full-time equivalent (FTE) short-term construction jobs.

The implementation of this project will eliminate the risk to the two homes within the Jeffrey Place neighborhood. The useful life of this flood mitigation would be over a period of 60 years. The anticipated routine maintenance of these improvements will be

Jeffrey Place Drainage Improvements (cont'd)



Jeffrey Place Drainage Area, August 10, 2014 (Town of Clarkstown, Department of Environmental Control)

scheduled within the existing Town maintenance programs, and are anticipated to be covered within existing or future operating budgets without a specific cost increase required. Based on this analysis, the potential benefits of this project are believed to outweigh the financial investment of implementation.

Anticipated Reduction of Risk

The estimated risk reduction for this asset is substantial as the project is anticipated to alleviate the localized drainage issues on the street. The Exposure conditions are likely eliminated and Vulnerability factors greatly reduced, thereby also greatly reducing risk to the area.

General Timeframe for Implementing Actions

Immediately upon project approval, the final construction drawings and project specifications will be completed (anticipated two months). The project will be publicly bid and awarded through a competitive process. Project construction is estimated to take approximately three months.

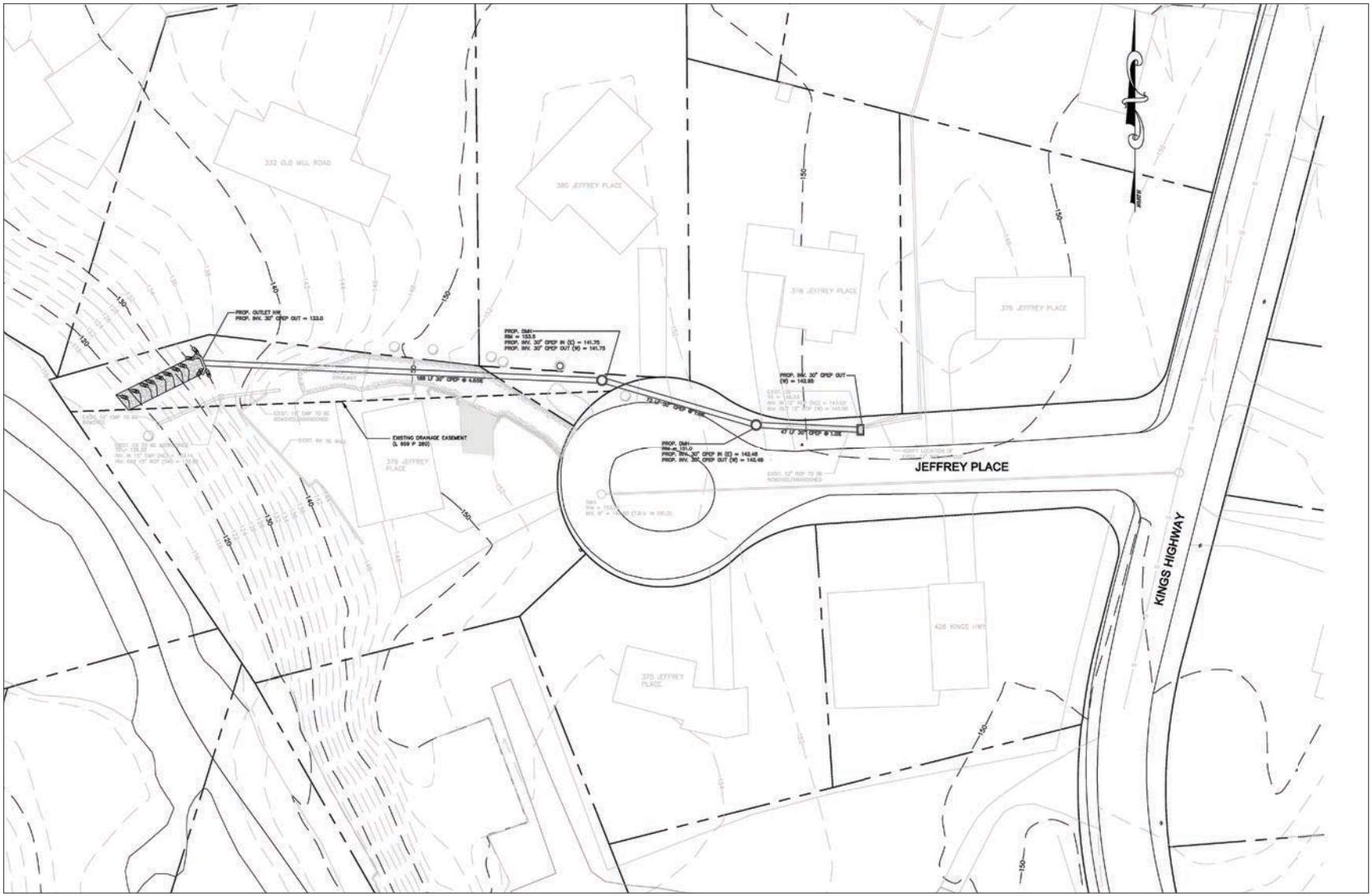
Government Regulatory Requirements

The class of stream changes near this location and therefore additional information is necessary to determine the permit requirements. The project may require an Article 15 (NYCRR Part 608), Protection of Water Permit from the New York State Department of Environmental Conservation (NYS DEC). A Town Highway Road Opening permit will also be required.

Entity with Jurisdiction

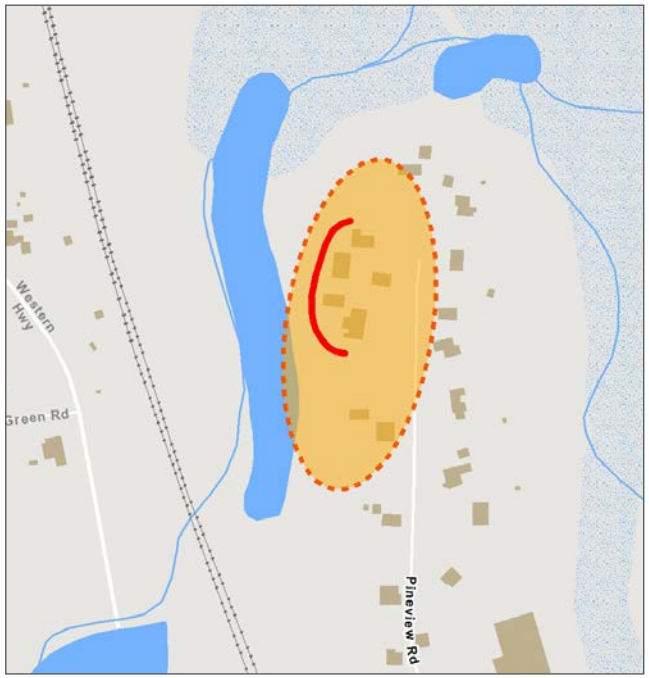
Town of Clarkstown.

Jeffrey Place Drainage Improvements (cont'd)



Jeffrey Place Site Plan, August 10, 2014 (Town of Clarkstown, Department of Environmental Control)

Pineview Road Storm Drainage Improvements



Pineview Road Project Area
(MJ Engineering and Land Surveying, P.C.)

Project Description

This project proposes the installation of a levee structure to provide flood protection to properties that repeatedly flood along Pineview Road. This project has been recognized as an urgent need by the Town of Clarkstown Storm Drainage Task Force.

Project Location

West Nyack

Estimated Cost

The capital cost to construct these improvements is estimated to be $500,000.

Economic Benefits

Installation of a levee in the vicinity of Pineview Avenue will protect approximately two homes in the low-lying residential neighborhood that has been subject to repeated flood damage. Minimizing flood damage to these homes will eliminate the financial consequences of repeated repair.

Health and Social Service Benefits

The construction of a levee structure will prevent flooding to a residential neighborhood that has limited roadway access due to the CSX rail line. Diverting stormwater flow away from this neighborhood will protect residents and minimize the potential for road closure and resulting in interruption of access by emergency service providers due to inundation during and after storm events.

Cost-Benefit Analysis

Implementation of this project will permanently mitigate flooding along a stretch of Pineview Road resulting in sustainable benefits in the foreseeable future. Reduced flooding and improved access results in more efficient emergency response efforts, reduction of vulnerability of public facilities and infrastructure, and lower reconstruction and rehabilitation costs following future storm events.

The useful life of this flood mitigation would be over a period of 80 years. The anticipated routine maintenance of these improvements will be scheduled within the existing Town maintenance programs, and are anticipated to be covered within existing or future operating budgets without a specific cost increase required. Based on this analysis, the potential benefits of this project are believed to outweigh the financial investment of implementation.

Anticipated Reduction of Risk

The levee structure is yet to be advanced to preliminary design, however, it was estimated that risk reduction benefits for one asset would be moderate through improved Vulnerability conditions. Even with protection, these assets will still be proximate to significant floodplains and a confluence of streams keeping the Exposure conditions constant.

Pineview Road Storm Drainage Improvements (cont'd)

Pineview Road (Elizabeth Matamoros)

General Timeframe for Implementing Actions

Immediately upon project approval, the engineering design, final construction drawings and project specifications will be completed (anticipated two months); the project will be publicly bid and awarded through a competitive process). Project construction is estimated to take three months.

Government Regulatory Requirements

The project runs adjacent to a protected stream, therefore, an Article 15 (NYCRR Part 608), Waters Quality Certification Permit from the New York State Department of Environmental Conservation (NYS DEC), an Article 24 Freshwater Wetlands and Article 10 Water Quality Certification Permits from the U.S. Army Corps of Engineers (USACE) will be required. A permit from the Rockland County Drainage Agency will likely also be required. Local communities are required by the Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP) to prepare data for a revision to the Flood Insurance Rate Map (FIRM) within six months of the completion of any project that changes the base flood elevation at any location. This process is accomplished through a FEMA Letter of Map Revision.

Entity with Jurisdiction

Town of Clarkstown.

Tree Maintenance Program

Downed Trees from Superstorm Sandy, October 29, 2012 (John Eshoo)

Downed Trees from Superstorm Sandy, October 29, 2012 (John Eshoo)

Project Description

Following Superstorm Sandy, the Town of Clarkstown and Orange & Rockland (O&R) Utilities developed a protocol to ensure coordinated post-storm power line/tree removal. This protocol establishes two-person teams (one representative from the Town of Clarkstown Highway Department and one representative from O&R Utilities) to be dispatched to allow for coordinated securing of power lines, and subsequent tree removal to expediently eliminate safety issues and reopen roads. This project will augment that program by performing regular tree maintenance. Working with O&R Utilities, the community will develop and implement a comprehensive maintenance program for trees located in the public right-of-way (ROW). The community will retain a licensed arborist to survey the condition of trees to ensure that they are safely and properly trimmed.

Project Location

Town-wide

Estimated Cost

The capital cost to develop and implement this program is estimated to be $30,000.

Economic Benefits

A consolidated tree maintenance program that is coordinated between the community and O&R Utilities will effectively allocate manpower and financial resources toward preventive measures to minimize damage to residences and businesses and the resulting costs associated with their repair. This project will ensure that trees are adequately pruned and maintained in advance of storm season. The project will also minimize the need for emergency crews to be dispatched to remove downed trees and power lines, both of which cause rippling economic impacts to the residents and businesses that cannot operate without power.

Environmental Benefits

In addition to pruning dead branches that are the primary candidates for breaking and falling, proper tree maintenance directs tree growth by slowing the growth of branches that may entangle with power lines. Controlled management creates healthier, stronger trees.

Tree Maintenance Program (cont'd)

Health and Social Service Benefits

Downed trees and power lines resulted in significant health and safety issues from live wires along roadways, prolonged power outages, and disrupted travel for both residents and emergency service workers. A comprehensive tree maintenance program will include trimming dead or dying branches away from primary and secondary power lines as well as from roadways throughout the Town.

Cost-Benefit Analysis

Properly maintained trees will reduce the risk of woody debris blocking roadways and streams, damaging property and infrastructure such as power lines, and causing injury. Economic benefits will be realized through uninterrupted access for emergency vehicles and residents, potentially uninterrupted power supply for businesses, as well as decreased costs for reconstruction and rehabilitation of roadways and infrastructure after severe weather and flooding.

It is anticipated that the program will be implemented annually—or bi-annually to ensure ongoing maintenance. Therefore the useful life of this project is perpetual. Based on this analysis, the potential benefits of this project are believed to outweigh the financial investment of implementation.

Anticipated Reduction of Risk

Properly maintained trees will assist in reducing risk from high winds to property and essential utility service as well as reduce risk of flooding that may be caused by fallen trees, branches, and other debris blocking stream channels and roadways.

General Timeframe for Implementing Actions

Immediately upon project approval, the following will be completed: preparation of Request for Proposals (RFP) for professional services for arborist to perform tree survey and evaluation; survey and evaluation of trees in Town right-of-way (ROW); and preparation of the tree maintenance program.

Government Regulatory Requirements

Coordination with O&R Utilities.

Entity with Jurisdiction

Town of Clarkstown.

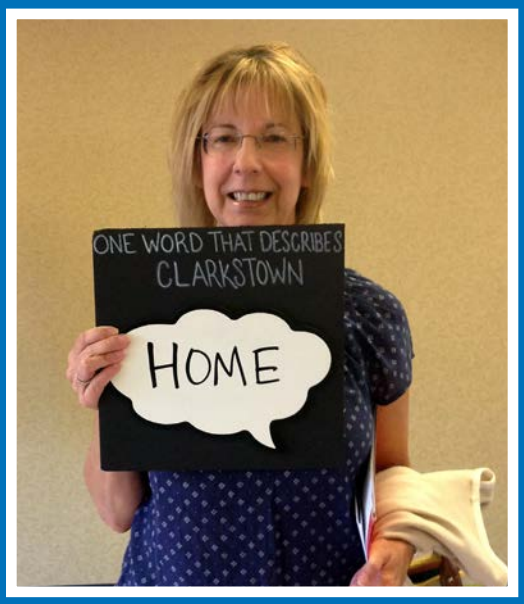
2014
NY RISING COMMUNITY RECONSTRUCTION PLAN

CLARKSTOWN NYRCR

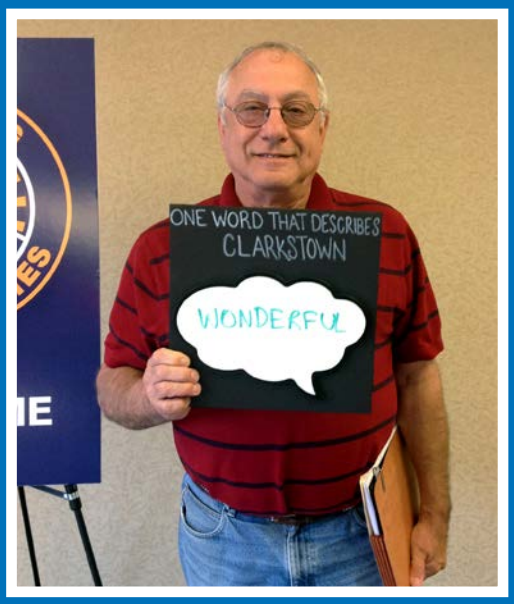
Section V
Additional Materials

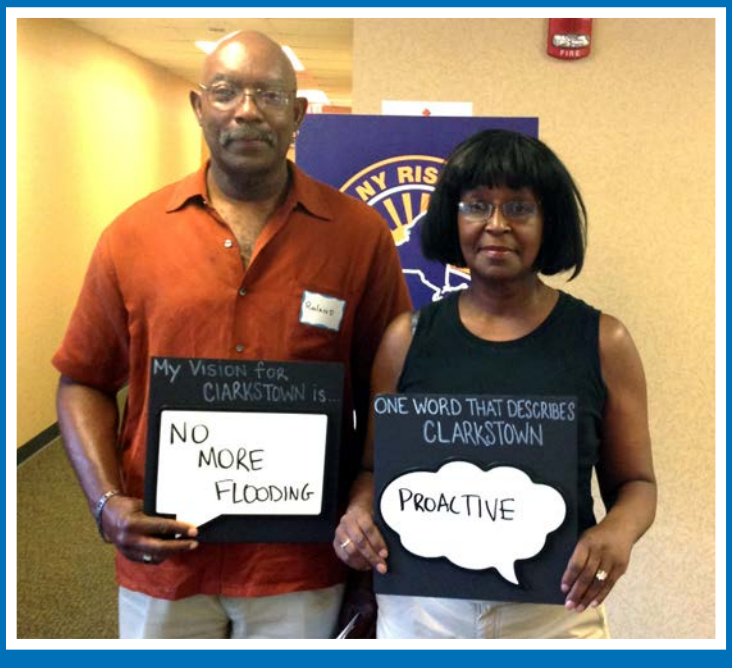
My Vision for CLARKSTOWN is...
BEAUTY

What would make Clarkstown more Resilient?
Storm preparedness


ONE WORD THAT DESCRIBES CLARKSTOWN
HOME

ONE WORD THAT DESCRIBES CLARKSTOWN
WET


ONE WORD THAT DESCRIBES CLARKSTOWN
WONDERFUL


My Vision for CLARKSTOWN is...
NO MORE FLOODING
ONE WORD THAT DESCRIBES CLARKSTOWN
PROACTIVE

ONE WORD THAT DESCRIBES CLARKSTOWN
COMMUNITY

V Additional Materials

A. Additional Resiliency Recommendations

Throughout the NY Rising Community Reconstruction (NYRCR) Planning process, the Clarkstown NYRCR Planning Committee (Committee) developed the Additional Resiliency Recommendations listed in Table V-1. These recommendations were developed as projects and actions that the Committee would like to highlight and that are not categorized as Proposed Projects or Featured Projects. Additional Resiliency Recommendations are not ranked or prioritized, and they are presented in no particular order of importance.

Table V-1 Additional Resiliency Recommendations

Strategy	Project Name	Short Description	Estimated Cost	Regional (Y/N)
Ensure access to and improve resiliency of critical health and social service facilities and safe-havens during and after storm events	Mobile Help Unit	Evaluate repurposing Clarkstown's community transit service for use as a "Mobile Help Unit" during and after storm events.	Less than $50,000.	N
	"Ready Clarkstown Emergency Notification System" Education and Outreach Campaign	Enroll Clarkstown residents in the Town's "Ready Clarkstown" Emergency Notification System, and improve the Town's ability to efficiently and effectively inform residents of hazardous conditions.	Approximately $15,000.	N
Improve regional coordination with neighboring communities and local and state agencies for watershed management to better mitigate flooding and plan for future disasters	Regional Watershed Coordination Commission	Develop local strategies to reduce the effects of flooding at a regional level.	Implementation of recommendations developed by the Commission is estimated to be $200,000.	Y
Notes: Projects marked with a * were identified by the Town of Clarkstown Storm Drainage Task Force in their August 2014, Storm Drainage Task Force Project List.				

Table V-1 Additional Resiliency Recommendations (cont'd)

Strategy	Project Name	Short Description	Estimated Cost	Regional (Y/N)
Improve stormwater infrastructure and drainage systems using green infrastructure practices where possible and cost-effective	Bellwood Drive Drainage Improvements*	Reconstruct the storm channel along Bellwood Drive to potentially remove existing piping and manage the stormwater through natural systems.	Construction is estimated to cost $30,000.	N
	Dykes Park Rd Storm Drainage Improvements*	Design and implement storm drainage improvements on Dykes Park Road.	Design and construction is estimated to cost between $50,000 and $500,000.	N
	Eileen Avenue Culvert Replacement*	Design and replace the 48-inch culvert adjacent to 2 Eileen Avenue.	Design and construction is estimated to cost between $50,000 and $500,000.	N
	Red Hill Rd/Burda Lane Improvements*	Resize and replace a culvert and potentially realign the intersection at Red Hill Road and Burda Lane.	Total: $1,200,000; Preliminary drainage estimate: $350,000 and intersection realignment: $850,000.	N
	Toni Court Stream Channel Improvements*	Stream bank restoration and stream channel improvements along Toni Court, including additional infrastructure (channel walls).	Construction is estimated to cost $36,000.	N
Preserve open spaces and restore natural resources to better support flood mitigation	"Green Clarkstown" — Stormwater, Wetlands and Wetland Buffers, Flood Mitigation Regulations and Ordinances	Develop and implement regulatory changes to protect wetlands, lakes and stream corridors and require green construction and infrastructure improvements to mitigate flood impacts within the Town. This project was recommended in the Clarkstown Comprehensive Plan and the Stormwater Regulations.	Preparing an RFP, retaining a consultant to develop mapping, drafting revisions to ordinances, and conducting SEQRA is estimated to cost $145,000	N
Provide education, outreach and implementation assistance regarding pre-storm preparedness (including proper maintenance of waterbodies and stormwater runoff mitigation on private properties), storm protection procedures and post-storm recovery initiatives to protect from future flooding	Comprehensive Town-wide Education and Alert Program for: (1) Storm Preparedness, (2) Implementation, and (3) Emergency Assistance and (4) Post-Storm Recovery	This project proposes a four-phased approach for storm preparation, implementation and post-storm recovery. 1. Education for pre-storm preparedness; 2. Implementation assistance for storm preparedness to the elderly or vulnerable populations; 3. Develop a comprehensive database for emergency assistance resources during emergency events; and 4. Prepare a comprehensive list of assistance agencies for technical advice and funding to assist with post storm recovery and rebuilding.	Total cost of $90,000 includes: 1- $20,000; 2 - $30,000; 3-$20,000; 4-$20,000.	N
Notes: Projects marked with a * were identified by the Town of Clarkstown Storm Drainage Task Force in their August 2014, Storm Drainage Task Force Project List.				

Table V-1 Additional Resiliency Recommendations (cont'd)

Strategy	Project Name	Short Description	Estimated Cost	Regional (Y/N)
Restore and protect critical infrastructure and transportation assets	Back-up Power for Critical Infrastructure - Policy Changes and Implementation Assistance	This project will: (1) require new cell towers to include a back-up power supply as a condition of local approvals; and incentivize the retrofit of existing cell towers for back up supply; (2) provide financial assistance for the installation of a permanent backup power supply for critical infrastructure including gasoline stations; and (3) conduct a feasibility study to evaluate opportunities to bury power lines in older neighborhoods throughout the Town.	The policy text amendment and grant applications would be completed in house. A feasibility study and pilot project to bury power lines could cost between $500,000 and $1,000,000.	N
	Operational and Communication Infrastructure Improvements — Additional Weather Tower and Stream Gages and Installation of Cameras on Existing Stream Gages	Evaluate optimal locations for additional weather stations and fund the installation of cameras and new equipment at selected sites.	Design and installation are estimated to cost between $50,000 and $500,000.	N
Notes: Projects marked with a * were identified by the Town of Clarkstown Storm Drainage Task Force in their August 2014, Storm Drainage Task Force Project List.				

B. Master Table of Projects

Table V-2 presents all projects developed by NYRCR Clarkstown throughout the planning process. This comprehensive list includes Proposed Projects, Featured Projects, and Additional Resiliency Recommendations, defined below. Projects are listed by Reconstruction and Resiliency Strategy.

- Proposed Projects are proposed for funding through a Community's allotment of CDBG-DR funding.
- Featured Projects are innovative projects where an initial study or discrete first phase of the project is proposed for CDBG-DR funding or other identified funding; and regulatory reforms and other programs that do not involve capital expenditures.
- Additional Resiliency Recommendations are resiliency projects and actions the Committee would like to highlight and are not categorized as Proposed or Featured Projects.

Table V-2 Master Project Table

Strategy	Project Name	Short Description	Project Category	Estimated Cost	Regional (Y/N)
Ensure access to and improve resiliency of critical health and social service facilities and safe-havens during and after storm events	"Ready Clarkstown Emergency Notification System" Education and Outreach Campaign	Enroll Clarkstown residents in the Town's "Ready Clarkstown" Emergency Notification System, and improve the Town's ability to efficiently and effectively inform residents of hazardous conditions.	Additional Resiliency Recommendation	Approximately $15,000.	N
	Mobile Help Unit	Evaluate repurposing Clarkstown's community transit service for use as a "Mobile Help Unit" during and after storm events.	Additional Resiliency Recommendation	Less than $50,000.	N
Improve regional coordination with neighboring communities and local and state agencies for watershed management to better mitigate flooding and plan for future disasters	Regional Watershed Coordination Commission	Develop local strategies to reduce the effects of flooding at a regional level.	Additional Resiliency Recommendation	Implementation of Commission recommendations is estimated to cost $200,000.	Y
Improve stormwater infrastructure and drainage systems using green infrastructure practices where possible and cost-effective	Cranford Drive Drainage Improvements**	Resize stormwater management drainage infrastructure and implement green infrastructure practices (regrading and placement of fiber rolls, rock weirs and vanes, boulder revetment), along Cranford Drive from north of Old Route 304 to the intersection of Cranford Drive and Route 304.	Proposed Project	Construction is estimated to cost $2,100,000.	N

Notes: Projects marked with a * were identified by the Town of Clarkstown Storm Drainage Task Force in their August 2014, Storm Drainage Task Force Project List.
Projects marked with ** were identified as "Urgent Need" by the Town of Clarkstown Storm Drainage Task Force in their August 2014, Storm Drainage Task Force Project List.

Table V-2 Master Project Table

Strategy	Project Name	Short Description	Project Category	Estimated Cost	Regional (Y/N)
Improve stormwater infrastructure and drainage systems using green infrastructure practices where possible and cost-effective (cont'd)	Drainage Improvements to the Demarest Kill Stream**	Stormwater management improvements to redesign, rightsize, and modify the existing drainage infrastructure in and around the Demarest Kill, including: replacing a failed culvert and collapsed headwall under Hall Avenue just west of Lake Drive; design and construction of basins and berms at the Virginia Street detention area; and modifications to existing drainage lines and underground detention areas along Virginia Street to prevent surcharging of the system.	Proposed Project	Total construction costs of $810,000 includes $360,000 for the Hall Avenue Culvert and Headwall, $150,000 for the Virginia Street Detention Area, and $300,000 for the drainage improvements along Virginia Street.	N
	Drainage Improvements to the Nauraushaun Brook Basin**	Redesign and resizing of storm drainage infrastructure under East Alison Avenue, on Blauvelt Road from Townline Road to Lake Nanuet Drive and stream bank restoration measures along the Nauraushaun Brook.	Proposed Project	Construction is estimated to cost $500,000.	N
	South Mountain Road Drainage Improvements**	Evaluate the South Mountain Road corridor to identify coordinated "green" and "gray" stormwater management improvement projects, which could be implemented in phases.	Proposed Project	Feasibility analysis and construction is estimated to cost $1,000,000.	N
	Cul-de-sac Island Reconstruction	Redesign 143 cul-de-sac islands to remove raised planted medians and replace them with green-infrastructure systems to improve water quality and reduce peak rates of run-off and streamflow quantities and velocities.	Featured Project	Design and construction is estimated to cost $35,000-$45,000 per planted island.	N

Notes: Projects marked with a * were identified by the Town of Clarkstown Storm Drainage Task Force in their August 2014, Storm Drainage Task Force Project List.
Projects marked with ** were identified as "Urgent Need" by the Town of Clarkstown Storm Drainage Task Force in their August 2014, Storm Drainage Task Force Project List.

Table V-2 Master Project Table

Strategy	Project Name	Short Description	Project Category	Estimated Cost	Regional (Y/N)
Improve stormwater infrastructure and drainage systems using green infrastructure practices where possible and cost-effective (cont'd)	Jeffrey Place Drainage Improvements**	Excavate an 11-foot trench to relieve flooding during rain storm events on Jeffrey Place, just south of Old Mill Road.	Featured Project	Construction is estimated to cost $500,000.	N
	Pineview Road Storm Drainage Improvements*	Install a levee structure to provide flood protection to properties that repeatedly flood along Pineview Road.	Featured Project	Construction is estimated to cost $500,000.	N
	Bellwood Drive Drainage Improvements*	Reconstruct the storm channel along Bellwood Drive to potentially remove existing piping and manage the stormwater through natural systems.	Additional Resiliency Recommendation	Construction is estimated to cost $30,000	N
	Dykes Park Road Storm Drainage Improvements*	Design and implement storm drainage improvements on Dykes Park Road.	Additional Resiliency Recommendation	Design and construction is estimated to cost between $50,000 and $500,000.	N
	Eileen Avenue Culvert Replacement*	Design and replace the 48-inch culvert adjacent to 2 Eileen Avenue.	Additional Resiliency Recommendation	Design and construction is estimated to cost between $50,000 and $500,000..	N
	Red Hill Road/Burda Lane Improvements*	Resize and replace a culvert and potentially realign the intersection at Red Hill Road and Burda Lane.	Additional Resiliency Recommendation	Total $1,200,000, includes: Preliminary drainage estimate: $350,000 and intersection realignment: $850,000.	N
	Toni Court Stream Channel Improvements*	Stream bank restoration and stream channel improvements along Toni Court, including additional infrastructure (channel walls).	Additional Resiliency Recommendation	Construction is estimated to cost $36,000.	N

Notes: Projects marked with a * were identified by the Town of Clarkstown Storm Drainage Task Force in their August 2014, Storm Drainage Task Force Project List.
Projects marked with ** were identified as "Urgent Need" by the Town of Clarkstown Storm Drainage Task Force in their August 2014, Storm Drainage Task Force Project List.

Table V-2 Master Project Table

Strategy	Project Name	Short Description	Project Category	Estimated Cost	Regional (Y/N)
Preserve open spaces and restore natural resources to better support flood mitigation	Implementation of Post-Residential Buyout Program Measures for Flood Protection	Evaluate and design flood mitigation and flood control uses for appropriate parcels acquired by the Town through FEMA's HMGP Buyout Program. These properties must remain undeveloped in perpetuity and can therefore be repurposed for use as public open space, and potentially for flood control.	Featured Project	Feasibility study is estimated to cost $50,000.	N
	"Green Clarkstown" - Stormwater, Wetlands and Wetland Buffers, Flood Mitigation Regulations and Ordinances	Develop and implement regulatory changes to protect wetlands, lakes and stream corridors and require green construction and infrastructure improvements to mitigate flood impacts within the Town. This project was recommended in the Clarkstown Comprehensive Plan and the Stormwater Regulations.	Additional Resiliency Recommendation	Preparing an RFP, retaining a consultant to develop mapping, drafting revisions to ordinances, and conducting SEQRA is estimated to cost $145,000.	N
Promote resilience and flood management best practices through land-use planning, policy, and regulation	Digital Inventory of Stormwater Infrastructure	Retain professional services to collect data on Town's roughly 12,000 catch basins. Information to be collected would include: size, date of installation, and inspection and maintenance schedules for replacement or upgrades.	Featured Project	Retaining professional services to complete this inventory and monitoring system is estimated to cost $200,000.	N
	Tree Maintenance Program	Proactively manage trees located in the public right-of-way to reduce incidents of road closures and power interruptions resulting from downed trees during storm conditions.	Featured Project	Development and implementation of this program is estimated to cost $30,000.	N
Provide education, outreach and implementation assistance regarding pre-storm preparedness (including proper maintenance of waterbodies and stormwater runoff mitigation on private properties), storm protection procedures and post-storm recovery initiatives to protect from future flooding	Comprehensive Town-wide Education and Alert Program for: (1) Storm Preparedness, (2) Implementation, and (3) Emergency Assistance and (4) Post-Storm Recovery	1. Education for pre-storm preparedness; 2. Implementation assistance for storm preparedness to the elderly or vulnerable populations; 3. Develop a comprehensive database for emergency assistance resources during emergency events; and 4. Prepare a comprehensive list of assistance agencies for technical advice and funding to assist with post storm recovery and rebuilding.	Additional Resiliency Recommendation	Total cost of $90,000, includes: 1 - $20,000; 2 - $30,000; 3 - $20,000; 4 - $20,000.	Y
Notes: Projects marked with a * were identified by the Town of Clarkstown Storm Drainage Task Force in their August 2014, Storm Drainage Task Force Project List. Projects marked with ** were identified as "Urgent Need" by the Town of Clarkstown Storm Drainage Task Force in their August 2014, Storm Drainage Task Force Project List.					

Table V-2 Master Project Table

Strategy	Project Name	Short Description	Project Category	Estimated Cost	Regional (Y/N)
Restore and protect critical infrastructure and transportation assets	Fredric Street Drainage Improvements**	Resize and replace piping for approximately 1,200 linear feet from Fredric Street west through and including the New Holland Village Condominiums.	Proposed Project	Engineering and construction is estimated to cost $1,400,000.	N
	Old Haverstraw Road Drainage Improvements**	Resize and replace existing deteriorated and undersized drainage lines to adequately drain areas along Old Haverstraw Road.	Proposed Project	Construction is estimated to cost $750,000.	N
	Back-up Power for Critical Infrastructure — Policy Changes and Implementation Assistance	This project will: (1) require new cell towers to include a back-up power supply as a condition of local approvals; and incentivize the retrofit of existing cell towers for back up supply; (2) provide financial assistance for the installation of a permanent backup power supply for critical infrastructure including gasoline stations; and (3) conduct a feasibility study to evaluate opportunities to bury power lines in older neighborhoods throughout the Town.	Additional Resiliency Recommendation	The policy text amendment and grant applications would be completed in house. A feasibility study and pilot project to bury power lines could cost between $500,000 and $1,000,000.	N
	Operational and Communication Infrastructure Improvements — Additional Weather Tower and Stream Gages and Installation of Cameras on Existing Stream Gages	Evaluate optimal locations for additional weather stations and fund the installation of cameras and new equipment at selected sites.	Additional Resiliency Recommendation	Design and installation are estimated to cost between $50,000 and $500,000.	N

Notes: Projects marked with a * were identified by the Town of Clarkstown Storm Drainage Task Force in their August 2014, Storm Drainage Task Force Project List.
Projects marked with ** were identified as “Urgent Need” by the Town of Clarkstown Storm Drainage Task Force in their August 2014, Storm Drainage Task Force Project List.

C. Public Engagement Process

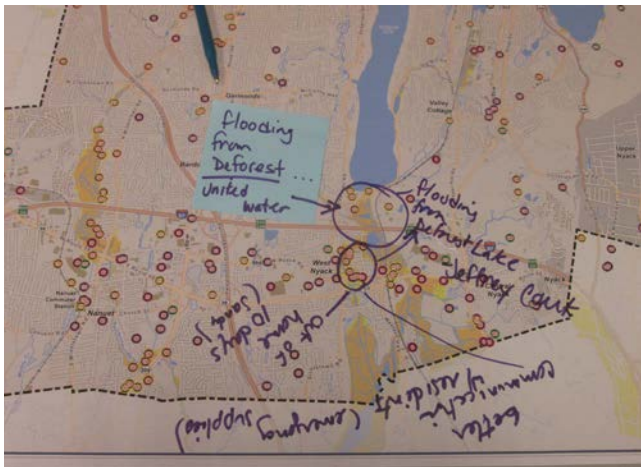
Public Engagement Process

The public engagement process was designed to reach the broadest possible cross-section of the Clarkstown community and ultimately inform the full scope of projects to be considered in the Clarkstown NYRCR Plan. Outreach regarding the NYRCR Plan and opportunities for community input included: bi-weekly Planning Committee Meetings that were open to the public; four Public Engagement Events held at different locations in the Town and scheduled at strategic points throughout the six-month planning process; site and facility tours; a stakeholder email list, which was updated after each Committee and Public Engagement Event; posting of press releases on the Town website; meeting and event details and materials posted on the NYRCR Program website (www.stormrecovery.ny.gov/nyrcr); distribution of a tri-fold brochure, flyers (in English and Spanish), and posters throughout the community; social media alerts; display of information regarding the NYRCR Program at the West Nyack Heritage Festival; and notices sent home with school children. Table II-3 presents a full list of all meetings and events held throughout the Clarkstown NYRCR planning process.

Clarkstown NYRCR Planning Committee Meeting 1 - July 9, 2014 (Arch Street Communications)

Clarkstown NYRCR Planning Committee

The Clarkstown NYRCR Planning Committee (Committee) is composed of nine voting members who represent a cross-section of community groups and interests, including senior and historic preservation groups, municipal officials representing the departments of Emergency Management, Planning, and Environmental Control; two non-voting ex-officio members (the Town Supervisor and Director of Operations), members of the community; and business owners who have themselves experienced repeated flooding.



Asset Inventory Mapping at Planning Committee Meeting 3 – August 13, 2014 (Elizabeth Matamoros)

The Committee met approximately every other week at Clarkstown Town Hall in New City from July 2014 through December 2014. Prior to each meeting, the Committee received reminder emails, an agenda with explanatory information, worksheets, and summary notes from previous meetings.

The general format for Committee Meetings included a summary discussion of accomplishments made since the last meeting, followed by work sessions on specific NYRCR Program tasks. These tasks included: formulating a vision; identifying goals and objectives; asset mapping; identifying and developing needs and opportunities; and developing specific projects. Speakers were invited to address the Committee on

the U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant-Disaster Recovery (CDBG-DR) Program and the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program (HMGP). The Committee also hosted a joint meeting with the Village of Suffern NYRCR Planning Committee to learn about green infrastructure practices and how these practices could be utilized in the respective communities.

Summaries of all Committee Meetings as well as meeting materials were made available on the NYRCR Program website at www.stormrecovery.ny.gov/nyrcr.

Public Engagement Events

Four Public Engagement Events were held throughout the six-month planning process. Attendees at these events included: Clarkstown residents, representatives from public and private agencies; elected officials and their representatives, community organizations and local businesses. Attendees were notified of the events via media releases issued by the Town and the NYRCR Program, social media postings, flyers and posters displayed throughout the Town, a project email list and notices sent home with school children. Notices for all four Public Engagement Events were also posted on the NYRCR Program website at www.stormrecovery.ny.gov/nyrcr/meetings. This multi-pronged effort brought out a cross section of interested individuals.

Public Engagement Event 1

Public Engagement Event 1 was held at Clarkstown Town Hall in New City on July 30, 2014. At this event, residents received information about the NYRCR Program, process and timelines. The focus of this event was to solicit community feedback of the vision, needs, and opportunities developed by the Committee and provide information on critical issues, storm damage and preliminary asset inventory and mapping. Various "stations" were set up around the room where attendees could learn about and give input on various NYRCR Plan components. Preliminary asset maps were displayed and residents were encouraged to add information directly to maps and/or discuss issues with representatives from the Consultant Team, Committee, and Governor's Office of Storm Recovery (GOSR)/NYS Department of State (NY DOS) stationed at each table.

Event attendees were also encouraged to participate in the Photo Booth where they were asked to write answers to one of the questions listed below on a white board and have their photograph taken while holding the board. This helped provide a visual representation of the Community's values and vision for making Clarkstown more resilient in the future.

- One word that describes Clarkstown…
- My Vision for Clarkstown is…
- What does "Building Back Better" mean to you?

Public Engagement Event 1 – July 30, 2014 (Elizabeth Matamoros)

Photo Booth at Public Engagement Event 1 – July 30, 2014 (Arch Street Communications)

This event brought out people whose lives and livelihoods were severely impacted by storm events. The NYRCR Program is a community-driven initiative. As such, public engagement events provide an essential forum for residents to tell their stories and provide direction for the planning process—from inception to completion.

Public Engagement Event 2

The second Public Engagement Event was held at the Pascack Community Center in Nanuet on September 17, 2014. The Event was publicized via social media, media releases, the stakeholder email distribution list, the Town website, and posters, brochures and flyers sent home with school children.

Public Engagement Event 2 focused on discussion of strategies and projects developed by the Committee to address Clarkstown's key needs and critical issues. The strategies and projects were organized by the six Recovery Support Functions (RSFs) as follows: Health and Human Services; Natural and Cultural Resources; Community Planning and Capacity Building; Housing: Economic, and Infrastructure. Diverging from the "station" format utilized at Public Engagement Event 1, this event was organized as a guided group discussion. Meeting attendees sat together and discussed each proposed strategy and program, providing detailed input on each component.

Public Engagement Event 2 – September 17, 2014 (Arch Street Communications)

The Photo Booth offered at Public Engagement Event 1 was also offered at Public Engagement Event 2.

Supervisor Gromack, Councilwoman Hausner, and NYRCR Planning Committee Members Mark Brecher and Michael Gach at the West Nyack Heritage Festival – October 18, 2014 (Heritage of West Nyack)

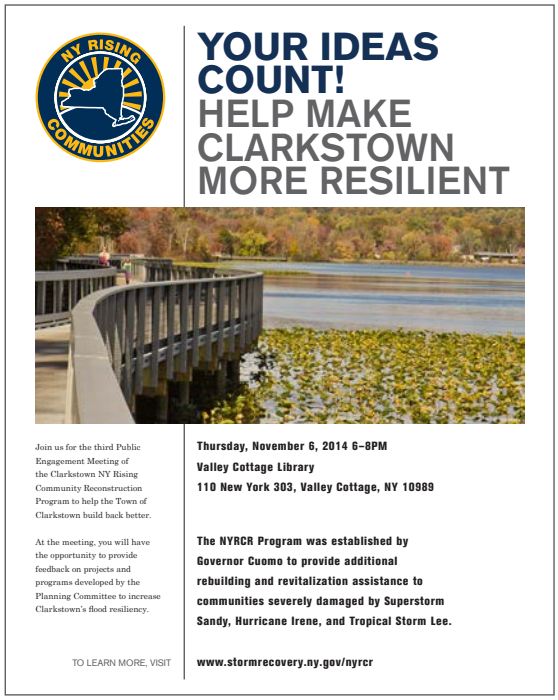
Supervisor Gromack Speaks at Public Engagement Event 3 – November 6, 2014 (Arch Street Communications)

West Nyack Heritage Festival

Several Planning Committee Members attended the West Nyack Heritage Festival on October 18, 2014 to display and distribute NYRCR Program information. Members of the community were encouraged to learn more about the program, provide email contact information and attend future Planning Committee Meetings and Public Engagement Events.

Public Engagement Event 3

Public Engagement Event 3 was held at the Valley Cottage Library, in Valley Cottage, on November 6, 2014. The event was advertised using many of the same outlets and approaches utilized for Public Engagement Events 1 and 2; however, to encourage additional attendance, the Committee, the Consultant Team and Town representatives started publicizing the event approximately three weeks prior to the event. The primary focus of Public Engagement Event 3 was to solicit community input on projects, programs and actions developed by the Planning Committee. The format for this event included a brief presentation about the NYRCR Program, after which attendees were provided a "passport" detailing project information.



Flyer for Public Engagement Event 3 – November 6, 2014 (AKRF)

Attendees were encouraged to circulate throughout the room and view the posters and maps that illustrated the Proposed and Featured Projects, and Additional Resiliency Recommendations. After learning more about the projects from the posters and discussion with Committee members, representatives from the Consultant Team and GOSR/DOS representatives, attendees filled out the "passports" indicating their

thoughts and concerns regarding projects, and providing suggestions on other projects to be considered in the NYRCR Program.

Boards displaying the Vision and Goals, Needs and Opportunities, Asset Mapping, and Strategies were also displayed at the event venue.

Public Engagement Event 4

The fourth and final Public Engagement Event was held in January 2015 to present the final NYRCR Plan to the Clarkstown Community.

Co-chair Peter Noonan Speaks at Public Engagement Event 4 – January 22, 2015 (Arch Street Communications)

Additional Outreach Efforts

The Clarkstown Planning Committee and Consultant Team worked to develop many opportunities for community participation and public engagement.

Brochures and Flyers

The Consultant Team created a tri-fold brochure that highlighted NYRCR Program components. The Consultant Team and Committee Members distributed these brochures throughout the community in key locations, including: Town Hall, various libraries and businesses. These brochures provided information on the NYRCR Program, the Planning Committee, Program progress, contact information for the Governor's Office of Storm Recovery and the stormrecovery.com website. The brochures were also provided at the three Public Engagement Events.

The Committee and Consultant Team discussed the importance of encouraging involvement throughout Clarkstown's diverse community. To achieve a broader outreach, the Consultant Team prepared flyers for the Public Engagement Events in Spanish and English. The Committee and Town representatives distributed hard copies of the flyers throughout Clarkstown to help attract participation of a key but traditionally underrepresented sector of the community.

School Outreach

The NYRCR Plan also considered youth engagement as key to improving Clarkstown's resilience. With this in mind, the Consultant Team worked to ensure that event notices were also circulated via email from the Town of Clarkstown to the School District mailing lists in order to reach the Community's youth as well as a more diverse range of parents. The Consultant Team also prepared age-appropriate worksheets for younger attendees at the Public Engagement Events.

Town Website

To ensure that community residents who were not on the Planning Committee remained involved in the planning process, information related to the NYRCR Program and Plan, including Committee Meeting presentations was posted to the NYRCR Clarkstown webpage (www.stormrecovery.ny.gov/nyrcr/community/town-clarkstown), which also provides a section for public feedback and comment.

These various outreach methods helped to solidify the public engagement process and ensure that the NYRCR Planning Process considered a variety of different opinions and voices.

Online Survey

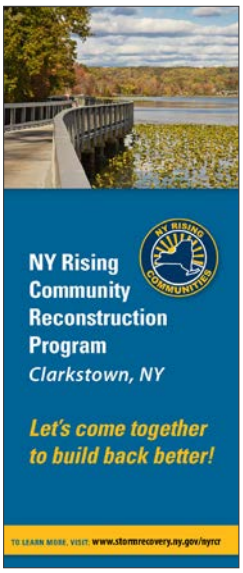
The Planning Committee and the Consultant Team prepared an online survey to provide another opportunity for Clarkstown residents who were unable to attend community meetings to participate in the NYRCR Planning Process and provide their valuable input. The survey listed the projects developed by the Clarkstown NYRCR Planning Committee and asked residents to express their preference for each project by selecting "high" or "low," thereby gauging community support for each project. In addition, the survey allowed an opportunity for respondents to comment on each of the projects and provide feedback in a narrative format. The survey responses were combined with the feedback gathered at the Public Engagement Event 3.

The survey was distributed via email to the NYRCR email list, posted on the Clarkstown NYRCR webpage, distributed via handout at the Public Engagement Event, and available to the public on the Town website from November 3 to November 24, 2014.

The survey received four hundred and ninety-eight responses. More than 50% of the respondents indicated "high" community support for the Proposed Projects. Narrative feedback included: "improvement in drainage should be a priority" and many respondents indicated that drainage projects were "urgent", citing specifically that the drainage issues to be addressed by the Cranford Drive Drainage Improvement Project dated back more than 20 years. Comments on the South Mountain Road project included: "The current situation is untenable. Water overflow has caused significant repeated damage to our road," and many comments similar to "Improvement in drainage should be a priority." Featured Projects, specifically the Tree Maintenance Program, also received "high" community support, with comments highlighting that this is an issue that affects the entire Town.

Recurring feedback included that efforts need to be focused on protecting homeowners from property damage. Residents also stressed the importance of regional coordination with neighboring Towns, Rockland County, and Orange & Rockland Utilities.

The responses to the online survey resoundingly indicate that erosion and flood issues have been plaguing the community for many years. Clarkstown residents have been very much affected by flooding, stormwater management issues, and disruption in power and therefore they actively support proactive drainage, storm preparedness response, and recovery initiatives proposed in the NYRCR Plan.



Clarkstown NYRCR Program Overview Brochure (AKRF)

Table V-3: NYRCR Meeting and Event Summary

Meeting/Event	Date	Location	Topics Covered
Consultant Team Site Tour	6/26/2014	Town of Clarkstown Site Tour	Guided Tour of the Town, all Recent and Proposed Infrastructure Projects
Planning Committee Meeting 1	7/9/14	Clarkstown Town Hall 10 Maple Avenue New City, NY	Kick off, Discussion of Storm Damage and Critical Issues
Planning Committee Meeting 2	7/23/14	Clarkstown Town Hall 10 Maple Avenue New City, NY	Visioning, Goals and Objectives
Public Engagement Event 1	7/30/14	Clarkstown Town Hall 10 Maple Avenue New City, NY	Review of Vision Statement and Asset Inventory
Consultant Team Tour of Emergency Operations Center	8/5/2014	Clarkstown Police Department 20 Maple Avenue New City, NY 10956	Guided Tour of Emergency Operations Center
Planning Committee Meeting 3	8/13/14	Clarkstown Town Hall 10 Maple Avenue New City, NY	Needs and Opportunities, Asset Inventory and Risk Analysis
Planning Committee Meeting 4	8/27/14	Clarkstown Town Hall 10 Maple Avenue New City, NY	Discussion and Review of Asset Inventory and Preliminary Risk Assessment, Green Infrastructure
Planning Committee Meeting 5 (Joint Meeting with Suffern)	9/10/2014	Clarkstown Town Hall 10 Maple Avenue New City, NY	Educational Session on Green Infrastructure with Khristopher Dodson, Syracuse University
Public Engagement Event 2	9/17/2014	Pascack Community Center Gymnasium 87 New Clarkstown Road, Nanuet NY	Progress Review, Discussion of Strategies
Planning Committee Meeting 6	9/23/2014	Clarkstown Town Hall 10 Maple Avenue New City, NY	GOSR CDBG-DR Presentation, Project Development
Planning Committee Meeting 7	10/8/2014	Clarkstown Town Hall 10 Maple Avenue New City, NY	GOSR HMGP Presentation Regarding Residential Buyout Program, Project Development
West Nyack Heritage Festival	10/18/14	Congers Lake Memorial Park Congers, NY	Public Engagement –NY Rising Program
Planning Committee Meeting 8	10/22/14	Clarkstown Town Hall 10 Maple Avenue New City, NY	Project Development, Discussion of Town of Clarkstown Storm Drainage Task Force Projects, Prepare for Public Engagement Event 3
Public Engagement Event 3	11/6/14	Valley Cottage Library 110 New York 303 Valley Cottage, NY	Review and Discussion of Projects
Planning Committee Meeting 9	11/13/14	Clarkstown Town Hall 10 Maple Avenue New City, NY	Public Engagement Feedback Review, Rising to the Top Competition Discussion, Voting
Planning Committee Meeting 10	11/19/14	Clarkstown Town Hall 10 Maple Avenue New City, NY	Review of Draft 2 of NYRCR Plan
Public Engagement Event 4	Jan 2015	Location TBD	Review of Final Clarkstown NYRCR Plan

D. Community Asset Inventory

Table V-4 Community Asset Inventory

Asset Information								Landscape Attributes							Risk Assessment			
Asset Name	Address	Asset Class	Asset Subcategory	Socially Vulnerable Populations	Critical Facility	Community Value	Risk Area	Lack of Defensive Flood Protection Measures	Elevation Below BFE	Occupied <= 2 ft. above BFE	At Confluence of Two or More Streams	Flood Risk from Storm Water	Lack of Vegetated Stream Bank Buffer	Landscape Attribute Score	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
A MacArthur Barr Middle School	143 Church Street, Nanuet, NY 10954	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ABC Supply Co., Inc.	2 Ford Products Rd, Valley Cottage, NY 10989	Economic	Industrial, Warehousing and Manufacturing	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Adele Road Homes	14 Adele Rd, West Nyack, NY 10994	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	Yes	No	No	Yes	Yes	2	3	4.00	4	48
Advanced Cardiovascular Care	206 RT 303, Valley Cottage, NY 10989	Health and Social Services	Healthcare Facilities	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Albertus Magnus High School	798 S Rte. 304, Bardonia, NY 10954	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All County Motors	12 N Middletown Rd, Nanuet, NY 10954	Economic	Small Business	No	No	Low	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	3	41
Alton Court Homes	Alton Ct, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	3	23
Animal Medical of New City	22 New Hempstead Rd, New City, NY 10956	Health and Social Services	Healthcare Facilities	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Annmarie Meehan Inc.	12 Westview Ave, Congers, NY 10920	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ARC of Rockland	25 Hemlock Dr, Congers, NY 10920	Health and Social Services	Government and Administrative Services	Yes	Yes, FEMA	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Argow Place Home	43 Argow Pl, Bardonia, NY 10954	Housing	Single-Family Residence	No	No	Medium	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
AuPairCare	5 Richard Dr, West Nyack, NY 10994	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Baby Lake Dam	Lucille Blvd, New City, NY 10956	Infrastructure Systems	Stormwater	No	Yes, FEMA	High	Extreme	Yes	Yes	No	No	Yes	Yes	2	3	4.00	3	36
Bardonia Elementary School	81 Bardonia Rd, Nanuet, NY 10954	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bardonia Post Office	77 Bardonia Rd, Bardonia, NY 10954	Health and Social Services	Government and Administrative Services	No	No	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Beckerle Lumber & Supply	79 Lake Rd, Congers, NY 10920	Economic	Industrial, Warehousing and Manufacturing	No	No	Low	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	2	18
Better Homes and Gardens Rand Reality/ Hudson United Insurance	10 Schriever Ln, New City, NY 10956	Economic	Small Business	No	No	Low	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
Birchwood Court Homes	Birchwood Ct, Valley Cottage, NY 10989	Housing	Single-Family Residence	No	No	Medium	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Assets in Extreme and High Risk Areas were advanced through the Risk Assessment Process and had Landscape Attributes analyzed to produce Risk Scores. Assets within Moderate and Low Risk Areas were not evaluated by the Risk Assessment.

Table V-4 Community Asset Inventory (cont'd)

Asset Information								Landscape Attributes							Risk Assessment			
Asset Name	Address	Asset Class	Asset Subcategory	Socially Vulnerable Populations	Critical Facility	Community Value	Risk Area	Lack of Defensive Flood Protection Measures	Elevation Below BFE	Occupied <= 2 ft. above BFE	At Confluence of Two or More Streams	Flood Risk from Storm Water	Lack of Vegetated Stream Bank Buffer	Landscape Attribute Score	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
Birchwood School	Sickletown Rd, West Nyack, NY 10994	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Birchwood Terrace Homes	35 Birchwood Terrace, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bittern Drive Homes	6 Bittern Dr, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	High	Yes	Yes	No	No	No	Yes	1.5	3	2.50	3	23
Blauvelt Road Floodprone Area	Blauvelt Ave, Clarkstown, NY 10956	Infrastructure Systems	Transportation	No	No	Medium	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
Blauvelt Road Homes	127 Blauvelt Rd, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
Blue Rock School	110 Demarest Mill Rd, West Nyack, NY 10994	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bluebird Drive Bridge	Bluebird Dr, Congers, NY 10920	Infrastructure Systems	Transportation	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Braemar Lane Condominiums	49 Braemar Ln, New City, NY 10956	Housing	Multi-Family Residence	No	No	Medium	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
Bram Manufacturing	26 N Route 9W, Congers, NY 10920	Economic	Industrial, Warehousing and Manufacturing	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brenner Drive Businesses	85 Brenner Dr, Congers, NY 10920	Economic	Industrial, Warehousing and Manufacturing	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brenner Drive Undermined Area	Brenner Dr, Congers, NY 10920	Infrastructure Systems	Transportation	No	No	Medium	High	Yes	No	No	No	Yes	No	1	3	2.00	3	18
Bridgewater Condominiums	Patricks Pl, Congers, NY 10920	Housing	Multi-Family Residence	No	No	Medium	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	3	23
Brookhaven Court Homes	6 Brookhaven Ct, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	3	23
Brookside Drive Homes	3 Brookside Dr, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	High	Yes	Yes	No	No	Yes	Yes	2	3	3.00	3	27
Busy Bee Playschool	39 Germonds Rd, New City, NY 10956	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Buttermilk Falls Park	Blauvelt, NY 10913	Natural and Cultural Resources	Parks and Recreation	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cablevision West Nyack Facility	210 W Nyack Rd, West Nyack, NY 10994	Infrastructure Systems	Telecommunications	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cablevision West Nyack Facility 2	73 Rose Rd, West Nyack, NY 10994	Infrastructure Systems	Telecommunications	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cambridge University Press	110 Brookhill Dr, West Nyack, NY 10994	Economic	Industrial, Warehousing and Manufacturing	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Camp Venture - Kenneth P. Zebrowski Center	100 Convent Rd, Nanuet, NY 10954	Housing	Supportive Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Camp Venture Home #1	63 Inwood Dr, Bardonia, NY 10954	Housing	Supportive Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Camp Venture Home #2	132 Strawtown Rd, Clarkstown, NY 10956	Housing	Supportive Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Capral Lane Homes	Capral Ln, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	Yes	No	No	Yes	Yes	2	3	3.00	3	27
Cedar Grove Corners Condominiums	N US Route 9W, New City, NY 10956	Housing	Multi-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Centenary Pumping Station	198 Old Route 304, Clarkstown, NY 10956	Infrastructure Systems	Wastewater	No	Yes, FEMA	High	Extreme	Yes	Yes	No	Yes	No	Yes	2	3	4.00	5	60
Central Nyack Community Center	58 Waldron Avenue, Nyack, NY 10960	Natural and Cultural Resources	Community Centers	No	Yes, FEMA	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Central Nyack Congregational Church	468 Mountainview Ave, Valley Cottage, NY 10989	Natural and Cultural Resources	Cultural or Religious Establishments	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Central Nyack Fire Station	43 Waldron Ave, Grand View-On-Hudson, NY 10960	Health and Social Services	Emergency Operations/ Response	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Charles Street to Freedman Avenue Floodprone Areas	Fredric St, Clarkstown, NY 10956	Infrastructure Systems	Transportation	No	No	Medium	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Charles Street to Freedman Avenue Homes	Charles St, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Chase Bank	2 New Hempstead Rd, New City, NY 10956	Economic	Banks and Financial Services	No	No	Low	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chestnut Grove School	62 Old Middletown Rd, Clarkstown, NY 10956	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Children's Village Home	9 Tena Pl, Congers, NY 10989	Housing	Supportive Housing	Yes	Yes, FEMA	High	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Christian Herald Road / Lake Road Homes	Christian Herald Rd, Valley Cottage, NY 10989	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Christian Herald Road Apartments	Christian Herald Rd, Valley Cottage, NY 10989	Housing	Multi-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Clark Drive Homes	9 Clark Dr, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Clarkstown Kids Childcare	58 Endicott St, Congers, NY 10920	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Clarkstown North Senior High School	151 Congers Road, New City, NY 10956	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Clarkstown Plaza	170 S Main St, New City, NY 10956	Economic	Large Business	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Clarkstown South High School	31 Demarest Mill Road, West Nyack, NY 10994	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Clarkstown Town Hall	10 Maple Ave, Clarkstown, NY 10954	Health and Social Services	Government and Administrative Services	No	Yes, FEMA	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Clarkstown Town Landfill	126 S Route 303, West Nyack, NY 10994	Infrastructure Systems	Hazardous Materials, Solid Waste, and Recycling	No	No	Medium	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Clean Vehicle Solutions	8 Pineview Rd, West Nyack, NY 10994	Economic	Industrial, Warehousing and Manufacturing	No	No	Low	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Clearwire Spectrum Holdings Microwave Tower	11 Seeger Dr, Nanuet, NY 10954	Infrastructure Systems	Telecommunications	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Collyer Avenue Homes	85 Collyer Ave, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	3	41
Commuter Parking Lot	NY Rte. 303, West Nyack, NY 10960	Infrastructure Systems	Transportation	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Companions Plus Senior Care	1 Strawtown Rd, West Nyack, NY 10994	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	4	42
Congers Community Center	6 Gilchrest Rd, Congers, NY 10920	Natural and Cultural Resources	Community Centers	No	No	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Congers Elementary School	9 Lake Rd, Congers, NY 10920	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Congers Fire Station 1	66 Lake Rd E, Congers, NY 10920	Health and Social Services	Emergency Operations/ Response	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Congers Fire Station 2	40 N Harrison Ave, Congers, NY 10920	Health and Social Services	Emergency Operations/ Response	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Congers Lake Memorial State Park	Congers, NY 10920	Natural and Cultural Resources	Parks and Recreation	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Congers Post Office	14 Old Haverstraw Rd, Congers, NY 10920	Health and Social Services	Government and Administrative Services	No	No	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Congers Road / Goebel Road Homes	Goebel Rd, Clarkstown, NY 10956	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Congers-Valley Cottage Vol. Ambulance Corps.	117 Kings Hwy, Congers, NY 10920	Health and Social Services	Emergency Operations/ Response	No	Yes, FEMA	High	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Convent Rd / Newport Dr / Morgan Ct Homes	170 Convent Rd, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	2	21
Cool Pool & Spa	85 S Pascack Rd, Nanuet, NY 10954	Economic	Small Business	No	No	Low	Extreme	Yes	No	No	No	No	Yes	1	3	3.00	3	27
Corners Road Homes	Corners Rd, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Corporate Way / Executive Boulevard Businesses	612 Corporate Way, Valley Cottage, NY 10989	Economic	Industrial, Warehousing and Manufacturing	No	No	Low	High	Yes	Yes	No	No	Yes	Yes	2	3	3.00	3	27
Cottage Place / Smith Road Homes	5 Cottage Pl, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	High	Yes	Yes	No	No	Yes	Yes	2	3	3.00	3	27

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Table V-4 Community Asset Inventory (cont'd)

Asset Information								Landscape Attributes							Risk Assessment			
Asset Name	Address	Asset Class	Asset Subcategory	Socially Vulnerable Populations	Critical Facility	Community Value	Risk Area	Lack of Defensive Flood Protection Measures	Elevation Below BFE	Occupied <= 2 ft. above BFE	At Confluence of Two or More Streams	Flood Risk from Storm Water	Lack of Vegetated Stream Bank Buffer	Landscape Attribute Score	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
County Animal Hospital	49 Congers Rd, New City, NY 10956	Health and Social Services	Healthcare Facilities	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cragmere / Bush Ct Homes	6 Bush Ct, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	5	53
Cranford Drive	Cranford Dr, Clarkstown, NY 10956	Infrastructure Systems	Transportation	No	No	Medium	Extreme	Yes	No	No	Yes	Yes	Yes	2	3	4.00	3	36
Cranford Drive / Termakay Drive Home	Cranford Dr, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	4	54
Cranford Drive Homes	7 Cranford Dr, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	5	53
CSC TKR Television Antenna	23 Forest Ridge, Grandview-on-Hudson, NY 10960	Infrastructure Systems	Telecommunications	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cypress Street / Cranford Drive Homes	Cypress St, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	5	53
Deforest Lake Dam	55 Old Mill Rd, West Nyack, NY 10994	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	3	41
Deforest Lake Filtration Plant	55 Old Mill Rd, West Nyack, NY 10994	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Deforest Lake Reservoir	Clarkstown, NY 10956	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Demarest Mill Road Home	42 Demarest Mill Rd, Nanuet, NY 10954	Housing	Single-Family Home	No	No	Medium	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Denver Dr Homes	Shore Rd, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	3	23
Doctor Davies Road Home	55 Doctor Davies Rd, Congers, NY 10920	Housing	Single-Family Residence	No	No	Medium	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dr. Davies Farm	306 NY Rte. 304, Congers, NY 10920	Natural and Cultural Resources	Agricultural areas	No	No	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dykes Park Road Homes	Dykes Pk Rd, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
E Hall Avenue / S Little Tor Road Homes	5 E Hall Ave, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	3	41
East Allison Avenue Floodprone Area	East Allison Ave, Clarkstown, NY 10956	Infrastructure Systems	Transportation	No	No	Medium	Extreme	Yes	No	No	Yes	Yes	Yes	2	3	4.00	4	48
East Allison Avenue Homes	East Allison Ave, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
East Hall Avenue Floodprone Area	East Hall Ave, Clarkstown, NY 10956	Infrastructure Systems	Transportation	No	No	Medium	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	3	41
East NYS Rte. 59 Businesses	E Rte. 59, Nanuet, NY 10954	Economic	Large Business	No	No	Low	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
East NYS Rte. 59 Commercial Corridor	90 E Rte. 59, Nanuet, NY 10954	Economic	Small Business	No	No	Low	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32

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East Spring Valley Fire Station	62 Overlook Blvd, Bardonia, NY 10954	Health and Social Services	Emergency Operations/ Response	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Eaves Apartments	Avalon Ln, Bardonia, NY 10954	Housing	Multi-Family Residence	No	No	Medium	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Eidman Agency Inc.	145 NY 303, West Nyack, NY 10994	Economic	Small Business	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Elinor Place Homes	8 Elinor Pl, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
Elks Drive / April Lane Homes	1 Elks Dr, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	High	Yes	Yes	Yes	Yes	Yes	Yes	3	3	4.00	3	36
Elks Lodge	2041 Elks Dr, Nanuet, NY 10954	Natural and Cultural Resources	Cultural or Religious Establishments	No	No	Medium	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Esquire Village Office Condominium	10 Esquire Rd #4, New City, NY 10956	Economic	Large Business	No	No	Low	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
Evergreen Court	65 Lafayette Ave, Spring Valley, NY 10977	Housing	Senior Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Felix Festa Middle School	30 Parrott Rd, West Nyack, NY 10994	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fesco Fence Corporation	237 NY 303, West Nyack, NY 10994	Economic	Small Business	No	No	Low	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fisher Ave Homes	Fisher Ave, Bardonia, NY 10954	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Flitt Street / Fir Court Homes	Flitt St, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Forest Brook / Springbrook Road Homes	Forest Brook Rd, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
General Bearing Corporation	9 High St, West Nyack, NY 10994	Economic	Industrial, Warehousing and Manufacturing	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Germonds Road / Bardonia Road Homes	Bardonia Rd, Bardonia, NY 10954	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Germonds Road Homes	Germonds Rd, West Nyack, NY 10994	Housing	Single-Family Residence	No	No	Medium	High	Yes	No	No	No	Yes	No	1	3	2.00	3	18
Getty Gas Station	N Main St, New City, NY 10956	Economic	Small Business	No	No	Low	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gilchrest Road Homes	Gilchrest Rd, Congers, NY 10920	Housing	Single-Family Residence	No	No	Medium	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	3	23
Giving Tree Family Day Care - Nanuet Day Care	11 Rinne Rd, Nanuet, NY 10954	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Glen Lane / Leona Ave Homes	12 Glen Ln, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32

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Gloria Court Homes	Gloria Ct, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	Yes	No	No	Yes	Yes	2	3	3.00	3	27
Gramercy Park Apartments	College Ave, Nanuet, NY 10954	Housing	Multi-Family Residence	No	No	Medium	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Green Gate Market	241 S Little Tor Rd, Clarkstown, NY 10956	Economic	Small Business	No	No	Low	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	3	32
Green Inn Motel On the Lake	65 N Rte-9W, Congers, NY 10920	Economic	Lodging	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Green Road Homes	Green Rd, West Nyack, NY 10994	Housing	Single-Family Residence	No	No	Medium	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hall Avenue Homes	Hall Ave, Nyack, NY 10960	Housing	Single-Family Residence	No	No	Medium	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Helen Hayes Outpatient Rehab Clinic	131 N Midland Ave, Nyack, NY 10960	Health and Social Services	Healthcare Facilities	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hidden Valley Condominiums	Leif Blvd, New City, NY 10956	Housing	Multi-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
High Street / W Nyack Road Homes	10 Phillips Ln, West Nyack, NY 10994	Housing	Multi-Family Residence	No	No	Medium	Extreme	Yes	No	No	Yes	No	Yes	1.5	3	3.50	3	32
High Tor State Park	415 South Mountain Rd, New City, NY 10956	Natural and Cultural Resources	Parks and Recreation	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Highview Elementary School	24 Highview Ave, Nanuet, NY 10954	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Highway Avenue / Lenox Avenue Homes	Highway Ave, Congers, NY 10920	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Hillcrest Elementary School (closed)	3 Addison Boyce Dr, Clarkstown, NY 10956	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hilltop Rd Homes w/ Access Issue	Hilltop Rd, Congers, NY 10920	Housing	Single-Family Residence	No	No	Medium	High	Yes	No	No	No	Yes	No	1	3	2.00	3	18
Home Instead Senior Care	250 W Nyack Rd #220, West Nyack, NY 10994	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hook Mountain State Park	Valley Cottage, NY 10989	Natural and Cultural Resources	Parks and Recreation	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hub Shopping Center	336 NY Rte. 59, Nyack, NY 10960	Economic	Large Business	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hyenga Lake Apartments	3101-3125 Hyenga Way, Spring Valley, NY 10977	Housing	Senior Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
I-87 Exit 14A Ramp	I 87, Nanuet, NY 10954	Infrastructure Systems	Transportation	No	No	High	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Integrated Medical Professionals	460 W Nyack Rd, West Nyack, NY 10994	Health and Social Services	Healthcare Facilities	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Islamic Center of Rockland	481 Mountainview Ave, Valley Cottage, NY 10989	Natural and Cultural Resources	Cultural or Religious Establishments	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27

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Italiana's Restaurant	265 S Little Tor Rd, New City, NY 10956	Economic	Restaurants	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Jawonio	260 N Little Tor Rd, New City, NY 10956	Health and Social Services	Healthcare Facilities	Yes	Yes, FEMA	High	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	3	41
Jeffrey Court Homes	10 Jeffrey Ct, West Nyack, NY 10994	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	Yes	No	No	Yes	Yes	2	3	4.00	4	48
Jeffrey Place Floodprone Area	Jeffrey Pl, Clarkstown, NY 10956	Infrastructure Systems	Transportation	No	No	Medium	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Jerry's Avenue Homes	Jerrys Ave, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Kennedy Dells County Park	Zukor Rd, New City, NY 10956	Natural and Cultural Resources	Parks and Recreation	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Kids Clubhouse Daycare	40 Gregory St, New City, NY 10956	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Kids Kingdom	121 W Nyack Rd, Nanuet, NY 10954	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Kings Park	Kings Hwy, Congers, NY 10920	Natural and Cultural Resources	Parks and Recreation	No	No	Low	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Klein Avenue Homes	59 Klein Ave, West Nyack, NY 10994	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	4	54
Kohl Industrial Park	225 NY Rte. 303, Congers, NY 10920	Economic	Industrial, Warehousing and Manufacturing	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Kohl's Shopping Plaza	220 E Rte. 59, Nanuet, NY 10954	Economic	Large Business	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Kreative Kids	61 Maple Ave, New City, NY 10956	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
L&N Cabinets & Furniture	11 Pascack Rd, Spring Valley, NY 10977	Economic	Small Business	No	No	Low	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lake Lucille Homes	Shore Rd, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	Yes	Yes	No	1.5	3	3.50	3	32
Lake Nanuet Drive Homes	28 Lake Nanuet Dr, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	Yes	No	No	Yes	Yes	2	3	4.00	3	36
Lake Nanuet Park	24 Lake Nanuet Dr, Nanuet, NY 10954	Natural and Cultural Resources	Parks and Recreation	No	No	Low	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Lake Nanuet Park Pool	24 Lake Nanuet Dr, Nanuet, NY 10954	Natural and Cultural Resources	Parks and Recreation	No	No	Low	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Lake Ridge Plaza	2 Cefola Way, Valley Cottage, NY 10989	Economic	Large Business	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lake Road Small Businesses	Lake Rd, Congers, NY 10920	Economic	Small Business	No	No	Low	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Lakeview Village Apartments	Memorial Park Dr, Spring Valley, NY 10977	Housing	Affordable Housing	Yes	Yes, FEMA	High	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	3	23

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Lakewood Drive / NYS Rte. 303 Homes	Lakewood Dr, Congers, NY 10920	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Lakewood Elementary School	77 Beechwood Dr, Congers, NY 10920	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Laurel Plains Elementary School	14 Teakwood Dr, New City, NY	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Law Enforcement Museum	55 New Hempstead Road, New City, NY 10956	Natural and Cultural Resources	Museums, Performing Arts Centers, Stadiums	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lawrence Street Affordable Housing	Lawrence St, Congers, NY 10920	Housing	Affordable Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
L'dor Assisted Living	156 W Clarkstown Rd, New City, NY 10956	Housing	Senior Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Liberty Elementary School	Lake Road, Valley Cottage, NY 10989	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Link Elementary School	51 Red Hill Rd, New City, NY 10956	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Little Ones Playhouse, LLC	36 7 Oaks Ln, Nanuet, NY 10954	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Little People's Palace	15 Fersch Ln, Congers, NY 10920	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Little Tor Elementary School	56 Gregory St, New City, NY 10956	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Little Tor Shopping Center	265 S Little Tor Rd, New City, NY 10956	Economic	Large Business	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Loeb House Group Home	78 Demarest Ave, West Nyack, NY 10994	Housing	Supportive Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Loving Angels Child Care	25 Rose Rd, West Nyack, NY 10994	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lowell Dr/ Ridgefield Dr Homes	41 Lowell Dr, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	3	23
Manor Court Homes	Manor Ct, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Massachusetts Avenue / Sedge Road Homes	Massachusetts Ave, Congers, NY 10920	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Mazel Day Care	173 Long Clove Rd, New City, NY 10956	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
McDonald's (New City)	33 W Cavalry Dr, New City, NY 10956	Economic	Restaurants	No	No	Low	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	3	23
McLeod Terrace Homes	292 Phillips Hill Rd, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	Yes	Yes	Yes	Yes	Yes	3	3	4.00	3	36
Memorial Park Drive Homes	Memorial Park Dr, Spring Valley, NY 10977	Housing	Single-Family Residence	No	No	Medium	High	Yes	Yes	Yes	Yes	No	Yes	2.5	3	3.50	3	32

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Table V-4 Community Asset Inventory (cont'd)

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Asset Name	Address	Asset Class	Asset Subcategory	Socially Vulnerable Populations	Critical Facility	Community Value	Risk Area	Lack of Defensive Flood Protection Measures	Elevation Below BFE	Occupied <= 2 ft. above BFE	At Confluence of Two or More Streams	Flood Risk from Storm Water	Lack of Vegetated Stream Bank Buffer	Landscape Attribute Score	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
Mental Health Assoc. of Rockland Co.	140 RT 303, Valley Cottage, NY 10989	Health and Social Services	Healthcare Facilities	Yes	Yes, FEMA	High	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Mid Rockland Imaging Partners, Inc.	18 Squadron Blvd, Clarkstown, NY 10954	Health and Social Services	Healthcare Facilities	No	Yes, FEMA	High	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Middlewood Apartments	80 N Middletown Rd, Nanuet, NY 10954	Housing	Senior Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mill Creek Road / Cypress Street Homes	Mill Creek Rd, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Miller Elementary School	50 Blauvelt Rd, Nanuet, NY 10954	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Monterey Gardens	1 Monterey Gdns, Nanuet, NY 10954	Housing	Senior Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mountain View Park	Valley Cottage, NY 10960	Natural and Cultural Resources	Parks and Recreation	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mountainview Avenue Homes	Mountainview Ave, Valley Cottage, NY 10989	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
N Main Business District	N Main St, New City, NY 10956	Economic	Downtown Center	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N Middletown Road Affordable Housing	136 N Middletown Rd, Nanuet, NY 10954	Housing	Affordable Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nanuet Community Ambulance Corps.	29 Old Middletown Rd, Bardonia, NY 10954	Health and Social Services	Emergency Operations/ Response	No	Yes, FEMA	High	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Nanuet Commuter Station	3 Orchard St, Nanuet, NY 10954	Infrastructure Systems	Transportation	No	No	Low	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Nanuet Fire Station 1	5 Prospect St, Nanuet, NY 10954	Health and Social Services	Emergency Operations/ Response	No	Yes, FEMA	High	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Nanuet Fire Station 2	1 Renee Ln, Bardonia, NY 10954	Health and Social Services	Emergency Operations/ Response	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nanuet Library	149 Church Street, Nanuet, NY 10954	Natural and Cultural Resources	Libraries	No	No	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nanuet Post Office	10 West Prospect Street, Nanuet, NY 10954	Health and Social Services	Government and Administrative Services	No	No	Medium	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Nanuet School District Outdoor Education Center	135 Convent Rd, Nanuet, NY 10954	Health and Social Services	Schools	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nanuet Senior High School	103 Church Street, Nanuet, NY 10954	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nanuet Station Commuter Lots (3)	W Prospect St, Nanuet, NY 10954	Infrastructure Systems	Transportation	No	No	Low	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
New City Bowl & Batting Cages	90 N Main St, New City, NY 10956	Economic	Small Business	No	No	Low	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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New City Community Clinic	345 N Main St, New City, NY 10956	Health and Social Services	Healthcare Facilities	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
New City Condo Complex	Heritage Dr, New City, NY 10956	Housing	Multi-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	3	32
New City Elementary School	Elmwood Dr, New City, New York 10956	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
New City Fire Station	15 Maple Ave, Clarkstown, NY 10954	Health and Social Services	Emergency Operations/ Response	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
New City Free Library	220 North Main Street, New City, NY 10956	Natural and Cultural Resources	Libraries	No	No	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
New City Lawn Mower	437 N US Route 9W, New City, NY 10956	Economic	Small Business	No	No	Low	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
New City Post Office	245 North Main Street, New City, NY 10956	Health and Social Services	Government and Administrative Services	No	No	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
New City Vol. Ambulance Corps. & Rescue Squad	210 Congers Rd, Clarkstown, NY 10954	Health and Social Services	Emergency Operations/ Response	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
New Haven Avenue Homes	19 New Haven Ave, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	3	23
New Holland Village Condominiums	73 New Holland Village, Nanuet, NY 10954	Housing	Multi-Family Residence	No	No	Medium	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	4	54
New Valley Road Homes	New Valley Rd, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	No	No	No	No	Yes	1	3	2.00	3	18
Newton Place Shopping Center	14 W Evergreen Rd, Clarkstown, NY 10954	Economic	Large Business	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Normandy Village Apartments	E Charles St, Nanuet, NY 10954	Housing	Senior Housing	Yes	Yes, FEMA	Medium	High	Yes	Yes	No	No	Yes	Yes	2	3	3.00	3	27
North Pascack Road Homes	18 N Pascack Rd, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	3	41
Northern Manor Multicare Center	199 N Middletown Rd, Nanuet, NY 10954	Housing	Senior Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nyack Beach State Park	689 North Broadway, Upper Nyack, NY 10960	Natural and Cultural Resources	Parks and Recreation	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nyack Beach State Park Facilities	659 N Broadway, Upper Nyack, NY 10960	Natural and Cultural Resources	Parks and Recreation	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nyack Community Ambulance Corps.	245 N Midland Ave, Nyack, NY 10960	Health and Social Services	Emergency Operations/ Response	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nyack Fire Station	330 N Broadway, Upper Nyack, NY 10960	Health and Social Services	Emergency Operations/ Response	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nyack High School	360 Christian Herald Rd, Upper Nyack, NY 10960	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Nyack Hospital	160 North Midland Ave, Nyack, NY 10960	Health and Social Services	Primary/Regional Hospitals	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nyack Hospital Alcohol & Substance Abuse Clinic	110 Bethune Blvd, Spring Valley, NY 10977	Health and Social Services	Healthcare Facilities	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nyack Manor Nursing Home	476 Christian Herald Rd, Valley Cottage, NY 10989	Housing	Senior Housing	Yes	Yes, FEMA	High	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Nyack Village Drinking Water Supply Intake	766 W Nyack Rd, West Nyack, NY 10994	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	Extreme	Yes	Yes	Yes	Yes	No	Yes	2.5	3	4.50	3	41
Nyack Village Water Supply DWTP	775 W Nyack Rd, West Nyack, NY 10994	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	Extreme	Yes	No	No	Yes	No	Yes	1.5	3	3.50	3	32
NYS Department of Labor	11 Pascack Rd, Spring Valley, NY 10977	Health and Social Services	Government and Administrative Services	No	No	Medium	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NYS Office of Child and Family Services	11 Pascack Rd, Spring Valley, NY 10977	Health and Social Services	Government and Administrative Services	Yes	Yes, FEMA	Medium	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NYS Rte. 303 & Lake Rd Floodprone Area	Rte. 303, Congers, NY 10920	Infrastructure Systems	Transportation	No	No	High	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	3	41
NYS Rte. 303 / Lake Road Small Businesses	Lake Rd, Valley Cottage, NY 10989	Economic	Small Business	No	No	Low	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
NYS Rte. 303 Small Businesses (auto-related)	175 S Rte. 303, West Nyack, NY 10994	Economic	Small Business	No	No	Low	High	Yes	No	No	No	No	Yes	1	3	2.00	3	18
NYS Rte. 304 at Demarest Mill Road Businesses	110 Demarest Mill Rd, Nanuet, NY 10954	Economic	Large Business	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NYS Rte. 59 / 303 Businesses	NY Rte. 59, Nyack, NY 10960	Economic	Large Business	No	No	Low	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
NYS Rte. 59 / 303 Floodprone Area	NY Rte. 303, West Nyack, NY 10960	Infrastructure Systems	Transportation	No	No	High	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
NYS Rte. 59 Businesses	361 NY Rte. 59, West Nyack, NY 10994	Economic	Small Business	No	No	Low	Extreme	Yes	Yes	Yes	No	No	Yes	2	3	4.00	3	36
NYS DOT New City Facility	262 Ridge Rd, Clarkstown, NY 10954	Health and Social Services	Public Works Facilities	No	Yes, FEMA	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NYS DOT West Nyack Facility	6 Continental Dr, West Nyack, NY 10994	Health and Social Services	Public Works Facilities	No	Yes, FEMA	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
O&R Burns Substations	16 Forest Brook Rd, Nanuet, NY 10954	Infrastructure Systems	Power Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
O&R Congers Substation	14 Gilchrest Rd W, Congers, NY 10920	Infrastructure Systems	Power Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
O&R Gas Transmission Facility	363 Buena Vista Rd, New City, NY 10956	Infrastructure Systems	Power Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
O&R Little Tor Electric Utilities	196 S Mountain Rd, New City, NY 10956	Infrastructure Systems	Power Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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O&R Microwave Tower	491 Mountainview Ave, Valley Cottage, NY 10989	Infrastructure Systems	Telecommunications	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
O&R Nanuet Substation	31 Fisher Ave, Nanuet, NY 10954	Infrastructure Systems	Power Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
O&R Snakehill Substation	24 Snake Hill Rd, West Nyack, NY 10994	Infrastructure Systems	Power Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
O&R West Nyack Operating Center	766 W Nyack Rd, West Nyack, NY 10994	Infrastructure Systems	Power Supply	No	Yes, FEMA	High	Extreme	Yes	Yes	No	Yes	No	Yes	2	3	4.00	3	36
O&R West Nyack Substation	56 Western Hwy, West Nyack, NY 10994	Infrastructure Systems	Power Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Old Haverstraw Rd Floodprone Area	Old Haverstraw Rd, Congers, NY 10920	Infrastructure Systems	Transportation	No	No	Medium	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Old Haverstraw Road Floodprone Homes	Park Ave, Congers, NY 10920	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Old Middletown Road Businesses	Old Middletown Rd, Nanuet, NY 10954	Economic	Large Business	No	No	Medium	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Old Mill Road / Branchville Road Homes	Old Mill Rd, Valley Cottage, NY 10989	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	Yes	Yes	No	1.5	3	3.50	2	21
Old Mill Road Causeway	Old Mill Rd, Valley Cottage, NY 10989	Infrastructure Systems	Transportation	No	No	High	Extreme	Yes	Yes	Yes	Yes	Yes	Yes	3	3	5.00	1	15
Old Nyack Turnpike Businesses	498 Old Nyack Turnpike, Nanuet, NY 10954	Economic	Small Business	No	No	Low	Extreme	Yes	No	No	No	No	Yes	1	3	3.00	3	27
OPWDD Nanuet Group Home	34 Freund Dr, Bardonia, NY 10954	Housing	Supportive Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
OPWDD New City Group Home #1	329 W Clarkstown Rd, New City, NY 10956	Housing	Supportive Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
OPWDD New City Group Home #2	10 Rheinlander Ln, New City, NY 10956	Housing	Supportive Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
OPWDD Valley Cottage Group Home #1	53 Jolen Dr, New City, NY 10956	Housing	Supportive Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
OPWDD Valley Cottage Group Home #2	339 Svahn Dr, Valley Cottage, NY 10989	Housing	Supportive Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
OPWDD West Nyack Group Home	5 Jeremy Ln, West Nyack, NY 10994	Housing	Supportive Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Palisades Center Mall	1000 Palisades Center Dr, West Nyack, NY 10994	Economic	Large Business	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Palisades Center Post Office	3301 Palisades Center Dr, West Nyack, NY 10994	Health and Social Services	Government and Administrative Services	No	No	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Palisades Mall Community Rooms	1000 Palisades Center Drive	Natural and Cultural Resources	Community Centers	No	Yes, FEMA	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Palisades Volvo/Mazda	55 NY Rte. 303, West Nyack, NY 10994	Economic	Large Business	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Palmer Avenue / Fenner Lane Homes	22 Palmer Ave, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	High	Yes	Yes	Yes	No	No	Yes	2	3	3.00	3	27
Paramount Country Club	60 Zukor Rd, New City, NY 10956	Economic	Tourism Destinations	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Park Terrace Homes	14 Park Terrace, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	3	32
Parkside Drive / Bluebird Drive Homes	Parkside Dr, Congers, NY 10920	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Parkside Drive Bridge	Parkside Dr, Congers, NY 10920	Infrastructure Systems	Transportation	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Pascack Community Center	87 New Clarkstown Rd, Nanuet, NY 10954	Natural and Cultural Resources	Community Centers	No	Yes, FEMA	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pascack Plaza	1 Perlman Dr, Spring Valley, NY 10977	Economic	Small Business	No	No	Low	Extreme	Yes	No	No	No	No	Yes	1	3	3.00	3	27
Pascack Road Underpass beneath Railroad	Pascack Rd, Nanuet, NY 10954	Infrastructure Systems	Transportation	No	No	High	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	4	30
Patricia Avenue	Patricia Ave, Congers, NY 10920	Infrastructure Systems	Transportation	No	No	Medium	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Pearl Lane / Old Route 304 Homes	Pearl Ln, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Perlman Drive Office Building	1 Perlman Drive, Spring Valley, NY 10977	Economic	Small Business	No	No	Low	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	3	32
Petersen Boat Yard & Marina	1 Van Houten St, Nyack, NY 10960	Economic	Marina/Water Based Business	No	No	Low	High	Yes	No	No`	No	No	Yes	1	3	2.00	3	18
Phillips Hill Road Homes	292 Phillips Hill Rd, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	3	41
Phillips Lane / Benson Avenue Homes	10 Phillips Ln, West Nyack, NY 10994	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	4	30
Pigtails Nursery	23 White Oak Ln, Bardonia, NY 10954	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pineview Road Homes	Pineview Rd, West Nyack, NY 10994	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	Yes	Yes	Yes	No	Yes	2.5	3	4.50	3	41
Planned Parenthood	11 Pascack Rd, Spring Valley, NY 10977	Health and Social Services	Government and Administrative Services	Yes	Yes, FEMA	Medium	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Plastic Craft Products Corporation	744 W Nyack Rd, West Nyack, NY 10994	Economic	Industrial, Warehousing and Manufacturing	No	No	Low	Extreme	Yes	Yes	Yes	No	No	Yes	2	3	4.00	4	48
Playgarten	58 Lake Rd, Valley Cottage, NY 10989	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Table V-4 Community Asset Inventory (cont'd)

Asset Information								Landscape Attributes							Risk Assessment			
Asset Name	Address	Asset Class	Asset Subcategory	Socially Vulnerable Populations	Critical Facility	Community Value	Risk Area	Lack of Defensive Flood Protection Measures	Elevation Below BFE	Occupied <= 2 ft. above BFE	At Confluence of Two or More Streams	Flood Risk from Storm Water	Lack of Vegetated Stream Bank Buffer	Landscape Attribute Score	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
Prime Time For Kids	70 Phillips Hill Rd, New City, NY 10956	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PROPOSED Nanuet FD Facility	29 Old Middletown Rd, Nanuet, NY 10954	Health and Social Services	Emergency Operations/ Response	No	No	High	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Public Storage, Inc.	Pascack Rd and New Clarkstown Rd, Spring Valley, NY 10977	Economic	Industrial, Warehousing and Manufacturing	No	No	Low	Extreme	Yes	No	No	No	No	Yes	1	3	3.00	2	18
Quail Hollow Lane / Sickletown Road Homes	Sickletown Rd, West Nyack, NY 10994	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Red Hill Road Homes	130 Red Hill Rd, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	3	41
Renal Care of Rockland	131 Route 303, Valley Cottage, NY 10989	Health and Social Services	Healthcare Facilities	No	Yes, FEMA	High	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Ridge Road Churches	Ridge Rd, Valley Cottage, NY 10989	Natural and Cultural Resources	Cultural or Religious Establishments	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Ridge Road Homes	Ridge Rd, Valley Cottage, NY 10989	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Rite Aid	133 Route 303, Valley Cottage, NY 10989	Economic	Large Business	No	No	Low	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
River Rise Road / Doral Court Homes	River Rise Rd, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	No	No	No	Yes	No	1	3	2.00	3	18
Roberts Road / Woodhaven Drive Homes	Woodhaven Dr, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	No	No	Yes	Yes	No	1.5	3	2.50	3	23
Rockland BOCES	65 Parrott Rd, West Nyack, NY 10994	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rockland Cardiology	1 Crosfield Ave, West Nyack, NY 10994	Health and Social Services	Healthcare Facilities	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rockland Center Strip Mall	155 NY Rte. 59, Nanuet, NY 10954	Economic	Large Business	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rockland Co. Division of Probation & Correctional Alternatives	2 New Hempstead Rd, New City, NY 10956	Health and Social Services	Government and Administrative Services	Yes	Yes, FEMA	Medium	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	3	23
Rockland Country Day School	34 Kings Hwy, Congers, NY 10920	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rockland County Correctional Facility	54 New Hempstead Rd, Clarkstown, NY 10954	Health and Social Services	Government and Administrative Services	Yes	Yes, FEMA	Medium	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rockland County Real Property Offices	18 New Hempstead Rd, New City, NY 10956	Health and Social Services	Government and Administrative Services	No	No	Medium	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rockland County Solid Waste Mgmt. Authority Transfer Station on NYS Rte. 303 in West Nyack	145 S Route 303, West Nyack, NY 10994	Infrastructure Systems	Hazardous Materials, Solid Waste, and Recycling	No	No	Medium	High	Yes	Yes	Yes	No	No	Yes	2	3	3.00	3	27

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Asset Information								Landscape Attributes							Risk Assessment			
Asset Name	Address	Asset Class	Asset Subcategory	Socially Vulnerable Populations	Critical Facility	Community Value	Risk Area	Lack of Defensive Flood Protection Measures	Elevation Below BFE	Occupied <= 2 ft. above BFE	At Confluence of Two or More Streams	Flood Risk from Storm Water	Lack of Vegetated Stream Bank Buffer	Landscape Attribute Score	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
Rockland County Telephone Utilities	582 N Highland Ave, Grandview-on-Hudson, NY 10960	Infrastructure Systems	Telecommunications	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rockland Lake Championship Golf Course	Route 9W, Congers, NY 10920	Economic	Tourism Destinations	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rockland Lake Executive Golf Course	Old Lake Rd, Valley Cottage, NY 10989	Economic	Tourism Destinations	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rockland Lake Fire Station	86 Landing Rd, Valley Cottage, NY 10989	Health and Social Services	Emergency Operations/ Response	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rockland Lake Museum	Rockland Lake State Park, Lake Road, Congers, NY	Natural and Cultural Resources	Museums, Performing Arts Centers, Stadiums	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rockland Lake State Park	Valley Cottage, NY 10989	Natural and Cultural Resources	Parks and Recreation	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rockland Lake State Park Facilities	757 Route 9W, Valley Cottage, NY 10989	Natural and Cultural Resources	Parks and Recreation	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rockland Masonry & Landscape	N US Route 9W, New City, NY 10956	Economic	Industrial, Warehousing and Manufacturing	No	No	Low	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Rockland Mobile Care	540 Chestnut Ridge Rd, Chestnut Ridge, NY 10977	Health and Social Services	Emergency Operations/ Response	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rockland Paramedic Services	101 RT 304, Bardonia, NY 10954	Health and Social Services	Emergency Operations/ Response	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rockland Plaza Shopping Center	66 Rockland Plaza, Nanuet, NY 10954	Economic	Large Business	No	No	Low	Extreme	Yes	Yes	Yes	No	No	Yes	2	3	4.00	3	36
S Harrison Ave Homes	S Harrison Ave, Congers, NY 10920	Housing	Single-Family Residence	No	No	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S Main Business District	S Main St, New City, NY 10956	Economic	Downtown Center	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S Pascack Rd Underpass beneath NYS Rte. 59	S Pascack Rd, Nanuet, NY 10954	Infrastructure Systems	Transportation	No	No	High	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	3	32
S Pascack Road Homes	116 S Pascack Rd, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	3	41
Sable Court Homes	12 Sable Ct, West Nyack, NY 10994	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	4	42
Salvation Army Adult Rehab Center	440 W Nyack Rd, West Nyack, NY 10994	Health and Social Services	Healthcare Facilities	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Schriever Lane / Kristoffer Court Homes	Schriever Ln, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	3	23
Schriever Lane Homes	15 Schriever Ln, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
Seneca Court Homes	6 Seneca Ct, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	3	23

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Asset Name	Address	Asset Class	Asset Subcategory	Socially Vulnerable Populations	Critical Facility	Community Value	Risk Area	Lack of Defensive Flood Protection Measures	Elevation Below BFE	Occupied <= 2 ft. above BFE	At Confluence of Two or More Streams	Flood Risk from Storm Water	Lack of Vegetated Stream Bank Buffer	Landscape Attribute Score	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
Seton Village	148 Convent Rd, Nanuet, NY 10954	Housing	Senior Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sewer Pumping Station - Nanuet	170 Convent Rd, Nanuet, NY 10954	Infrastructure Systems	Wastewater	No	Yes, FEMA	High	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	3	41
Shining Stars Early Child Care	8 Rose Rd, West Nyack, NY 10994	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ShopRite of New City	66 N Main St, New City, NY 10956	Economic	Grocery/Food Suppliers	No	No	Low	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ShopRite of West Nyack	243 NY Rte. 59, West Nyack, NY 10994	Economic	Grocery/Food Suppliers	No	No	Low	High	Yes	Yes	Yes	No	No	Yes	2	3	3.00	3	27
ShopRite Parking Lot Undermined Area	44 N Main St, New City, NY 10956	Economic	Grocery/Food Suppliers	No	No	Low	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Snake Hill Road Businesses	3301 Palisades Center Dr, West Nyack, NY 10994	Economic	Industrial, Warehousing and Manufacturing	No	No	Low	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Snow Church Realty Storage Building	36 N US Rte. 9W, Congers, NY 10920	Economic	Small Business	No	No	Low	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
South Little Tor Road Homes	381 S Little Tor Rd, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
South Mountain County Park	New City, NY 10956	Natural and Cultural Resources	Parks and Recreation	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
South Mountain Road	South Mountain Rd, Clarkstown, NY 10956	Infrastructure Systems	Transportation	No	No	High	High	Yes	No	No	Yes	Yes	Yes	2	3	3.00	3	27
South Mountain Road Home	510 S Mountain Rd, Clarkstown, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	No	No	Yes	Yes	Yes	2	3	3.00	5	45
South Mountain Road Homes	S Mountain Rd, Clarkstown, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	No	No	Yes	No	Yes	1.5	3	2.50	3	23
Spring Valley Marketplace Shopping Center	14 Spring Valley Market Pl, Spring Valley, NY 10977	Economic	Large Business	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spring Valley Rest Home	184 S Pascack Rd, Nanuet, NY 10954	Housing	Senior Housing	Yes	Yes, FEMA	High	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Spring Valley Village Mobile Home Park	Crikki Ln, Nanuet, NY 10954	Housing	Affordable Housing	Yes	Yes, FEMA	High	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	3	32
Squadron Garden Apartments	1 Squadron Blvd, New City, NY 10956	Housing	Senior Housing	Yes	Yes, FEMA	High	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
St. Anthony's Church	34 West Nyack Rd, Nanuet, NY 10954	Natural and Cultural Resources	Cultural or Religious Establishments	No	No	Medium	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
St. Anthony's School	34 West Nyack Rd, Nanuet, NY 10954	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
St. Augustine School (closed)	114 South Main Street, New City, NY 10956	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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St. Paul School	365 Kings Hwy, Valley Cottage, NY 10989	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
St. Paul's Catholic Church	Lake Rd, Congers, NY 10920	Natural and Cultural Resources	Cultural or Religious Establishments	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	2	18
St. Paul's Christian Day School	323 S Main St, New City, NY 10956	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
St. Paul's Lutheran Church	13 Collyer Ave, New City, NY 10956	Natural and Cultural Resources	Cultural or Religious Establishments	No	No	Medium	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	3	23
Strawtown Elementary School	413 Strawtown Rd, West Nyack, NY 10994	Health and Social Services	Schools	Yes	Yes, FEMA	Low	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Strawtown Rd / Ridge Rd / Cty Rte. 80 Intersection	Strawtown Rd and Ridge Rd, Clarkstown, NY 10956	Infrastructure Systems	Transportation	No	No	High	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	3	32
Strawtown Road / Hillcrest Road Homes	Strawtown Rd, West Nyack, NY 10994	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Street Community Center	31 Zukor Rd, New City, NY 10956	Natural and Cultural Resources	Community Centers	No	Yes, FEMA	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Summit Park Hospital Alcohol & Substance Abuse Clinic	50 S Main St, Spring Valley, NY 10977	Health and Social Services	Healthcare Facilities	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sunrise of New City	233 N Main St, New City, NY 10956	Housing	Senior Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Super Stop & Shop	32 S Middletown Rd, Nanuet, NY 10954	Economic	Grocery/Food Suppliers	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Swartout Lake Condominiums	Trevor Lake Dr, Congers, NY 10920	Housing	Multi-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Tappan Zee Manor	51 Mountainview Ave, Nyack, NY 10960	Housing	Senior Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tennyson Drive Town Park	Tennyson Dr, Bardonia, NY 10954	Natural and Cultural Resources	Parks and Recreation	No	No	Low	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
The Historical Society of Rockland County	20 Zukor Road, New City, NY 10956	Natural and Cultural Resources	Historical Landmarks and Facilities	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
The Jacob Blauvelt Farmhouse	20 Zukor Road, New City, NY 10956	Natural and Cultural Resources	Historical Landmarks and Facilities	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
The Promenade Homes	27 The Promenade, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	3	23
The Shops at Nanuet	75 NY Rte. 59, Nanuet, NY 10954	Economic	Large Business	No	No	Low	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
The Summit School at Nyack	339 N Broadway, Nyack, NY 10960	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Theresa Drive Homes	16 Theresa Dr, West Nyack, NY 10994	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	4	42

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Asset Name	Address	Asset Class	Asset Subcategory	Socially Vulnerable Populations	Critical Facility	Community Value	Risk Area	Lack of Defensive Flood Protection Measures	Elevation Below BFE	Occupied <= 2 ft. above BFE	At Confluence of Two or More Streams	Flood Risk from Storm Water	Lack of Vegetated Stream Bank Buffer	Landscape Attribute Score	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
TILCON - West Nyack Stone Processing	162 Old Mill Rd, West Nyack, NY 10994	Economic	Industrial, Warehousing and Manufacturing	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TILCON Quarries Haverstraw Plant	362 Scratchup Rd, Haverstraw, NY 10994	Economic	Industrial, Warehousing and Manufacturing	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Timothy Court Homes	Green Rd, West Nyack, NY 10994	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	3	32
Tiny Toe's Day Care	470 Mountainview Ave, Valley Cottage, NY 10989	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Tioga Court Homes	4 Tioga Ct, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	3	23
Tolstoy Foundation Rehab and Nursing Center	100 Lake Rd, Valley Cottage, NY 10989	Housing	Supportive Housing	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Town Hill Condominiums	407 Town Hill Rd, Nanuet, NY 10954	Housing	Multi-Family Residence	No	No	Medium	High	Yes	Yes	No	No	Yes	Yes	2	3	3.00	3	27
Town House Office Park	55 Old Nyack Tpke, Bardonia, NY 10954	Economic	Small Business	No	No	Low	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Town of Clarkstown Highway Garage	11 Seeger Dr, Bardonia, NY 10954	Health and Social Services	Public Works Facilities	No	Yes, FEMA	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Town of Clarkstown Police HQ	20 Maple Ave, Clarkstown, NY 10954	Health and Social Services	Emergency Operations/ Response	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tudor Hill Condominiums	Old Nyack Tpke, Nanuet, NY 10954	Housing	Multi-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Turnpike Woods Condominiums	Old Middletown Rd, Nanuet, NY 10954	Housing	Multi-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Tutor Time	285 New York 303, Congers, NY 10920	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tutor Time Child Care	227 N Main St, New City, NY 10956	Health and Social Services	Daycare and Eldercare	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Twin Elms Homes	49 Twin Elms Ln, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
United Hospice of Rockland	11 Stokum Ln, New City, NY 10956	Health and Social Services	Healthcare Facilities	Yes	Yes, FEMA	High	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	3	23
United Water Drinking Water Intake (West Nyack)	55 Old Mill Rd, West Nyack, NY 10994	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	3	41
United Water Drinking Water Treatment Plant	120 Pascack Rd, Bardonia, NY 10954	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	Extreme	Yes	No	NO	No	Yes	Yes	1.5	3	3.50	3	32
United Water Drinking Water Treatment Plant	30 Old Mill Rd, West Nyack, NY 10994	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
United Water Drinking Water Treatment Plant	5 Wales Vis, Bardonia, NY 10954	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32

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Table V-4 Community Asset Inventory (cont'd)

Asset Information								Landscape Attributes							Risk Assessment			
Asset Name	Address	Asset Class	Asset Subcategory	Socially Vulnerable Populations	Critical Facility	Community Value	Risk Area	Lack of Defensive Flood Protection Measures	Elevation Below BFE	Occupied <= 2 ft. above BFE	At Confluence of Two or More Streams	Flood Risk from Storm Water	Lack of Vegetated Stream Bank Buffer	Landscape Attribute Score	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
United Water Drinking Water Treatment Plant	44 Lake Shore Dr, Bardonia, NY 10954	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
United Water Drinking Water Treatment Plant	17 Wesel Rd, Bardonia, NY 10954	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
United Water Drinking Water Treatment Plant	63 Carolina Dr, New City, NY 10956	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
United Water Drinking Water Treatment Plant	10 Forest Brook Rd, Nanuet, NY 10954	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
United Water Drinking Water Treatment Plant	72 E Allison Ave, Bardonia, NY 10954	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
United Water Drinking Water Treatment Plant	51 Village Gate Way, Grand View-On-Hudson, NY 10960	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
United Water Drinking Water Treatment Plant	45 Jay St, Bardonia, NY 10954	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
United Water Drinking Water Treatment Plant	5 Eastlyn Ct, Bardonia, NY 10954	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
United Water Drinking Water Treatment Plant	53 Elmwood Dr, New City, NY 10956	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
United Water Drinking Water Treatment Plant	16 Westgate Blvd, New City, NY 10956	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
United Water Drinking Water Well	116 Pascack Rd, Bardonia, NY 10954	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	3	41
United Water Drinking Water Well	5 Wales Vis, Bardonia, NY 10954	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
United Water Drinking Water Well	44 Lake Shore Dr, Bardonia, NY 10954	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
United Water Drinking Water Well	17 Wesel Rd, Bardonia, NY 10954	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
United Water Drinking Water Well	387 S Main St, New City, NY 10956	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
United Water Drinking Water Well	10 Forest Brook Rd, Nanuet, NY 10954	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	Moderate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
United Water Drinking Water Well	143 Blauvelt Rd, Nanuet, NY 10954	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
United Water Drinking Water Well	33 April Ln, Nanuet, NY 10954	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
United Water Drinking Water Well	45 Jay St, Bardonia, NY 10954	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
United Water Drinking Water Well	17 Eastlyn Dr, Bardonia, NY 10954	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Table V-4 Community Asset Inventory (cont'd)

Asset Information								Landscape Attributes							Risk Assessment			
Asset Name	Address	Asset Class	Asset Subcategory	Socially Vulnerable Populations	Critical Facility	Community Value	Risk Area	Lack of Defensive Flood Protection Measures	Elevation Below BFE	Occupied <= 2 ft. above BFE	At Confluence of Two or More Streams	Flood Risk from Storm Water	Lack of Vegetated Stream Bank Buffer	Landscape Attribute Score	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
United Water Drinking Water Well	55 Elmwood Dr, New City, NY 10956	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
United Water Drinking Water Well	14 Westgate Blvd, New City, NY 10956	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
United Water Water Tower	491 Mountainview Ave, Valley Cottage, NY 10989	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
United Water Water Tower	543 Mountainview Ave, Valley Cottage, NY 10989	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
United Water West Nyack Office Facility	360 W Nyack Rd, West Nyack, NY 10994	Infrastructure Systems	Water Supply	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Upper Nyack Elementary School	336 N Broadway, Upper Nyack, NY 10960	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Upper Nyack Village Hall	328 North Broadway, Upper Nyack, NY 10960	Health and Social Services	Government and Administrative Services	No	No	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Upper Nyack Village Highway Garage	545 N Highland Ave, Upper Nyack, NY 10960	Health and Social Services	Public Works Facilities	No	Yes, FEMA	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
UPS Spring Valley Facility	33 Murray Hill Dr, Nanuet, NY 10954	Economic	Industrial, Warehousing and Manufacturing	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
US Division of Veteran's Affairs	345 N Main St, New City, NY 10956	Health and Social Services	Government and Administrative Services	No	No	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
US Rte. 9W Floodprone Area	US Rte. 9W, Congers, NY 10920	Infrastructure Systems	Transportation	No	No	High	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Valley Cottage Animal Hospital	202 S Rte. 303, Valley Cottage, NY 10989	Health and Social Services	Healthcare Facilities	Yes	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Valley Cottage Elementary School	26 Lake Road, Valley Cottage, NY 10989	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Valley Cottage Fire Station	25 Lake Rd, Valley Cottage, NY 10989	Health and Social Services	Emergency Operations/ Response	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Valley Cottage Freight Station	7 Parma Dr, Valley Cottage, NY 10989	Infrastructure Systems	Transportation	No	No	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Valley Cottage Library	110 Route 303, Valley Cottage, NY 10989	Natural and Cultural Resources	Libraries	No	No	Medium	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
Valley Cottage Post Office	137 Route 303, Valley Cottage, NY 10989	Health and Social Services	Government and Administrative Services	No	No	Medium	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	1	8
Verizon Congers Facility	161 Lake Rd E, Congers, NY 10920	Infrastructure Systems	Telecommunications	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Verizon New City Facility	21 First St, New City, NY 10956	Infrastructure Systems	Telecommunications	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Verizon Wireless SnakeHill Facility	765 W Nyack Rd, West Nyack, NY 10994	Infrastructure Systems	Telecommunications	No	Yes, FEMA	High	Extreme	Yes	No	No	Yes	No	Yes	1.5	3	3.50	3	32

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Asset Name	Address	Asset Class	Asset Subcategory	Socially Vulnerable Populations	Critical Facility	Community Value	Risk Area	Lack of Defensive Flood Protection Measures	Elevation Below BFE	Occupied <= 2 ft. above BFE	At Confluence of Two or More Streams	Flood Risk from Storm Water	Lack of Vegetated Stream Bank Buffer	Landscape Attribute Score	Hazard Score	Exposure Score	Vulnerability Score	Risk Score
Verizon Wireless Spring Valley Facility	160 RT 59, Spring Valley, NY 10977	Infrastructure Systems	Telecommunications	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Verizon Wireless West Nyack Facility	4 Centerock Rd, West Nyack, NY 10994	Infrastructure Systems	Telecommunications	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Virginia Street / Braemar Court Homes	Virginia St, Clarkstown, NY 10956	Housing	Multi-Family Residence	No	No	Medium	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	3	23
Virginia Street / NYS Rte. 304 Floodprone Area	Virginia Street, Clarkstown, NY 10956	Infrastructure Systems	Transportation	No	No	High	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	3	23
W Cavalry Dr Apartments	W Cavalry Dr at N Main St, New City, NY 10956	Housing	Multi-Family Residence	No	No	Medium	High	Yes	No	No	No	Yes	No	1	3	2.00	3	18
W Nyack Rd / Klein Ave Mini Mall	726 W Nyack Rd, West Nyack, NY 10994	Economic	Small Business	No	No	Low	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	4	42
W Nyack Rd Apts & Condos	722 W Nyack Rd, West Nyack, NY 10994	Housing	Multi-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	4	42
W Nyack Rd Mini Mall	297 NY Rte. 59, West Nyack, NY 10994	Economic	Small Business	No	No	Low	Extreme	Yes	Yes	No	No	No	Yes	1.5	3	3.50	3	32
W Nyack Rd Small Businesses	W Nyack Rd, West Nyack, NY 10994	Economic	Small Business	No	No	Low	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	4	30
W Nyack Road / Demarest Mill Rd Large Businesses	W Nyack Rd, Nanuet, NY 10954	Economic	Large Business	No	No	Low	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
W Nyack Road / Demarest Mill Rd Small Businesses	W Nyack Rd, Nanuet, NY 10954	Economic	Small Business	No	No	Low	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Wales / Norge Ave Homes	15 Norge Ave, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	High	Yes	Yes	Yes	No	Yes	Yes	2.5	3	3.50	3	32
Water Detention / Flood Control Parcels (11)	Bardonia, NY	Infrastructure Systems	Stormwater	No	No	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Water Detention / Flood Control Parcel (3)	West Nyack, NY	Infrastructure Systems	Stormwater	No	No	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Water Detention / Flood Control Parcel (8)	New City, NY	Infrastructure Systems	Stormwater	No	No	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Water Detention / Flood Control Parcel (4)	Congers, NY	Infrastructure Systems	Stormwater	No	No	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Water Detention / Flood Control Parcel (1)	71 RT 59, Spring Valley, NY 10977	Infrastructure Systems	Stormwater	No	No	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Water Detention / Flood Control Parcels (3)	5 Prestwick Ct, Clarkstown, NY 10956	Infrastructure Systems	Stormwater	No	No	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Weill Warehouse	31 Murray Hill Dr, Nanuet, NY 10954	Economic	Industrial, Warehousing and Manufacturing	No	No	Low	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23

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West Nyack Elementary School	West Nyack Rd, West Nyack, NY 10956	Health and Social Services	Schools	Yes	Yes, FEMA	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
West Nyack Fire Station 1	42 Strawtown Rd, West Nyack, NY 10994	Health and Social Services	Emergency Operations/ Response	No	Yes, FEMA	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
West Nyack Fire Station 2	9 Cemetery Ln, West Nyack, NY 10994	Health and Social Services	Emergency Operations/ Response	No	Yes, FEMA	High	Extreme	Yes	No	No	No	No	Yes	1	3	3.00	3	27
West Nyack Free Library	65 Strawton Rd, West Nyack, NY 10994	Natural and Cultural Resources	Libraries	No	No	Medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
West Nyack Hamlet Green	West Nyack Rd, West Nyack, NY 10994	Natural and Cultural Resources	Parks and Recreation	No	No	Low	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	4	42
West Nyack Post Office	720 West Nyack Rd, West Nyack, NY 10994	Health and Social Services	Government and Administrative Services	No	No	Medium	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	5	53
West Prospect Street Businesses	W Prospect St, Nanuet, NY 10954	Economic	Large Business	No	No	Low	Extreme	Yes	No	No	No	No	No	0.5	3	2.50	3	23
West Street Homes	28 West St, West Nyack, NY 10994	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	Yes	1.5	3	3.50	4	42
Westgate Blvd Homes	Westgate Blvd, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	3	23
Westlyn Drive / Cider Mill Circle Homes	Westlyn Dr, Bardonia, NY 10954	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Will Rogers Lane / S Pascack Road Homes	Will Rogers Ln, Nanuet, NY 10954	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	3	41
Windermere Lane / Pine Lane Homes	4 Windermere Ln, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	3	41
Wolf Place Homes	Wolf Pl, Bardonia, NY 10954	Housing	Single-Family Residence	No	No	Medium	High	Yes	No	No	No	Yes	Yes	1.5	3	2.50	5	38
Woodglen Elementary School	121 Phillips Hill Rd, New City, NY 10956	Health and Social Services	Schools	Yes	Yes, FEMA	Low	Extreme	Yes	No	No	No	Yes	No	1	3	3.00	3	27
Zukor Road / Brook Lane Residences	247 Zukor Rd, New City, NY 10956	Housing	Single-Family Residence	No	No	Medium	Extreme	Yes	Yes	Yes	No	Yes	Yes	2.5	3	4.50	3	41

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E. Endnotes

Photo Credits

Cover Page: Congers Lake (Jennifer Tesker)

Dividers:

Section I

Basketball hoop flooded in residential neighborhood (Mark Brecher)

Planning Committee Meeting 1 (Arch Street Communications)

Rockland Lake State Park Trail (Barbara Kendall)

Flooding behind Plastic Craft (Mark Brecher)

Section II

Public Engagement Event 2 (Arch Street Communications)

Congers Lake (Elizabeth Matamoros)

Flood at Gas Station (Mark Brecher)

Fallen Trees on Balcony (Jennifer Fein)

Section III

Storm Damage Map with Comments (Elizabeth Matamoros)

Congers Lake (Elizabeth Matamoros)

Plastic Craft Flood after Hurricane Irene (Mark Brecher)

Cropsy Farm (Jennifer Tesker)

Section IV

Fallen Tree Blocking Street (Michelle Olson)

Flooded Street (John Eshoo)

Public Engagement Event 4 (Arch Street Communications)

Flood in Park (Mark Brecher)

Section V

Downed Tree after Superstorm Sandy (John Eshoo)

Pascack Community Center (Elizabeth Matamoros)

Flooded Backyard after Hurricane Irene (John Eshoo)

Bill and Sheila Flynn (Arch Street Communications)

Steven Lee (Arch Street Communications)

Carol Donnelly (Arch Street Communications)

Farouk Shehad (Arch Street Communications)

Mark Brecher (Arch Street Communications)

Cecilia and Roland Thomas (Arch Street Communications)

Alexander Gromack (Arch Street Communications)

Methodology

Cost-Benefit Analysis FTE Job Projections

Cranford Drive Drainage Improvements

According to the U.S. Department of Commerce (DOC) Economics and Statistics Administration (ESA) report, *Economic Impact of Hurricane Sandy Potential Economic Activity Potentially Lost and Gained in New Jersey and New York*[21], the estimated job creation from recovery spending on infrastructure projects in New York reported 7.15 construction jobs per $1,000,000 in construction spending. Using this methodology and given the $3,500,000 project cost, an estimated 25 construction jobs would be created by this project.

Drainage Improvements to the Demarest Kill Stream

Using the methodology from the U.S. DOC ESA report[21], the $810,000 project would create an estimated 5.8 construction jobs.

Drainage Improvements to the Nauraushaun Brook Basin

Using the methodology from the U.S. DOC ESA report[21], the $500,000 project would create an estimated 3.6 construction jobs.

Fredric Street Drainage Improvements

Using the methodology from the U.S. DOC ESA report[21], the $1,400,000 project would create an estimated 10 construction jobs.

Old Haverstraw Road Drainage Improvements

Using the methodology from the U.S. DOC ESA report[21], the $750,000 project would create an estimated 5.4 construction jobs.

South Mountain Road Drainage Improvements

Using the methodology from the U.S. DOC ESA report[21], the $1,000,000 project would create an estimated 7.2 construction jobs.

Cul-de-sac Island Reconstruction

Using the methodology from the U.S. DOC ESA report[21], the project would create an estimated 0.3 construction jobs per $40,000 cul-de-sac.

Digital Inventory of Stormwater Infrastructure

Not Applicable.

Implementation of Post-Residential Buyout Program Measures for Flood Protection

Using the methodology from the U.S. DOC ESA report[21], the project would create an estimated 2.7 construction jobs. This is based on an assumption that approximately 80% of the total cost ($525,000) will be construction cost ($375,000).

Jeffrey Place Drainage Improvements

Using the methodology from the U.S. DOC ESA report[21], the $500,000 project would create an estimated 3.6 construction jobs.

Pineview Road Storm Drainage Improvements

Using the methodology from the U.S. DOC ESA report[21], the $500,000 project would create an estimated 3.6 construction jobs.

Tree Maintenance Program

Not Applicable.

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F. Glossary

CBA	Cost-Benefit Analysis
CDBG-DR	Community Development Block Grant – Disaster Recovery
CEA	Critical Environmental Areas
DPW	Department of Public Works
EOC	Emergency Operations Center
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FTE	Full-Time Equivalent
GIS	Geographic Information Systems
GOSR	Governor's Office of Storm Recovery
HMGP	Hazard Mitigation Grant Program
HUD	U.S. Department of Housing and Urban Development
NDRF	National Disaster Recovery Framework
NFIP	National Flood Insurance Program
NYRCR	New York Rising Community Reconstruction
NYS	New York State
NYS DEC	New York State Department of Environmental Conservation
NYS DOS	New York State Department of State
NYSERDA	New York State Energy Research and Development Authority
NYS OEM	New York State Office of Emergency Management
O&R	Orange & Rockland Utilities Inc.
PIPC	Palisades Interstate Park Commission
RFP	Request for Proposal
ROW	Right-of-way
RSF	Recovery Support Function
SEQRA	State Environmental Quality Review Act
TRIPS	Transportation Resources, Intra-county, for Physically disabled and Senior citizens
USACE	U.S. Army Corps of Engineers
U.S. DOC ESA	U.S. Department of Commerce Economic and Statistics Administration
WQC	Water Quality Certification