Greene County

Water Dependent Use Inventory & Assessment

July 2008

Completed for

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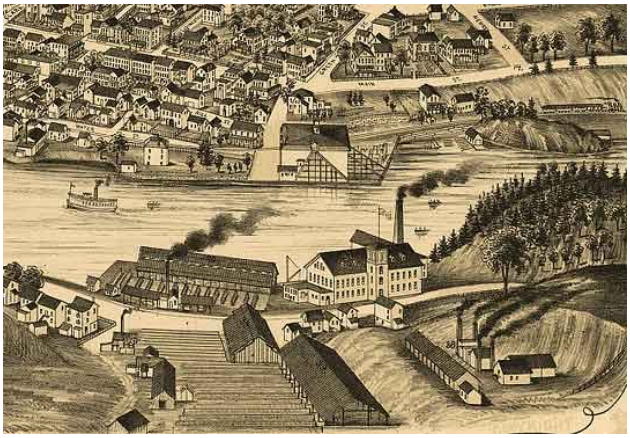
Section 1
Introduction

In Greene County, water has always played an important role in the local culture and economy. Whether it is world class trout streams in the Catskills, lake front vacation homes in Sleepy Hollow, or industrial uses along the Hudson River, water has been a significant resource. While the county has a wealth of streams, lakes, and ponds which are all important to the economic health and quality of life in the county, none surpass the significance of the Hudson River.



The Ferrier & Golden and C. C.Abeel Brickyards on the Catskill Creek were typical of early industrial users who relied on water transport (1889)

Greene County has had a long tradition of commerce associated with its Hudson River waterfront. In the early stages of the county's settlement, population centers grew around areas commonly called "landings" which provided the connection between local merchants and the rapidly growing consumer markets in the New York City area. Today, some of these landings are represented by the historic villages that line the county's waterfront. With a primarily agrarian economy, Greene County prospered from the ability to readily transport crops such as hay, corn, apples, and vegetables to downstate markets. As the NYC area continued to grow, the need for building materials was answered by the development of early industries related to brick, bluestone, molding sand, and lumber which could be moved to the growing city by water routes.

Later, as the country entered the Industrial Era, the Greene County waterfront continued to be an important part of its economy. Foundries, cement production, manufacturing, and ship building are just samples of the businesses that were dependent on the Hudson River for their survival. In some cases, these industries relied on the availability of the Hudson River for the water necessary in their industrial process but more frequently, it was the need for reliable and cheap transportation that guided these industries to the river's shoreline. Along the twenty six

Water Dependent Use

"An activity which can only be conducted on, in, over or adjacent to a waterbody because such activity requires direct access to that waterbody, and which involves, as an integral part of such activity, the use of water"

NYSDOS Coastal Zone Program

miles of Hudson River waterfront in Greene County, there are miles and miles of old, deteriorating bulkheads which in many cases are the last signs of what was once a significant water dependent economy.

In more modern times, the Hudson River has experienced a significant decline in water dependent activities along its shores. Many factors contributed to this decline. Foreign competition, the growth of railroad transportation, and an increasingly complex regulatory environment were amongst some of the most significant factors. As the industrial users were lost, the river was left with a legacy of pollution and deteriorating infrastructure. In many riverfront communities, the degraded environmental conditions on the river, and the poor perception of its value, is evident by land use decisions made during the period of the river's decline. As the conditions of the river worsened, riverfront land values dropped and new land use patterns often resulted in valuable waterfront being consumed by uses that would not be a primary consideration given the current value of Hudson River waterfront. For example, in each of the county's three riverfront villages, landfills were located on the immediate shores of the Hudson River for many years. For generations, the great Hudson River was hardly a factor in the local economy.

In the 1960's, the tide changed when all across the county the federal, state and local governments took on the tremendous challenge of restoring their waterfronts. Here in New York, Governor Nelson Rockefeller had great vision in the benefits that could be realized from a revitalized river. Over a thirty year period, significant levels of federal and state funding was provided to local communities for the development of municipal waste water treatment systems, eliminating a significant pollutant source. This work continues to this day, with a strong focus on addressing impacts from stormwater runoff. Slowly, the quality of the river improved, resulting in the highly valued conditions present today.

Pleasure boating on the Hudson has become increasingly popular helping to support marinas, restaurants and other boating related services.

As the condition of the river has improved, so has the value of riverfront properties. Sites where the river was once a liability are now highly treasured for both water dependent and non-dependent uses. While riverfront properties have been increasing in demand for marinas, restaurants, boat yards, public recreation, and other water dependent uses, they are also under heavy demand for non-water dependent uses such as upscale housing. All up and down

the Hudson Valley, communities find they are facing hard questions related to the competing interests between water dependent and non-dependent uses. As the Hudson River waterfront continues to experience rejuvenation, it will become increasingly important for property owners, local communities, and other interested parties to consider how to best balance these interests. This will require visionary thinking and some hard decisions.

The purpose of this inventory and assessment of the Greene County waterfront is not meant to answer all questions regarding future use of riverfront properties. It is an attempt to lay the preliminary groundwork necessary to facilitate a focused and prioritized interest in the redevelopment of the county's diverse waterfronts. This effort is focused on the roughly twenty six miles of the Hudson River shoreline as well as the navigable portions of the Catskill and Murdererskill tributaries. The report in one sense is intended to act as a screening tool that takes the first steps in creating an inventory of the Greene County shoreline and evaluating the opportunities and challenges to development or redevelopment. The report attempts to summarize the challenges related to topography, wetlands, habitats, infrastructure, and regulatory issues which are critical to achieving an effective and balanced use of the waterfront. The report also introduces concepts and resources which may be useful in the successful reuse of the waterfront. Issues related to land use; access, funding programs, regional priorities, and business development are also presented. Some key questions the report tries to address include:

- What is the Greene County shoreline and what are the limitations and challenges of enhancing water dependent uses?

- How can water dependent uses be encouraged without sacrificing environmental quality?

- What are the competing uses of waterfront lands and how do they impact the community's character as well as its economy?

- How does the community address potential conflicts between a waterfront property owner's desires and the broader interests of the community or between a community's desires and regulatory interests?

- What is the status of infrastructure along the waterfront and does it have the ability to support additional development?

- What are some of the possible opportunities for the community and private interests to partner in the waterfronts future use?

The report is not meant to pass judgment on past or current waterfront uses. Nor is it meant to advocate for future uses that may not be acceptable to a specific property owner or the broader community. Hopefully, it will serve as a catalyst to local interest in a long term vision for the county's waterfront and will help facilitate the development of water dependent uses that add value, not only to the landowner, but also the community as a whole.

Section 2
Waterfront Description

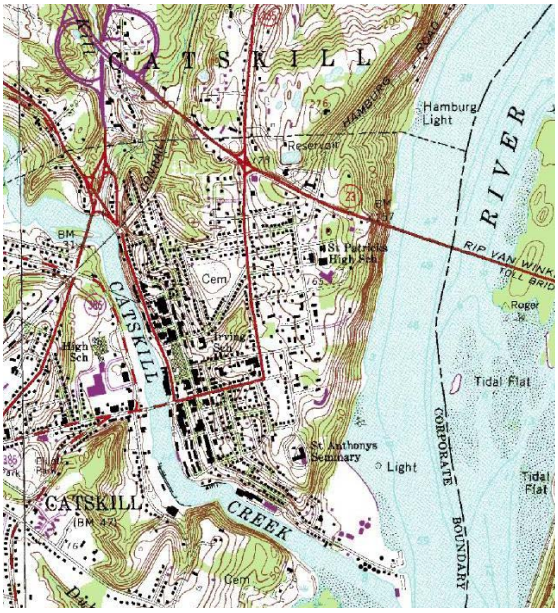
Greene County has approximately twenty six miles of shoreline along the Hudson. The shoreline remains primarily vacant and has not yet experienced the riverside development typical of many areas in the lower and Mid Hudson Valley. To some extent, the lack of activity can be attributed to significant physical limitations which make development a challenge along much of the county's riverfront. While numerous tributaries are also present in Greene County, only the Catskill Creek and a very limited portion of the Murderers Kill are navigable.

To develop an effective strategy for the promotion of future water dependent uses in Greene County, it is necessary to understand the characteristics of the river and the natural resource features which must be addressed in any project. In most cases, riverfront locations in Greene County that provided easy access to the river had been previously developed and in some cases, these locations are still active for water dependent uses. In other instances, historic water dependent uses have been long abandoned but these sites may still be suitable for redevelopment. Typical of much of the upper Hudson Valley, Greene County has a number of locations where the remnants of bulkheads and dockage are representative of a past era when water dependent activities were an important part of the county's economy.

Along much of the riverfront in Greene County, opportunities for the promotion of water dependent uses is, to a large extent, limited by the shoreline and river's physical and ecological characteristics. Steep slopes, unstable soils and shallow mudflats are the primary physical factors that limit water dependent uses while wetlands, submerged aquatic vegetation, (SAV) and other aquatic habitat features are ecological features which present limitations to project development. State and federal designations of unique habitat and scenic resources also present an additional challenge to the development along most of the county's shoreline. To develop an effective strategy for the waterfront's future, it is critical to thoroughly understand these issues and integrate them into a specific project proposal. The following sections provide a brief overview of the key features of the river and its waterfront in Greene County.

2.1 Topography

A primary factor limiting the development of water dependent uses in Greene County is related to the shoreline's topography. The presence of steep topography is predominant along the Greene County shoreline, with only limited areas of naturally occurring flat terrain along the river. Along much of the county's shoreline, steep upland slopes present a challenge for access to the water and development of the infrastructure necessary to support significant water dependent activities. Most of the county is similar to the shoreline north of Catskill Point where extremely steep slopes and the absence of any level terrain along the river greatly limit development activities. These morphological features exist along 80% or more of the county's shoreline.



Typical steep shoreline topography can be seen in the areas north of Catskill Point.

The only significant areas of flat topography along the river exist between New Baltimore and Coxsackie at Bronck Island, between Coxsackie and Athens at Four Mile Point, and south of the Catskill Creek. While topography along these reaches of the river is flatter and has less of a limiting factor, these areas present significant limitations related to wetlands and floodplains. With the exception of small, isolated sections, these naturally occurring flat areas are dominated by extensive wetland complexes and are almost entirely located within the regulatory floodplain.

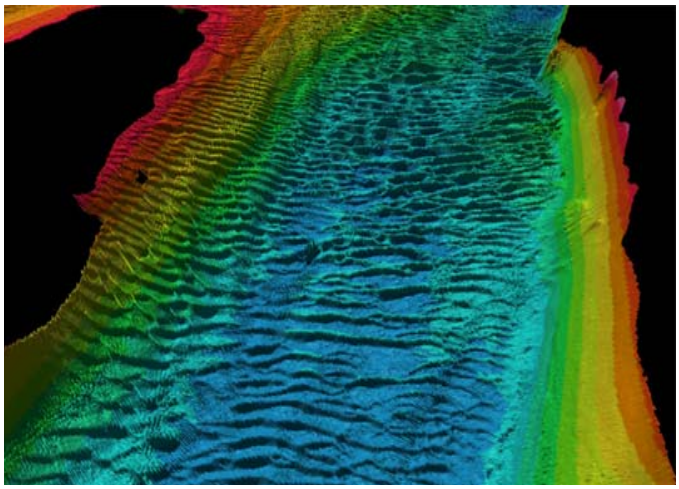
Even in the county's villages where the development density has been the greatest, the communities are built upon a very limited amount of naturally occurring level terrain. Catskill, Athens, Coxsackie and the hamlet of New Baltimore are all characterized by development patterns that occurred on steep slopes that surrounded small areas of flatter terrain which were used as simple landings for the shipping of agricultural products. As these areas became increasingly populated, the villages expanded from these landings with residential uses taking hold on the steeper upland terraces while commercial uses expanded onto shallow areas of the river that were bulk-headed and filled.

Along most of the riverfront, topography will outright prohibit any significant waterfront development. Traditional methods of creating level areas by installing

bulkheads and filling are almost impossible to obtain approval for under current regulations. In those areas where existing fills are present, or steep slopes are already developed, topography will continue to provide limitations that will require complex engineering solutions and community planning to address. For example, in each of the Village waterfront areas there are opportunities for redevelopment of sites for water dependent uses, but there remains a critical shortage of parking due to the limited flat terrain. The development of new infrastructure such as launching areas, docks and promenades will often require extensive engineering practices to overcome the limitations presented by the shoreline terrain.

2.2 Channel Morphology

While upland topography is a primary consideration in the development of water dependent use, the rivers depth and the morphology (shape) of the river channel is also an important factor. Whether water dependent uses are focused on transportation of raw materials and finished products from industrial sites, pleasure boat marinas or launching areas for paddle craft, the depth of the water along the rivers margin is often a limiting factor. When explored by Henry Hudson in 1609, his navigation of the river was halted just above Coxsackie due to shallow water. Not until the early 1800's when a navigation channel was established northward was the upper part of Greene County navigable.



Acoustic mapping of the Hudson River by the HREP indicates wave of sandy sediment moving along the rivers bottom. Warmer colors along the edge represent shallow margins

In the section between Catskill and Troy, the river is fairly shallow with an average depth of 25' or less. It is also relatively narrow, ranging from approximately 2500 feet wide at the Albany County border to over 5000 feet in width at Catskill. Routine maintenance dredging by the U.S. Army Corp of Engineers is necessary to maintain the navigation channel used by the barges and freighters which utilize the Port of Albany and the few remaining industrial sites along the upper river. Along Greene County the navigation channel is maintained at 400 feet in width and approximately 32 feet in depth at low mean tide. In this section of the Hudson River the two primary characteristics of the rivers channel that impact water dependent uses are related to sedimentation and tides.

Like any river, the Hudson's channel morphology is in constant change. Draining a massive watershed, the river carries not only the water that runs off the landscape, but also great quantities of sediment. While the river carries some sediment on a constant basis, sediment loads can be highly variable. Flood events in the watershed produce significant sediment loads which may impact water dependent uses along its entire length. In studies conducted by the New York State Department of Environmental Conservation (NYSDEC) and United States Geological Survey (USGS) examining the sedimentation in the NY/NJ harbors it was found that the majority of the sediments could be traced to sources as far away as the Schoharie Creek. The movement and deposition of sediments in the Hudson River presents complex issues that must be considered in the development of water dependent uses.

Often, the sediment characteristics of the river result in conflicting impacts and benefits. On one hand, sedimentation negatively impacts water dependent uses by creating limitations to navigation. Along many sections of the river, sedimentation at the river's margins results in very shallow water and prevents navigation by even small pleasure craft. It is only in limited areas along the Greene County shoreline that the rivers fluvial action provides for natural maintenance of navigable water depths. Historically, it was common practice to construct bulkheads to reach the deeper, faster moving waters of the channel. In areas along the waterfronts in the villages of Coxsackie, Athens and Catskill, and at several isolated locations between, naturally occurring water depths that are adequate for navigation are almost exclusively associated with the bulk-headed areas.

The limited commercial and industrial water dependent uses in Greene County are only possible due to the presence of piers and bulkheads. At the cement plants in the southern part of the county, barge access is only possible due to the extensive pier system that extends into the river. In Catskill, the Amos Post terminal and the Catskill Point facility are also located on fill areas that were extended well into the river. In each case, their location on the main channel helps maintain water depth due to natural scour of the river's sediments. In Athens, water dependent transportation to the Peckham facility in Athens has been increasingly impacted by sedimentation of the channel and a reduction in water depth. A feasibility study on dredging the Athens channel completed by the Army Corp of Engineers in the late 1990's revealed the extensive costs and environmental factors that are typical of any proposed dredging project.

On the other hand, it is the sediment characteristics of the river which influence the rich ecological resources found in this area. Mineral and organic sediments create and maintain the extensive shallows and mudflats which play an important role in providing fisheries habitat and conditions that promote a diverse wildlife habitat. It is the presence of these ecological resources that presents an important attraction for water dependent uses. Whether it is an interest in fishing or a leisurely paddle at sunrise in a tidal wetland, the features of the Hudson River

shoreline that present a challenge to navigation also provide a resource that may promote the development of additional water dependent uses in Greene County.

Complicating the issues related to navigable water depths along the river is the fact that the Hudson River is tidal along the 150 mile length from the confluence with the ocean at Battery Park to the Troy Dam. The tidal pattern is diurnal with two high tides and two low tides per day with approximately 12 hours between each high and low tide. The changes in water surface elevations due to the tide along this section of the river average in the 3 to 4 foot range, but can be a much as 6 feet under certain conditions. Increased runoff due to flooding in the watershed, wind action and the gravitational influence of the moon can all impact tidal elevations. When multiple conditions such as gravitational influence and a strong upriver wind work in combination, water surface elevations can be greatly accentuated, causing flooding of adjacent structures and extensive damage to piers and dock systems.

The development of future water dependent uses along the Hudson River must integrate the current conditions of the shoreline. While bulk heading and filling to reach the channels deeper water was common in the past, the current regulatory environmental and a better understanding of the impacts of this practice on the rivers ecology make this option all but impossible today. Activities such as the construction of new bulkheads and the dredging of navigable channels present daunting challenges to environmental permitting and are highly inconsistent with federal, state and regional policies related to management of the Hudson River and its shoreline. Development of new water dependent uses in Greene County will be most effective if activities are targeted at areas where existing bulkheads and piers are located. While some level of enhanced water dependent uses may be possible outside of currently impacted shorelines, these uses will be limited to small marinas and perhaps more passive uses such as kayak and canoe launches. In addition, any proposed new water dependent uses must carefully evaluate the depth of the river under seasonal and tidal conditions and infrastructure such as docks and piers must be constructed with these issues in mind.

Ice on the Hudson can be a challenge for winter is of the river and often causes extensive damage to the shoreline when the ice melts and flows out of

2.3 Flooding & Ice Scour

The Hudson River has extensive floodplains along most of its length in Greene County. While overall the river's floodplain is relatively narrow when compared to typical upland streams in its watershed, the floodplain along the river is an

important consideration when locating any uses along the waterfront. In those limited areas such as the Villages of Coxsackie, Athens and Catskill where low flat terrain exists along the river, the impact of flooding on water dependent uses is most significant. While these sites are attractive for water dependent uses due to their easy access to the water, they can also be prone to flooding causing significant damage to buildings and infrastructure. Along much of the remaining shoreline in the regulated floodplain, it's fairly limited in width due to the steep upland areas adjacent to the river.

While the lower areas along the river frequently experience some level of nuisance flooding associated with extraordinary high tides and flood runoff from the watershed, in most cases damage is limited to floatable debris and some minor flooding of structures. Occasionally, significant flood events such as the one that occurred in January 1996 result much greater damage. In the 1996 flood events, the Villages of Athens, Catskill and Coxsackie saw as much as 5 feet of water in their waterfront business and residential districts. Direct flooding damage to buildings was extensive all along the county's waterfront as was the damage to bulkheads and piers from massive ice scour.

Whereas damaging floods along the main river are relatively infrequent, this is not the case in the Catskill Creek area. On most days, the lower navigable section of the creek seems very tame, rising and falling with the tides. With increasing frequency, the lower Catskill Creek has been experiencing significant impacts from flood waters generated in the stream's watershed. The Catskill Creek drainage area is immense, stretching well into Schoharie and southwest Albany counties and it often experiences major flooding. The flooding potential is further impacted by the watershed's characteristics. The steep north facing slopes of the Catskill Mountains have a tendency to cause many storms to dump excessive rainfall which drains to the Hudson. In addition, the Kaaterskill Creek, a primary tributary, is located just above the Village of Catskill. The Kaaterskill Creek is characterized by extremely steep topography and is frequently subjected to rain storms of very high intensity, though short in duration. These factors, combined with the Kaaterskill's lack of major floodplains to attenuate flood waters, often result in high velocity discharges to the Catskill Creek. During these flood events, the velocity and elevation of the flood flows as well as the extensive woody debris washed from eroding stream banks in the watershed, cause serious damage to water dependent infrastructure. While little can be done to reduce the flood flows, good dock design and efforts to reduce woody debris impacts may be a necessary part of any strategy to develop new infrastructure along the creek. The impact of floodplains is covered in more detail in the section which describes the individual sub-units of the Greene County shoreline.

In addition to issues related to flooding, water dependent uses must also consider the potential impacts from winter ice. While it takes an extended cold period with very low temperatures to freeze the river, it is common for ice to form every

winter, for at least a short period. In some years, when the temperatures are very cold for periods of weeks or more, ice on the river may grow to 4 feet thick or greater. The presence of ice impacts water dependent uses in several ways. For industrial water dependent uses such as the cement plants and Amos Post oil facility their business requires year round access to the water for transportation. Fortunately, with the Port of Albany to our north, the navigation channel is maintained by the US Coast Guard using ice breakers.

Another factor associated with ice on the river is related to the power forces the ice places on the shoreline and any structures such as piers and bulkheads. When the river is frozen solid, the rise and fall of the tides lifts and drops the ice repeatedly, with the ice grinding the shoreline line like a file or hacksaw. When the river thaws, and ice is carried out by high flows there is also extensive grinding of the ice along the shoreline. While the action of ice on the shoreline must be considered on an annual basis, consideration must be given to mitigating to the maximum extent possible the damage from extreme events such as the January 1996 flood event. In that flood, ice flows as high as 25 feet or more ground down the river doing extensive damage to the waterfront. In Coxsackie, the Village's large gazebo was pushed off of its pilings and back into the tree line over 75' away. Public and private facilities alike experienced unprecedented damages from the ice. Bulkheads, docking systems and piers are all subject to the action of the ice but proper positioning of these features, combined with armoring techniques can greatly reduce damage to waterfront infrastructure.

2.4 Geology & Soils

While geology and soils are less of a limiting factor than topography they do present some challenges for waterfront development. With the exceptions of some sand dominated soil types found along the faces of select terraces, the predominant soils along the river and the navigable portions of the county's creeks are clays or silty clay loams. These soils are, in general, poorly drained, prone to erosion, and frequently highly unstable when located on steep slopes. These clay dominated soils present challenges to construction of load bearing structures, often requiring extensive footer and drainage systems.

Dredge spoils from the rivers channel deposited behind bulkhead structures are located along several sections of the river and are now wetlands

In addition to the limitations of the soil types found on the river's edge and immediate upslope areas, the characteristics of the soil substrate within the river is also a factor in many water

dependent uses. As noted earlier, the Hudson River carries vast quantities of sediment. While these sediments have direct impacts on the channels morphology and the ability to meet navigation needs, they can also impact water dependent uses in other ways. In many locations along the Greene County shoreline, depositional patterns are characterized by extremely fine sediments consisting of clays and organic matter. With some exceptions much of the shoreline and near channel area is characterized by very fine sediments which produce a "soft" bottom. The presence of the sediments can impact the placement and maintenance of water dependent features such as docking systems as well as present undesirable conditions for uses such as paddle boat launching. When launching or retrieving paddle boats at low tide, it is not uncommon to have to deal with ankle deep or deeper black muck which is difficult to walk through and results in a mess.

2.5 Wetlands

As noted above, much of the Greene County shoreline is very shallow and characterized by shoals and mudflats. In most cases these shallow areas are dominated by wetlands which are a significant obstacle to active waterfront development. In the Greene County region, these wetlands may include shoals and mudflats, freshwater wetlands, tree and shrub wetlands and several other categories characterized by NYSDEC. These wetlands are a rich ecological resource and play an important role in maintaining the diversity of the river. The development or maintenance of water dependent infrastructure such as docking systems in areas characterized by wetlands typically presents a significant challenge in obtaining the necessary regulatory approvals. On the other hand, these tidal wetlands also present a great opportunity for more passive water dependent uses in Greene County. The rich ecological properties of these wetlands are attractive to sport fishermen as well as recreational paddlers. These wetlands provide significant opportunities for bird watching and are welcomed by paddlers who enjoy their calm and protected waters as a way to escape the rougher waters of the open main channel. The impact of wetlands is presented in more detail in later sections of this report which provide a more detailed inventory of sub-units of the Greene County shoreline.

2.6 Submerged Aquatic Vegetation (SAV)

In areas of shallow water along the river's shoreline beds of submerged aquatic vegetation are often present. Dominated by water celery (Vallisneria Americana) clasping leaf pond weed (Potamageton perfoloatus) and Eurasian milfoil (Myriophyllum spicatum) these SAV beds serve as larval and nursery areas for fish, provide organic matter which is an important component of the rivers food web and serve to filter nutrients which helps reduce algal blooms.

Whereas SAV beds provide many benefits, another aquatic plant is becoming an increasing problem on the river. Water Chestnut (Tapa natans) is an invasive species characterized by floating leaves. Growing in dense patches, water chestnut can present an obstacle to small pleasure boats and paddle boats. Greene County has not yet experienced significant impacts due to water chestnut but dense growth in the Coxsackie Island Backwater area has significantly limited access by small craft to areas that have excellent opportunities for wildlife viewing.

When SAV beds are present rehabilitation or expansion of docks and bulkheads may be limited by regulatory agencies

While SAV beds generally meet the criteria to be regulated as wetlands, they are highlighted here due to an increasing focus in the Hudson Valley on the impacts to SAV caused by water craft. Traditionally, wetland regulations have focused on direct impacts such as filling or dredging of wetland areas. As studies continue to document the importance of SAV beds on the aquatic ecosystem, regulatory agencies are increasingly restricting activities which may impact SAV beds.

For example, regulatory approvals for seasonal boat docks may be denied, or the extent of the proposed dockage restricted, to avoid or reduce potential impacts on SAV beds from shading. When SAV beds are present near proposed boating activities, the regulatory agencies may also consider impacts on the beds due to boat propellers when issuing permits. In recent years, at least one proposed canoe/kayak launch site in Greene County was not approved due to the presence of SAV and the concern that paddle boats would negatively impact the submerged beds. In the evaluation of potential new or expanded water dependent uses in Greene County, SAV beds will need to be accurately delineated and to the maximum extent possibly avoided. Projects that may result in impacts to SAV beds will face significant regulatory challenges and may not be permitted.

2.7 Water Quality

As noted earlier, the water quality in the Hudson and its navigable tributaries is directly linked to the river's attraction for water dependent uses. Over the past 40 years, the focus on wastewater treatment, stormwater management and treatment of other forms of Non-Point Sources (NPS) pollution have been very successful in improving the river's quality. While local beaches on the river were popular attractions well into the 1960's, the decline of the rivers water quality was one

factor that greatly reduced human contact activities for decades. In more recent years, the emphasis on further improvements to the river's water quality has been focused on the management of stormwater, the development of boating pump-out stations, and the classification of the entire river's length as a no dump zone by boat.

In NYS, the NYSDEC classifies all waters based on their best use. Water classifications range from A to D, with A classified waters being suitable for drinking while D classified streams are not protected and not suitable for contact use. The reach of the Hudson River through Greene County is classified as a B waters which means it is suitable for contact recreation (i.e. swimming) but not for drinking water supplies. In Greene County, water quality benefits from municipal treatment plants in New Baltimore, Coxsackie, Sleepy Hollow Lake, Athens and Catskill. While these communities face the same problems as many others related to aging infrastructure and increasing demand, they have expended a great deal of money and effort to try and maintain their facilities. Inflow and infiltration (I&I) in the wastewater treatment systems during wet periods remains a problem in all of these communities. Each of the Greene County communities should be commended for their continuing efforts to maintain effective treatment systems. Any potential for enhancement of water dependent uses is directly linked to the quality of the river's waters and it is important that riverfront communities continue to work to address water quality impacts.

2.8 Significant Coastal Fish and Wildlife Habitat Areas

Along the Greene County shoreline, there are seven areas that have been designated as Significant Coastal Fish and Wildlife Habitat Areas (SCRWHA) under the New York State Department of State (NYSDOS) Coastal Resources Program. These SCFWHA include the Hannacroix Creek, Coxsackie Creek, Coxsackie Island Backwater, Vosberg's Swamp/Middle Ground Flats, Catskill Creek, Ramshorn Marsh and Inbocht Bay/Duck Cove.

While the lower Catskill Creek is urbanized, it still serves as a significant habitat area for many species found in the river.

While the morphology and ecological characteristics of each SCFWHA supports a somewhat unique assemblage of fish and other aquatic species at various stages of their life cycle, one of the primary concerns regarding impacts consistent with each of the SCFWHA is the potential impact from development. Again, SFWHA provided a mixed blessing for water dependent development. On one hand, they provide an

additional consideration in any permitting activity but they also serve a critical role in maintaining the river's rich ecological character which is the focus of many water dependent uses.

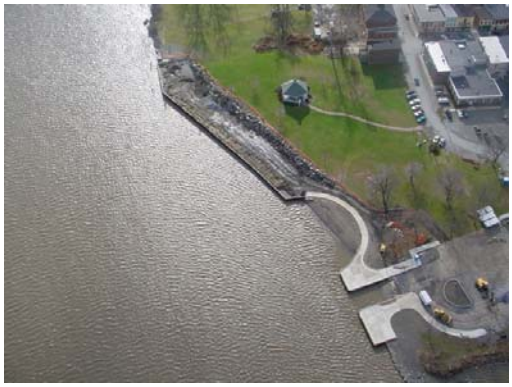
When projects are located in or near a SCFWHA, applicants seeking state or federal approval for a project are required to address potential impacts of their proposed action on aquatic habitat. Projects are subject to a consistency review under Policy 7 of the State's coastal policies. Policy 7 requires the protection of fish and wildlife resources of statewide significance and requires that they be "protected, preserved, and where practical, restored so as to maintain the viability as habitats"

2.9 Scenic Areas of Statewide Assistance

Another feature of the Greene County shoreline that must be considered in any future plans for enhanced water dependent uses relates to designated Scenic Areas of Statewide Significance. Under Policy 24 of the state's Coastal Management Program, the NYS Dept, of State (NYSDOS) has designated areas along the coastal zone that have exceptional scenic quality. The state and federal coastal zone acts require that activities within a SASS strike a balance between development and protection of the scenic resources. In Greene County there are two designated SASS. The Columbia/Greene North SASS runs on both shores from just above the county's northern border to the northern edge of the Village of Athens. The Catskill/Olana SAS runs from the Catskill-Athens town lines down to Smith's Landing (Cementon). The Catskill/Olana SASS is especially sensitive to waterfront development due to the presence of the Olana historic site. Poorly planned projects can expect to generate significant and perhaps fatal opposition if they would result in an impact in the Olana viewshed.

While Greene County has an abundant shoreline, and many resources that can serve to support water dependent uses, it also faces significant challenges in addressing the character of the river and its natural resource base. With effective community planning, sound engineering practices, and the development of a comprehensive strategy to mitigate and protect natural resources, Greene County can work within the limitations of the river's features and support additional water dependent uses.

Section 3
Regional Programs



The development of water dependent uses as a component of Greene County's economic structure can realize significant benefits by working closely with regional programs focused on the Hudson Valley. While the county and its individual municipalities understand the need to work at the local level to enhance access and use of the waterfront, a successful strategy will be needed to appreciate the value that can come from working across municipal lines as well as at the regional scale. The river provides a common thread amongst these communities, not only in its physical linkage, but also in the shared community character of our historic riverfront settlements.

Over the past 20 years, there has been increasing interest in looking at the Hudson Valley on a broader scale. Regional programs such as the Hudson River Valley Greenway, National Heritage Area Program, NYSDOS Coastal Resources Program, and the Hudson River Estuary Program have made significant strides in helping communities understand how their economic health and quality of life are linked, not only to the river, but also to each other. Initially, programs such as the Greenway were most often treated with suspicion, with landowners and community leaders fearing outside control over local decisions. As time has gone on, the combination of aggressive outreach programs and a well-proven track record of letting communities make their own decisions, has been very effective in achieving a fairly broad acceptance of these programs.

3.1 Hudson River Valley Greenway

Enacted in 1991, the Hudson River Valley Greenway Act provided a framework to promote regional planning in 242 communities in the Hudson Valley. The Greenway Act acknowledged the importance of helping communities look beyond their boundaries for solutions to common issues that they share with their neighbors. The Greenway's programs are carried out under the oversight of the Hudson River Valley Greenway Communities Council and the Greenway Conservancy for the Hudson River Valley.

The Greenway Communities Council is a state agency under the Executive Branch and its primary mission is to work with local governments on land use planning. The Greenway Conservancy is a public benefit corporation which works with communities and others to establish a Hudson River Valley Trail system promote the Hudson River Valley as a single tourism destination area and assist in the preservation of agriculture. Jointly, the two organizations are charged with facilitating state agency cooperation with local governments. In Greene County, the Towns and Villages of Athens, Catskill and Coxsackie are all Greenway Communities while New Baltimore is the only waterfront community that is not a member. Greene County is also a member of the Greenway.

To date, the Greenway has provided technical assistance and funding for a wide range of projects in the county. While funding for planning initiatives are often difficult to secure from grant sources, the Greenway places a strong emphasis on planning activities. In addition to the provision of technical assistance and grant funding, two key Greenway programs that could benefit water dependent uses in Greene County include the Greenway Trail and the Hudson River Water Trail.

All riverfront Communities with the exception of New Baltimore are participating members of the Greenway.

In the development of the original Greenway Act, a primary goal of the Greenway Conservancy was to facilitate the development of a continuous trail along the length of the Hudson River. The concept of the Greenway Trail was to help communities promote and preserve scenic, recreational, cultural, and historic resources and to provide enhanced access to the river. Unfortunately, the Greenway Trail system was poorly understood and there was resistance in many areas in the valley due to unfounded fears that the trail would be developed without consideration of private property rights. Since the original Greenway Act was passed on 1991, the Greenway Trail concept has continued to gain acceptance as the Greenway demonstrated that the trail would only be "built" by local communities' planning segments in their own area.

Like much of the Hudson Valley, terrain, natural resource constraints and property ownership issues basically preclude the development of a continuous Greenway Trail along the Greene County waterfront. The county does, however, have several opportunities to develop additional linkages to the river. Recent land acquisitions by Scenic Hudson and NYSDEC, combined with existing public sites along the river, will provide for enhanced access to the river for passive recreation. Improving access for hiking, birding and other activities provides important attractions for visitors to Greene County, and can be beneficial to the

county's tourism economy. Some resorts in Greene County actually bus their visitors to some of the access points such as the Cohotate Preserve.

Another Greenway program that could facilitate additional water dependent uses and provide economic benefits is the Hudson River Water Trail. The effort to develop a chain of launch and camp sites to promote paddle sports on the river was originally conceived by the Hudson River Water Trail Association (HRWA). The effort to develop a chain of launch benefited when Governor Pataki provided one million dollars in funding and charged the Greenway with helping the HRWA make the water trail a reality. In Greene County, there are designated Water Trail sites in Catskill, Athens, Coxsackie, and New Baltimore. With the exception of a HRWT managed site in New Baltimore, the water trail locations in Greene County are all launching areas but there is a lack of camping locations.

As anybody that spends any time along the river can attest, the popularity of paddling on the Hudson continues to grow by leaps and bounds. Where it was once uncommon to see paddlers making their way along the river, the waterway is now enjoyed by those that take day trip paddles to their favorite locations, as well as those that make a long distance trip down the river their goal. As the use of the river by paddlers continues to gain popularity, opportunities exist to tap this resource for economic benefits.

Promotion of the water trail system in Greene County can bring new visitors to the riverfront communities, which in turn can be expected to support water dependent use based businesses. These visitors can directly benefit businesses such as retail sales of equipment, touring services, beds and breakfasts, restaurants, and food markets. Indirect benefits can be realized when visitors that initially come to Greene County as paddlers, return to take advantage of the many other resources the county has.

Kayaking on the Hudson is becoming increasingly popular for both day trips and longer trips. *Photo by Scott Keller*

As Greene County works to enhance its water based economic sector, the Greenway will continue to be an important partner. Technical assistance, funding, and more importantly advocacy with state and federal agencies on behalf of local communities and the state and federal agencies, can provide immense benefit to the county's effort. The County enjoys a solid reputation and a strong relationship with these programs

3.2 National Heritage Area Program

Designated by Congress in 1996, the Hudson River Valley National Heritage Area is one of 37 Heritage Areas funded through the National Park Service and is managed jointly by the Greenway Communities Council and Greenway Conservancy. The Heritage Area mission is to promote the protection and interpretation of the valley's cultural and natural resources under a management plan that identified a number of priority themes in the Hudson Valley. The program's primary themes that are most closely tied to Greene County include Art & Artists, and Parks and Environment.

The Bronck House is the oldest homestead in NYS and is a heritage area site.

The Greene County Historical Society has worked closely with the Heritage Area with the Bronck House and Thomas Cole House being designated Heritage Area sites. While the Heritage Area program has a limited federal appropriation, communities can access technical assistance and some funding.

In Greene County, active participation in the Heritage Area program can have direct and indirect benefits to the development of water dependent use. Direct benefits could be realized by the development of interpretive materials that highlight the cultural heritage of the county's waterfront. These materials could be in the form of interpretive kiosks at public sites where historic resources may be present. There could also be materials that guides could use when leading paddles along the waterfront or by tour boats. Indirect benefits could be realized by the having visitors to local heritage sites also visit water dependent business such as restaurants, kayak rentals etc. Recommendations for further integration of the Hudson River Valley National Heritage Area programs with water dependent uses is discussed later in this report.

3.3 Hudson River Estuary Program

The rich ecological characteristics which draw many visitors to the river can be attributed to the river's role as an estuary. Estuaries, which are semi-enclosed bodies of water that have unimpeded connection to the ocean, serve as transitional zones between the freshwater habitats in the uplands and the salt

water ecosystem of the ocean. Estuaries play a critical role in the life cycle of sport and commercial fisheries, with species such as striped bass and shad using the river for reproduction.

Tidal wetlands along the river provide critical habitat and are attractive for a number of recreational activities.

In 1987, the Hudson River Estuary Management Act directed the NYSDEC to develop a management program for the Hudson River estuary from the Troy Dam south to the Verrazano Narrows, including tidal portions of tributaries. The Hudson River Estuary Program (HREP) is managed by NYSDEC and includes numerous partnering agencies. The program has an active advisory committee that represents wide and diversified interests in the Hudson Valley.

While the HREP initially focused almost exclusively on the river and its ecological communities, the program has evolved to extend into the river's tributaries and watershed. The activities of the HREP are set forth in the Hudson River Estuary Program Action Agenda, which is routinely updated and revised. The program can provide local communities with technical assistance on a wide range of issues as well as direct grant funding for local projects that are consistent with the programs goals. In Greene County, the further development of a water dependent economic sector can benefit from several of the programs priority goals. Past activities in the county have included:

- The HREP's continuing work to understand the river's aquatic habitat is critical to maintaining a sports fishery on the Hudson. Sport fishing is a significant component of a water dependent economy and offers opportunities for further development.

- The availability of public access points on the river is critical to the success of many water dependent uses. To date, the HREP has partnered with NYS Parks and Recreation to undertake significant improvements to launch sites in Coxsackie and Athens under the programs boating access program. Improvements have included rehabilitated bulkheads, dockage, and most importantly, increased parking. Catskill's Dutchman's Landing launch is listed on the programs priority list.

- Funding has been provided for acquisition of additional lands for public access as well as for improvements such as parking and trails. Recent acquisitions by NYSDEC and Scenic Hudson in Athens and Coxsackie will

provide excellent opportunities for new public access points that have a natural resource focus. Sites at Brandow's Point and Four Mile Point will allow for the development of new facilities to support the Hudson River Water Trail as well access to some excellent sites for birding.

- The HREP will continue to be a primary source of funds for water quality improvement projects. Recent funding was provided to Greene County to integrate stormwater management into the Catskill Creek access project at the county's parking area.

3.4 NYS Coastal Zone Program

Since 1982, the NYS Department of State (NYSDOS) has been the lead agency for management of the state's coastal resources under the New York State Waterfront Revitalization of Coastal Areas and Inland Waterways Act. The NYSDOS carries out these initiatives under the Coastal Resources Program which works cooperatively with local communities as well as state and federal agencies to facilitate the protection and revitalization of waterfront communities. The program is guided by a series of state coastal policies which address development, fish and wildlife, flooding, erosion, historic and scenic resources, agriculture, recreation, wetlands, air and water resources, energy, ice management, and general safeguards. Coastal Resource Programs include both regulatory based approach as well as local assistance programs. The regulatory aspects of the program are covered in the following section.

The restoration of the Catskill Point met several goals of the Catskill LWRP developed in 1988.

A primary objective of the Coastal Resource Program is to assist waterfront communities with the development of Local Waterfront Revitalization Programs (LWRP). An LWRP includes both a detailed land use plan for the community's waterfront as well as the adoption of the necessary local laws to carry out the goals of the waterfront plan. In Greene County, LWRP's have been developed by the Village of Catskill (1988) and the Village of Athens (2002). An effort to develop a joint LWRP for the Town and Village of Coxsackie in the mid 1990's was unsuccessful due to significant public opposition. Unfortunately, a misunderstanding of the intent of the LWRP and fear of outside control on local decisions resulted in the completed plan being shelved. In Catskill, the community has participated successfully in the program since 1988 with no negative impact on the communities. To date, only the Village of Athens LWRP has been approved by the Secretary of State.

In Catskill, the community has been successful in implementing some of the primary goals set forth in their LWRP. Recommendations related to the rehabilitation of Catskill Point and the creation of a museum, park and public docks have been completed as have other recommendations including the development of a market for agricultural goods and art. Recommendations for the creation of pocket parks, access for fishing and paddle craft access points have also been completed with additional projects underway.

Restoration of the ferry slip at Catskill Point could be used in conjunction with the adjoining Catskill Point facility.

Goals related to the revitalization of the central business district have also seen mixed success. While the investment of private and public funds has made significant progress in the rehabilitation of Main Street and its facades, issues related to parking and access to the Catskill Creek remain as challanges. Protection of critical habitat, specifically Ramshorn Marsh, has also made progress with the creation of the Ramshorn-Livingston Preserve by the Audubon Society and Scenic Hudson.

While significant progress has been made on the implementation of the goals set forth in Catskill's LWR, there are a number of other recommendations in the document that are still appropriate today. Items that remain uncompleted, but which warrant further consideration include:

- Restoration of the historic ferry slip at the end of Catskill Point. Rehabilitation would require extensive bulkhead work, as well as dredging of the slip to allow adequate draft for boats. Challenges that would need to be addressed include access on the north side of the slip on lands used by Amos Post, as well as further investigation of the possible contamination of sediments in the slip which may need to be dredged.

- The original plan called for the use of natural landscape buffers to screen the Village's waste water treatment plant, as well as the oil storage tanks. While the Village has implemented extensive screening around the WWTP, no progress has been made in regards to screening the storage tanks. Due to the height of the tank, and the unfavorable planting conditions, vegetative buffers may not be practical. Recent efforts to reduce the visual impact by painting have also not made much progress.

- A recommendation to re-establish a lift-bridge or some other method to allow larger boats to access the Catskill Creek upstream of the Uncle Sam Bridge (NYS 385) should be considered unreasonable at this time. Since the original drafting of the LWRP in 1988, the bridge that was in existence at that time has been replaced, and it can not be reasonably expected that this new bridge will be replaced for another 50 years or more.

- A recommendation to address flooding and erosion along the Catskill Creek is still valid and should be given strong consideration. In the absence of a formal study, any new projects along the creek should be studied closely to determine if flooding or erosion is an issue, and appropriate steps taken to address these potential impacts.

- Another recommendation to maintain a navigable channel in Catskill Creek from the Hudson River upstream to the Uncle Sam Bridge is also critical to the maintenance of existing or the development of new water dependent uses. It must however be recognized that maintenance of a channel by dredging represents significant challenges and any potential need for removal of sediment to aid navigation must be planned well in advance of needs.

In the Village of Athens, a LWRP was initially developed in 1988 and approved by NYSDOS in 2002. The LWRP identified a number of proposed actions that were related to the Village's waterfront and water dependent uses. The LWRP identified the area between the state boat launch and fifth street as the Village's Urban Waterfront Area, and suggested appropriate uses as boat repair, marine sales, or water transportation uses. Areas along the river north and south of the Urban Waterfront Area were identified as appropriate for Waterfront Recreation and Open Space, with low intensity water related activities being appropriate.

Rehabilitation of the Athens Riverfront Park is a priority project and in the final stages of permitting.

Recommendations in the Village's LWRP that have been, at least, partially completed and directly support water dependent uses:

- The rehabilitation of the Village's waterfront park was identified as the priority project. The Village has been successful in completing a feasibility study in the park's redevelopment and has completed detailed designs for a

major upgrade project. Funding has been received and the project is in the final stages of permitting.

- Another recommendation called for the improvement of the forth street launching site. The Village has been successful in securing significant funding for the project and is in the process of final design and permitting of the project. Working cooperatively with the adjoining property owner, an upgraded launch site for paddle craft and other improvements will soon be completed.

- North of the Murderer's Creek, a recommendation that improvements at Rainey Park would allow access along the creek to the rivers edge were undertaken in the mid 1990's, but the project was not maintained due to difficulties maintaining the trail. Constant damage by high water and extensive stands of poison ivy made the trail difficult to maintain and was seldom used.

- The revitalization of the Village's historic district is ongoing. The combination of private investment as well as state and local grant funding has been effective in improvements to historic structures. The restoration of the historic Van Loan house at the Village's scenic southern entrance is an example of a commitment by successive administrations to improve the Village's historic district. In recent years, there have been numerous cases where the Village has rigorously enforced design standards in the historic district which were enacted to protect the historic nature of the Village core. Progress has also been made on the replacement of sidewalks in some sections of the Village's downtown.

The Village of Athens LWRP also includes a number of other recommendations that have not yet been completed. These include:

- Removal of the derelict barges north of the Peckham facility was identified as necessary to improve the appearance of the Village's waterfront and make additional waterfront area available for use. While it may be feasible to remove the bulk of the superstructure on the barges, full removal would not be permitted due to habitat impacts. Reuse of the area

Abandoned barges along the Village's waterfront are an eyesore but represent a challenge to remove.

would also be limited by the presence of quality tidal wetland which now surrounds the barges.

- While the LWRP recommended potential new acquisitions for increasing public access, no additional properties have been acquired in the Village. There is currently an opportunity for the Village to seek grant funding for an acquisition of a parcel adjoining Rainey Park.

- A recommendation for the development of a trail along the old White Elephant Railroad was discussed around the time of the LWRP's development but met significant public opposition. In the mid-1990's, when Coxsackie attempted to adopt its LWRP, the concept of a rail-trail again met significant opposition form key landowners along its route. In the mid-1990's, the possibility of developing a rail-trail were further diminished when the rail-road sold sections of the old right-of-way to adjoining owners.

- While development of an access point under the transmission towers south of the village was also recommended, it is no longer as significant due to other acquisitions for public access in the area. Since the adoption of the LWRP, the development of the Cohotate Preserve and the recent acquisition by NYSDEC of property at Brandow's Point provide over 100 acres that will be developed for public access and passive recreation.

- The concept of developing biking access along route 385 north of the village still has merit and should receive further evaluation. The route north of the village has fewer constraints related to terrain than the route to the south.

Any efforts in Greene County to develop enhanced water dependent use must take full advantage of the many resources available through regional programs such as the Greenway, HREP and NYSDOS. While each of these programs initially met resistance from many waterfront communities in Greene County, they have developed a consistent record of being sensitive to local decision making and fears of outside control have not proven true. Access to technical assistance, funding and advocacy with state and federal agencies provided through these regional programs are a resource that Greene County must continue to use to its advantage.

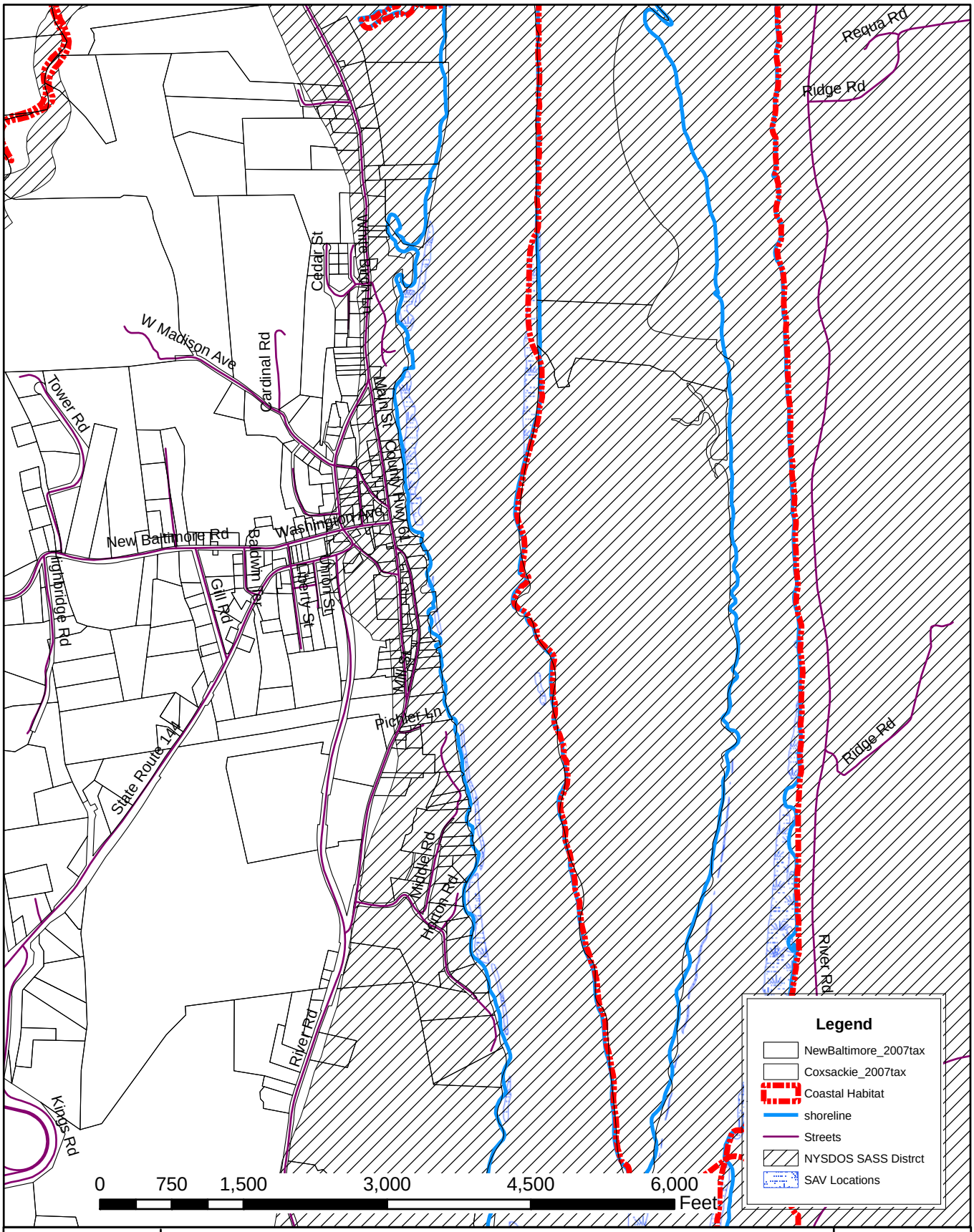
Section 4
Town of New Baltimore

New Baltimore shares a common history with most of the riverfront communities. From its earliest years its economy was linked to the river with agricultural products, lumber, stone, ice and other natural resources shipped from its shores to ports downriver. Industries such as ship building and repair could also be found on its shores.

Today, the town's waterfront is primarily open space and low density residential with the exception of the hamlet. The town's historic hamlet is characterized by higher density residential properties and is the location of the only water dependent uses in the town (Figure 2). Similar to the county's riverfront villages, sections of New Baltimore's shoreline were also bulk-headed and filled to allow for the construction of boatyards, ice house and shipping. While most of these areas were in or very near the current hamlet, a significant bulkhead section also exists just south of Bronck Island.

New Baltimore's waterfront is also characterized by several large areas that were used as dredge disposal sites when a navigable channel was established from New Baltimore and Albany. As noted earlier, prior to establishing the navigation channel most boats could not make it north of Coxsackie. In some cases these sites were used in the original creation of the channel while others were used for disposal from maintenance dredging up until the early 1960's. Two primary dredge disposal sites are located where the current town and NYSDEC lands are in the northern part of the hamlet and in the area of Bronck Island. Currently, the U.S. Army Corps of Engineers maintains an active dredge disposal site on Houghtaling Island in an area just south of the hamlet. In most cases, these former dredge disposal sites are very flat and significantly constrained by wetlands and floodplains (Figure 3). The new Baltimore shoreline also contains the remnants of extensive bulkheads installed by the Army Corps of Engineers in an attempt too help maintain the shipping channels.

Unlike the Village's of Athens, Catskill and Coxsackie, New Baltimore has very limited opportunities for new or expanded water dependent uses. The primary constraints are topography, wetlands and the lack of infrastructure. In the town's riverfront hamlet, the waterfront is characterized by very steep topography, with only limited areas of flat land



Community Natural Resource Solutions

Greene County Water Dependent Use Inventory and Assessment

Figure 1: Significant Coastal Habitats, SASS and SAV Beds in New Baltimore

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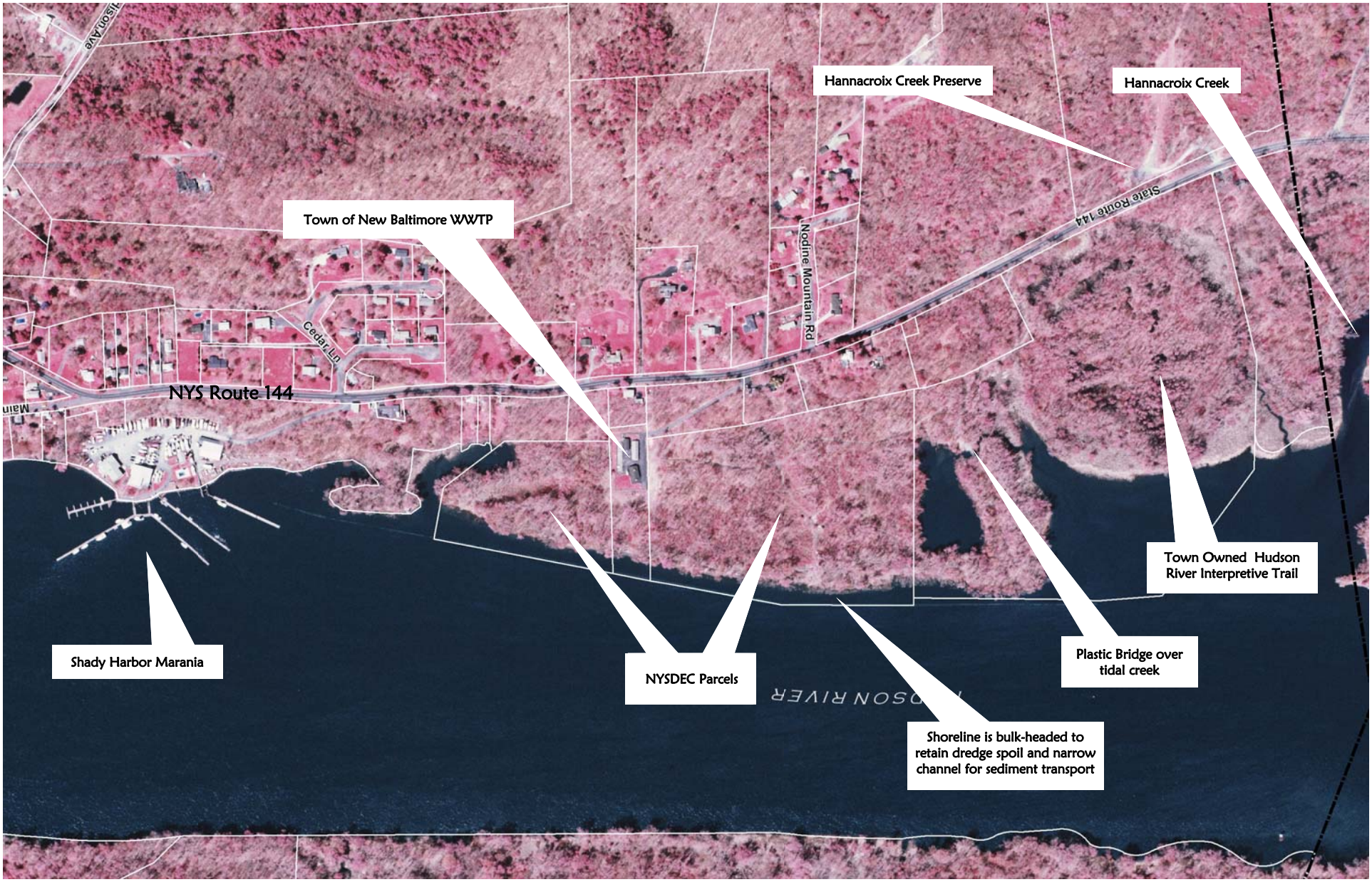


Community Natural Resource Solutions
81 South River Street
Coxsackie, NY 12051

Mapping assistance by Delaware Engineering P.C.

Not to Scale

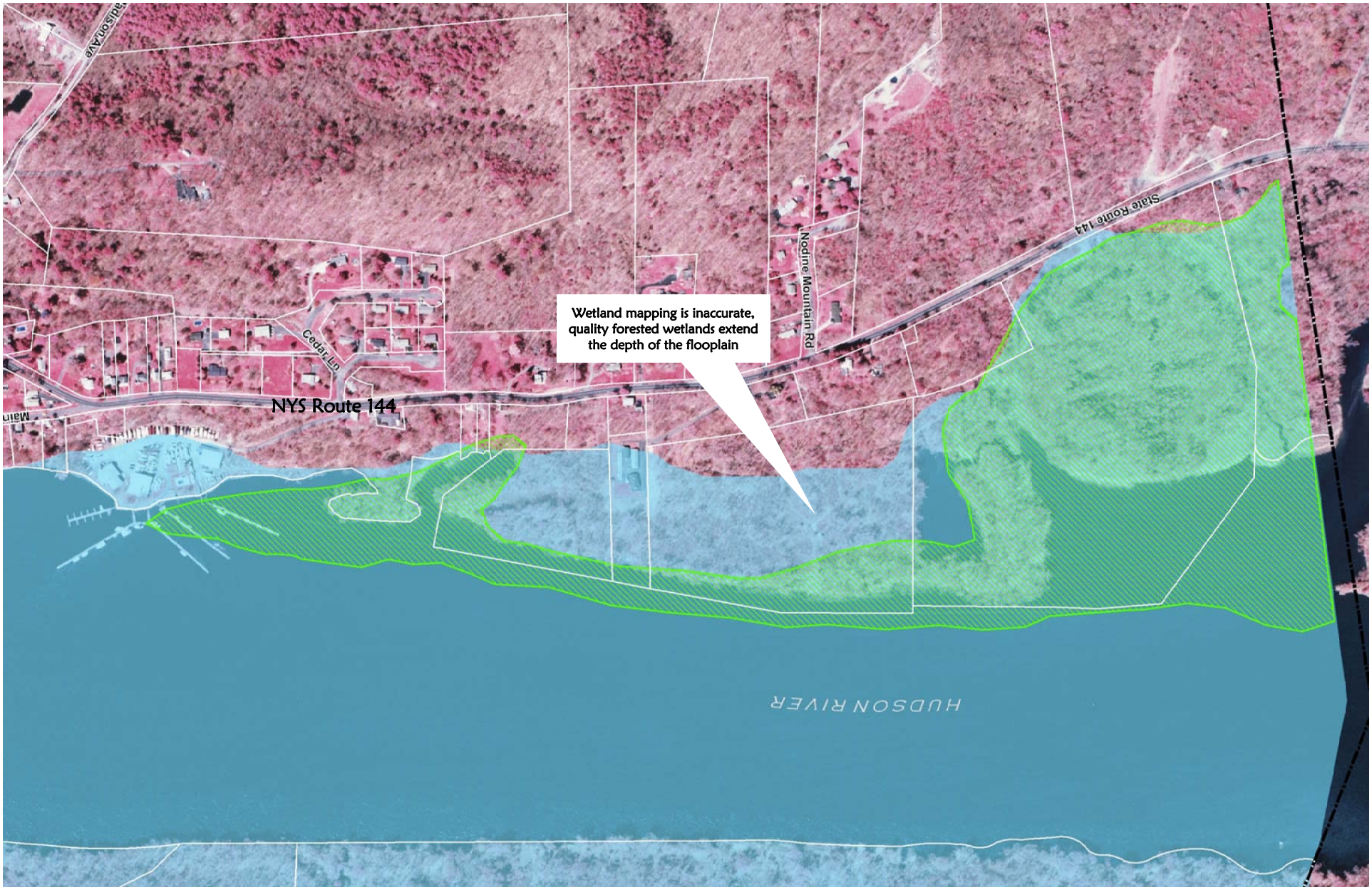
Greene County Water Dependent Use Inventory and Assessment

New Baltimore
Waterfront Inventory

Legend
- Town Boundary
- NYSDEC Freshwater Wetlands
- 100 Year Flood Zone
- 500 Year Flood Zone

W N S E

Figure 2



Community Natural Resource Solutions
81 South River Street
Coxsackie, NY 12051

Mapping Assistance by
Delaware Engineering P.C.

Not to Scale

Greene County Water Dependent Use Inventory and Assessment

New Baltimore
Environmental Constraints

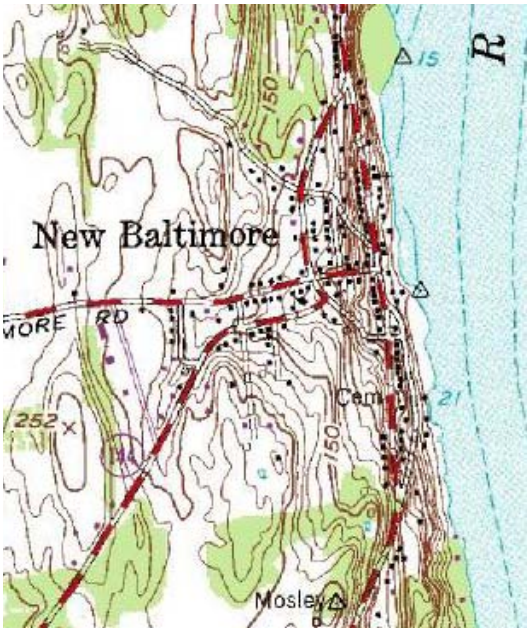
Legend
- Town Boundary
- NYSDEC Freshwater Wetlands
- 100 Year Flood Zone
- 500 Year Flood Zone

W N S E

Figure 3

along the river. Many of the areas that were once the location of water dependent uses have long been converted to residential uses and are not available for redevelopment. The waterfront is also somewhat constrained by the fact that the area is designated as both Significant Coastal Habitat, Scenic Area of Statewide Significance and some SAV beds are present (Figure 1)

In the hamlet, the only open flat land along the river is located on parcels owned by the town and NYSDEC at the hamlets northern edge. These areas were originally tidal marshes that were filled during the dredging of a navigation channel. While some industry was reportedly conducted in the past on the town owned parcel, there does not appear to have been any significant use of the areas that are now owned by NYSDEC. At the present time, these parcels are characterized by extensive wetlands, a tidal pond and regulatory floodplains. Wetlands include tidal marshes as well as riparian forest wetlands. These types of wetlands are very rich ecological units, are easily impacted, and difficult if not impossible to recreate. The impact of the regulatory floodplain can be seen at the Town's waste water treatment plant where extensive fill was necessary to elevate the plant above the floodplain. While most of the structures in the hamlet are on steep slopes and well above the floodplain, in the January 1996 flood event several homes in the hamlet and on Matthews Point to the south were damaged by flood waters.



New Baltimore's hamlet is located on some of the steepest slopes along the town's waterfront. Little flat land exists along the river for development.


High quality tidal marsh at the Hudson River Interpretive Trail limits development potential but provides for excellent wildlife viewing conditions.

In addition to physical constraints, opportunities for the development of any significant water dependent uses is also hampered due to the lack of an adequate water source, limited capacity at the waste water treatment plant and the condition of local roads on the waterfront area. The hamlet area is the only section of the Town that has municipal sewer. While the current plant is adequate for the existing uses in the hamlet, any significant additions would require expansion of the plant. Expansion of treatment capacity would be

expensive, and requires extensive measures to protect the expanded plant from flooding. In regards to water, the hamlet is already experiencing serious water problems. In the absence of a municipal water system, many homes have limited water from their wells with a good number of properties relying on old cisterns to meet water needs. Wells are often deep, and have limited flow. Any significant need for water to support a water dependent use would be challenged to find adequate water. Lastly, the road system along the town's waterfront has very limited capacity ad would not be able to support any potential uses that would be expected to generate traffic. In the hamlet, the roads are steep and narrow with the topography representing a major obstacle to widening of the roads. While smaller uses that have limited traffic might be acceptable, any projects that would result in the generation of significant vehicle traffic would clearly impact the hamlets character.

While New Baltimore has limited opportunities for the development of new water dependent uses such as marinas, restaurants and hotels, there are a number of sites that can contribute to the natural resource based economy. Possibilities for further development of water dependent uses in the Town are discussed in the following sections.

Shady Harbor Marina

Located on a small flat area in the Town's hamlet, Shady Harbor provides a wide range of services for boaters. The marina has 110 slips for seasonal as well as day use and adequate draft with approximately 10' of water depth. Other marine services include a sanitary pump out facility, fueling dock and a boat repair shop and canvas repair. The facility also includes a pool, bath house with shower facilities and laundry equipment in support of transient boaters. The marina also provides shuttle services to local stores as well as shopping in Albany.

Shady Harbor Marina provides a wide range of services in support of transient boaters as well as a popular waterfront restaurant.

The marina also sells pre-owned boats and sells a wide range of boating supplies from its ship's store. The marina's restaurant provides great dining both inside as well as on their waterfront deck. The marina is an important water dependent use and the restaurant often serves as a community gathering place for local organizations. Unfortunately, the marina is fairly constrained by the amount of land suitable for use. Expansion of activities on the shoreline is for the most part limited to the existing flat area.

Hudson River Interpretive Trail

The Hudson Rive Interpretive Trail is located on 40 acres owned by the Town of New Baltimore. The HRIT is accessed via shared parking with the adjoining Hannacroix Creek Preserve. The site provides passive access to the riverfront and includes extensive tidal marsh as well as a tidal creek and pond. Established and maintained by the New Baltimore Conservancy, the HRIT is also a designated Hudson River Water Trail site. While there are no camping facilities and launching of paddlecraft requires a substantial portage from the parking area, the site is an excellent place for kayakers and canoes to land and rest.

Constructed by volunteers from the New Baltimore Conservancy, the recycled plastic lumber bridge is an attraction itself.

In the late 1990's, the Conservancy worked with NYS and others to develop a bridge over the tidal creek to allow access to the riverfront. Constructed of plastic lumber from recycled materials the bridge is substantial enough to allow for the passage of small trucks and has become an attraction itself. Other improvements at the HRIT include a small viewing platform at the tidal pond and some interpretive signage and the Conservancy is currently working on a raised walkway through the wetlands along route 9W to minimize pedestrians needing to walk on the road's shoulder to get to the site. Also in the late 1990's, the Town worked with the Greene County Soil & Water Conservation District, NYSDEC Hudson River Estuary program and NYS Office of General Services (NYSOGS) to accomplish a transfer of two adjoining parcels to NYSDEC from NYSOGS. The transfer of the two parcels provided a new opportunity to significantly expand the HRIT's trail network. There is also opportunity to establish additional tidal wetlands and perhaps another tidal pond. Continuing efforts by the New Baltimore Conservancy and its many partners can add significantly to passive recreation opportunities at the HRIT. The addition of additional trails, interpretive signage and perhaps even camping facilities in support of the Hudson River Water Trail can all help promote visits to the waterfront. Other improvements that could benefit water dependent uses might be the provision of a small kiosk that can provide information on local restaurants and other businesses in the area.

Cornell Park

Cornell Park is a small facility located in the heart of the hamlet. The property was originally acquired by the town for a pump station at the time when the town's waste

water treatment system was constructed. The site was used informally for years for public access to the river with periodic debate as to whether the site was a "park", or not a park. In more recent years, the New Baltimore Conservancy has undertaken a wide range of improvements including a small gazebo, landscaping, benches and signage. In addition, the shoreline has been stabilized by heavy rock riprap and a launching area for canoes and kayaks was created.

The park is used frequently by residents of the hamlet and is the site of both the Conservancy's annual breakfast by the river as well as the first overnight stop on the annual Great Hudson River Paddle. Cornell Park is also a designated Hudson River Water Trail site but its use is limited to launching or retrieval or for a resting point for transient paddlers. No camping or restroom facilities are available and the lack of public transportation and distance to shopping do not provide ready opportunity for paddlers to replenish supplies. At this time, the priority needs of the site have been addressed and it is a matter of maintaining the facility. No recommendations for additional improvements at the site are offered at this time.

While small in size, Cornell Park provides access to the river for canoes/kayaks and is a popular fishing spot during the annual striper season.

Hospitality Services

While New Baltimore faces significant constraints on the development of additional water dependent uses, there may be opportunities for small hospitality type businesses that would have a link to the river. In the hamlet, there are a number of larger old homes directly on the river that may be suitable for conversion to small Bed & Breakfast operations. In the more rural parts of the town, sites along the river may be suitable for the development of a small campground. A B&B or campground on the riverfront could target its services to the transient boating population which may be seeking opportunities to dock and enjoy time off of their boats as well as other visitors.

Typical historic home along the river in the town's hamlet

The Hudson River, with its connections to the various canal systems that link the river to the great lakes or Saint Lawrence Seaway, attracts boaters from all over the world. In many cases, these boaters are making extended trips of weeks or even months, and they rely in a wide range of shore-based services to meet their needs. Outside of a few key urban areas, there are very limited hospitality services that can be accessed directly from the river by boaters. By providing docking facilities and support services such as a laundry or shuttle to area shopping centers, a riverfront B&B may be successful in attracting transient boaters. A B&B directly on the river could also be expected to draw non-boating visitors. The proximity to the State Capitol and various state agency offices in Albany can provide a lucrative market for hospitality services. The Stewart House in Athens for example has been known to rent rooms on an extended basis to NYS lawmakers when the Legislature is in session. The scenic quality and tranquility of the hamlet and its close proximity to Albany can be a very significant marketing tool.

The availability of domestic water in the hamlet area may be a limitation to establishment of a B&B if significant water would be required. Adequate space for parking, as well as expenses related to creating secure docks on the hamlet's steep riverfront slopes would also need to be addressed. Also, while the hamlet may seem to be a natural location for a B&B operation, there are also a number of properties in the more rural parts of the town that would be suitable for low intensity hospitality uses.

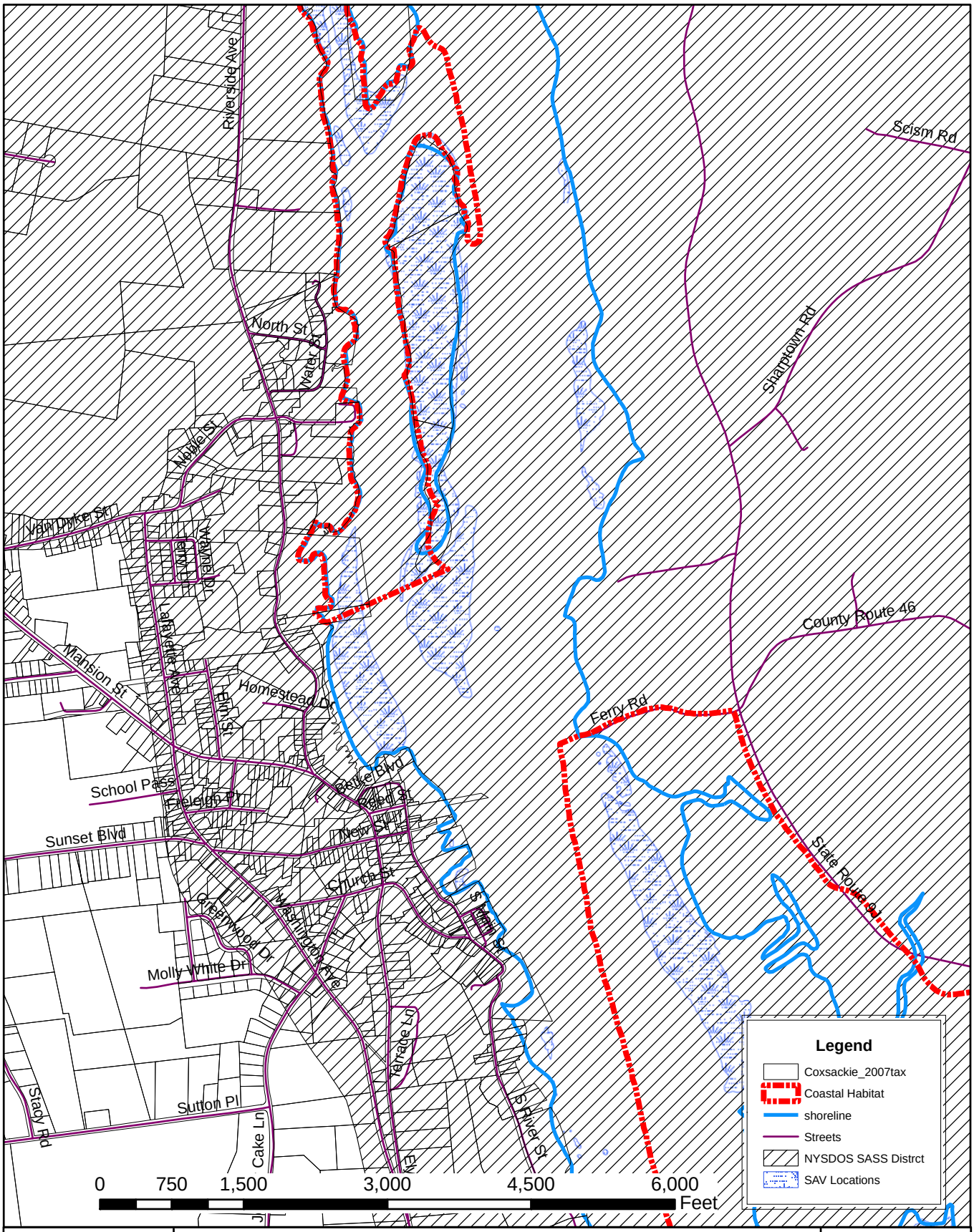
Another possible hospitality based business that may be appropriate for some of the more rural parts of the town is a campsite. There are several properties that are large enough to host a self contained camp ground, while providing adequate buffering from neighboring properties. Obviously, issues such as traffic, water, wastewater and others would need to be thoroughly evaluated in the planning stages of such a project. Hiking, biking, fishing and paddling on the river would all be attractive to the camping community as would well designed campsites that enjoy scenic views of the river or surrounding valley. The development of a campground on one of several larger parcels in the town could be an effective way to maintain open space while keeping these properties on the tax rolls.

Section 5
Village of Coxsackie

Incorporated in 1864, the Village of Coxsackie is a typical riverfront community. Initially, limited flat land along the river was used as a place to load local produce on sloops and transported to the growing New York City. As the community prospered, bulk heading and filling the shallows along the rivers shore significantly expanded the space for water dependent uses economy. In its hayday, the Village waterfront had ice houses, Iron and Brass foundries, ship building, shipping terminals, fertilizer production and several other significant industries located along its waterfront. As the industrial base in the Hudson Valley began to erode, it was communities such as Coxsackie that experienced the loss of their industries first.

From a planning perspective, the Coxsackie Village waterfront can be divided into a northern and southern section. To the north, the Coxsackie and Rattlesnake Islands provide protected back water and is the site of the Coxsackie Yacht Club and some private dockage. The islands and the backwater they protect are rich in ecological diversity and provide opportunities for eco-based tourism. To the south, the remnants of a fairly extensive pier works are present along much of the Village's shoreline. The reach between the Coxsackie Riverside Park and the site of the former Coxsackie Beach was once lined with industry and trade. Today, both reaches are challenged by a number of issues. Piers and docks that were once thriving have seen decades of neglect with most of the bulkheads severely degraded. Erosion of bulkheads and the sedimentation from the river itself have reduced navigable depths along a great deal of the shore and in many locations narrow wetland bands and patches of SAV are present (Figure 4).

The following sections provide a discussion of the current conditions as well as opportunities and limitations found along the Coxsackie waterfront. It also presents a series of recommendations that are intended to demonstrate the range of possible projects that can be undertaken to enhance use of the waterfront area. Clearly, any potential use would need to undergo a rigorous planning and review process to insure that any activities respect the rights of waterfront owners, recognize the limitations of the shoreline features and are protective of the abundant natural resources which are the primary attraction to the area.



Community Natural Resource Solutions

Greene County Water Dependent Use Inventory and Assessment

Figure 4: Significant Coastal Habitats, SASS and SAV Beds in Coxsackie

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5.1 Community Goals

Since 2005, the Village and Town of Coxsackie have been working on the development of a community comprehensive plan and extensive zoning revisions. During the development of the comprehensive plan, a mailed survey as well as multiple information meetings was used to obtain input from the public on their desires for the future of the joint communities. As a result of the surveys and comments at the public meeting, several recommendations were made for use of the village and town waterfront;

- Create a development plan for the Hudson River waterfront to support the needs of boaters along the river by offering fuel, food and boating supplies, internet access, showers and laundry service and perhaps eventually hotel accommodations.

- Evaluate rezoning of the waterfront area from industrial uses to mixed use or water dependent uses which are more compatible with a recreation and tourism resource.

- Seek grant funds for improvements at Coxsackie Island Preserve to allow for passive use of the Town owned parcel.

- Continue to work with Scenic Hudson and others to increase public access to the river and to protect and preserve critical natural resources.

- Expand recreational facilities including more access to the river, expand existing park resources and build a cluster of water dependent uses that cater to boating community.

- Create multi-use trails & preserves that can support passive activities such as hiking, biking, birding, fishing and other activities.

The recommendations set forth in the Coxsackie Community Plan can facilitate the development of a stronger water dependent economy. While the Village's waterfront will provided the best opportunity for meeting most of these recommendations, there are also opportunities outside of the Village's waterfront. With a strong emphasis on natural resource based recreation activities, recent acquisitions by Scenic Hudson at Four Mile Point present excellent opportunities to enhance access to the river for fishing and kayaking.

5.2 Coxsackie North

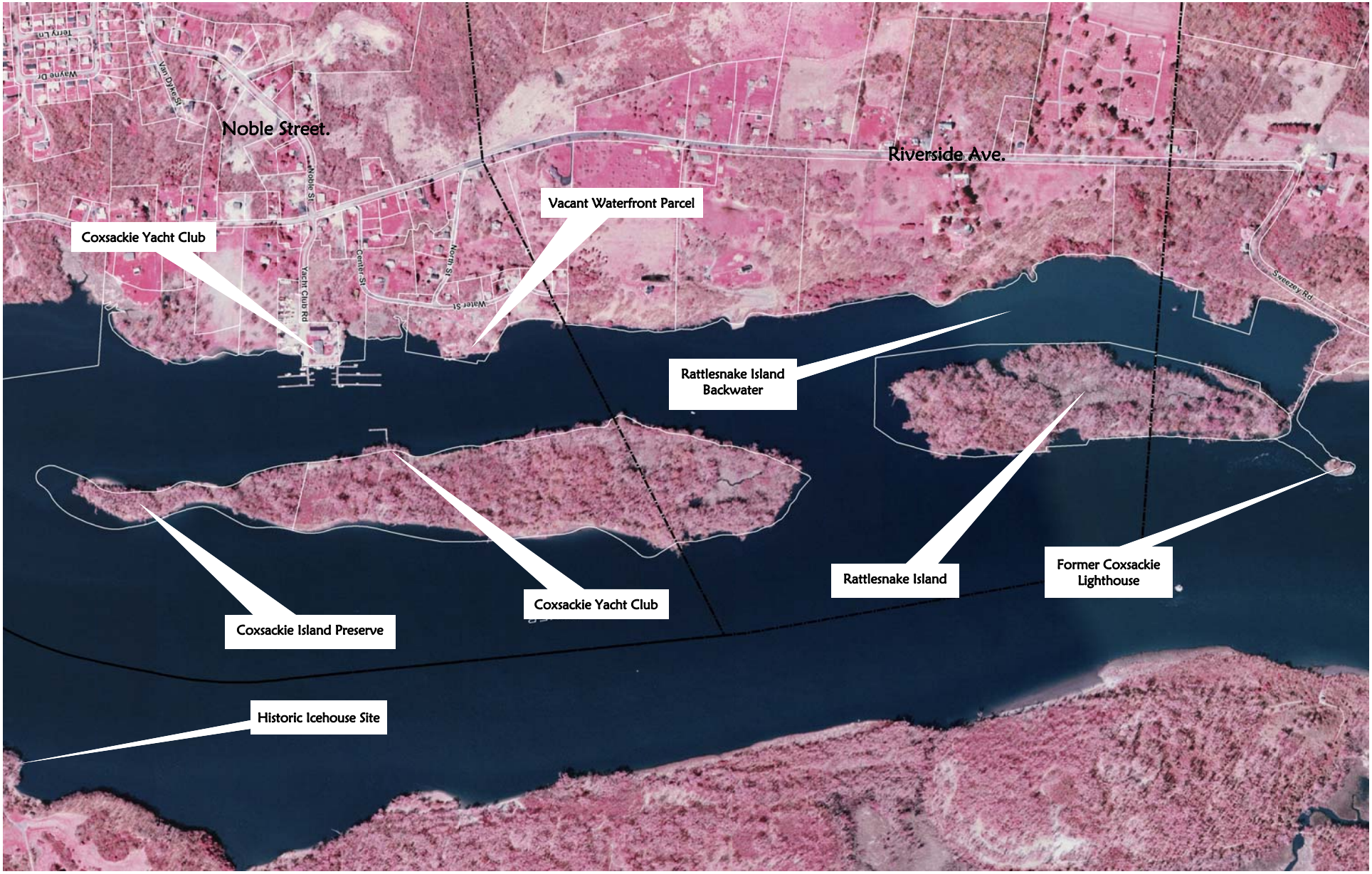
The Coxsackie North reach was delineated as running from the site of the former Coxsackie Lighthouse just north of Rattlesnake Island to the lower end of Coxsackie Island (Figure 5). The two islands form a backwater channel which provides protection from the forces of wind, wake and ice scour found on the man channel. The protected nature of the back channel makes it a suitable location for marinas with the reach containing the Coxsackie Yacht Club as well as a site that was formally a private marina.

The yacht club's location on the Coxsackie Island backwater protects the marina from the rivers forces

In addition to providing a protected anchorage, the backwater is also an important ecological resource with extensive tidal wetlands present (Figure 6). Studies have shown the Rattlesnake Island backwater to be an important wintering area for black bass and it is not uncommon to experience eagle sighting and other bird in this area. Many aquatic species also favor these protected waters as spawning, nursery and overwintering areas. As noted in Section II, the Rattlesnake Island Backwater is experiencing significant colonization by Water Chestnut. This floating aquatic plant is an invasive species, and now hinders access to the upper backwater by power boats and paddle craft alike. Previously, NYSDEC installed a large culvert through the causeway between the shoreline and Rattlesnake Island in an attempt to increase flow through the back water. The project has had limited success.

Currently the only water dependent use in this reach is the Coxsackie Yacht Club which maintains a clubhouse, seasonal dockage, pump-out facilities and a fueling station. The club also utilizes a portion of Coxsackie Island for passive activities by club members. Water depths in the channel are adequate for a wide range of boats and maintained by natural scour. On the north approach to the back channel, bulkheads on both Rattlesnake and Coxsackie Island create a well armored shoreline which effectively keeps the entrance free from sedimentation. A large sandbar off the south end of Coxsackie Island has been building for a number of years and presents a navigation hazard when approaching the yacht club from the south. The development of the sandbar has been accelerated due to excessive erosion at Coxsackie Island Preserve.

In the lower section of the reach shallow mud flats support extensive wetlands along the shoreline which present a significant limitation to further development of waterfront access. North of the yacht club, steep upland slopes and the lack of flat land at the river's edge also limit potential waterfront uses. Along the entire reach, most of the property is privately owned and used for residential purposes. Any significant expansion of water dependent sites must give property ownership priority consideration when



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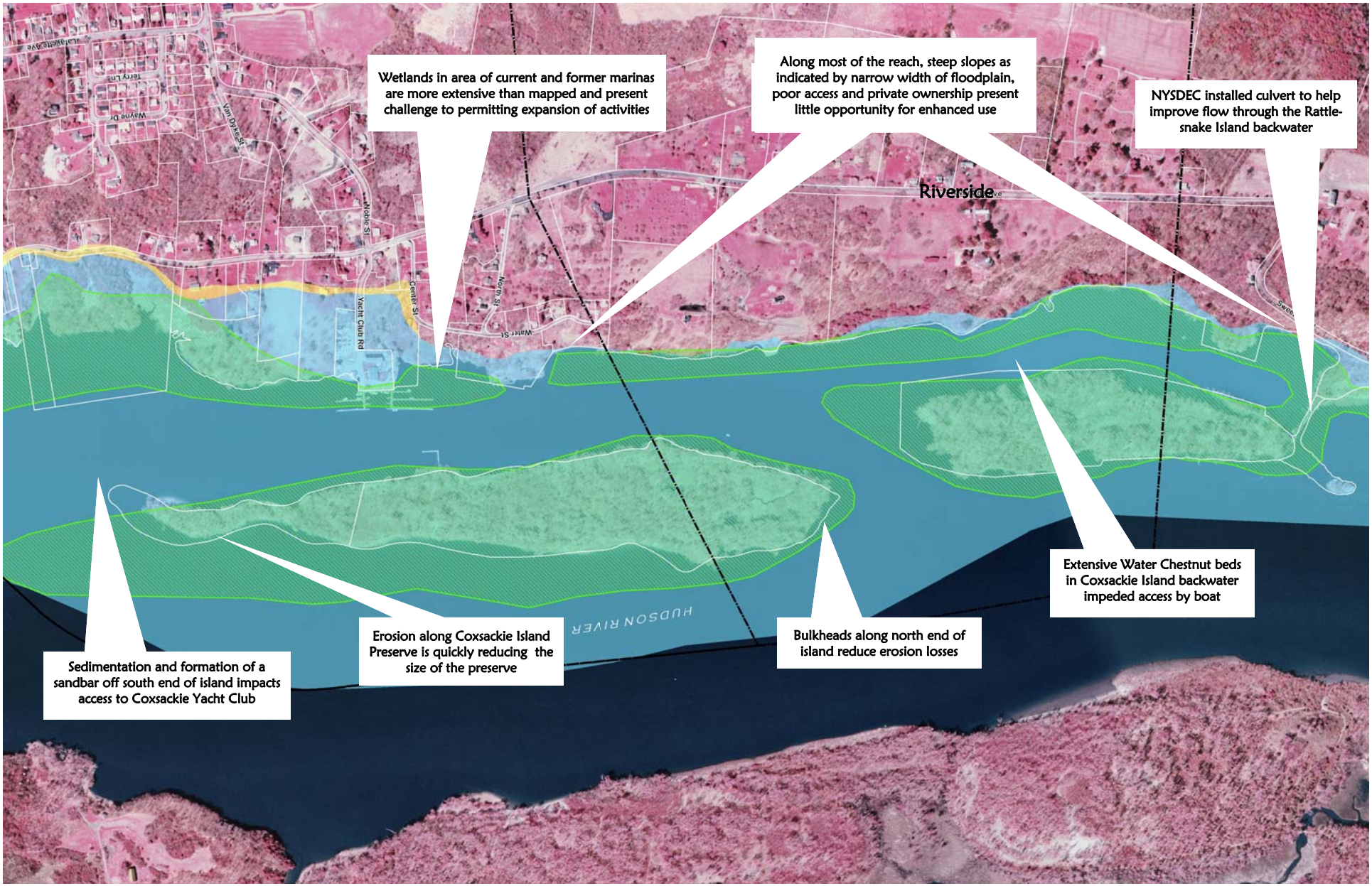
Greene County Water Dependent Use Inventory and Assessment

Village of Coxsackie North Waterfront Inventory

Legend
- Town Boundary
- NYSDEC Freshwater Wetlands
- 100 Year Flood Zone
- 500 Year Flood Zone

Figure 5



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Village of Coxsackie North
Environmental Constraints

Legend
- Town Boundary
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- 500 Year Flood Zone

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Figure 6

planning any further water dependent uses. The most practical ideas for promoting water dependent uses in this area are focused on passive recreation such as camping, birding and paddling.

Coxsackie Island Preserve

The Coxsackie Island Preserve was formed in the early 1990's, when the Town of Coxsackie worked with the Greene County Soil & Water Conservation District (GCSWCD) to acquire the lower end of the island when it became available. The GCSWCD obtained grant funding from Hudson River Improvement Fund as well as Iroquois Gas Transmission Land Acquisition & Enhancement Fund (LEAF). The goal of the town administration at the time was to protect the island from potential uses that would spoil the scenic view from Riverside Park.

Coxsackie Island Preserve includes approximately 8 acres on the lower end of the island. Access by paddle boats is an ideal use.

Long range plans included the concept of developing an access point for paddle craft. The island is a short paddle from Coxsackie Riverside Park that can be made by following the western shore and crossing the back channel. Access form Riverside Park to the island would be suitable for inexperienced paddlers. Limited improvements at the island and Riverside Park could allow for use of the island by both day paddlers and transient paddlers. Specific recommendations include;

- Seek grant funding from multiple sources to undertake improvements at Coxsackie Island Preserve. Funding sources that would be highly consistent with the goal of increased access include Hudson River Valley Greenway Water Trail Grants, NYSDEC Hudson River Estuary program Grants, the Hudson River Improvement Fund, Iroquois Land Acquisition and Enhancement Fund, NYS Dept, of State Coastal Zone Program and several private foundations.

- Develop and implement a plan to stabilize the eroding shoreline on the east and south sides of the island. Utilize to the maximum extent possible vegetative measures so as to provide long term natural stability and avoid expensive measures such as riprap.

- On the south end of the island develop a picnic area that can support 2-3 small groups who may use the site as a day paddle destination. Provide improvements such as tables and barbeque pits. All items will need to be durable, and easily maintained or repaired.

- On the northern end of the Town's parcel, create 1-2 primitive campsites for transient paddlers in support of the Hudson River Water Trail. Provide elevated tent platforms and areas for campfires.

- Utilize green technology such as a composting toilet and passive solar system to meet infrastructure needs on the island. A small photovoltaic system integrated with a composting toilet can provide the limited electricity need to power a small blower and low voltage lighting.

Composting toilets are a practical method for providing facilities in isolated locations such as Coxsackie Island

Rattlesnake Island

Rattlesnake Island is currently in private ownership and is not available for public access. Past attempts to acquire the island by groups such as the Open Space Institute and NYSDEC have been unsuccessful due to the inability to reach a price satisfactory to all parties. Due to significant limitations related to access, flooding and wetlands, the only practical use of the island is for passive recreation and conservation. If future attempts to acquire the island are successful, potential uses could include;

- Establish a pedestrian link to the east shore along the current causeway. Design the walkway to include additional breaches in the causeway to increase flow to the backwater area. Alternatively, the causeway could be breached, making access only possible by water.

- Evaluate the potential to develop 1-2 additional campsites for the Hudson River Water Trail. Provide access via landings on the river side of the island.

- Create blinds for viewing birds on the islands eastern side. Provide access from the river side, with a simple foot path from the riverside to the platforms.

- Establish interpretive signage related to the former Coxsackie Lighthouse at the northern edge of the island that is accessible by paddleboat.

Coxsackie Yacht Club

As a member of the Mohawk-Hudson Association of Yacht Clubs the site provides services to boaters from a broad geographic area

While the Coxsackie Yacht Club is a private members organization, it also provides valuable services to boaters from other clubs located on the Hudson and Mohawk River. The yacht club provides overnight dockage, fuel, and pump out services to its members as well as boaters form other clubs that belong to the Mohawk-Hudson Association of Yacht Clubs. Visitors to the yacht club could be expected to patronize local stores to replenish supplies as well as other business such as restaurants and shops. Facilities such as the Coxsackie Yacht Club are very important resources which support local and transient boating. Docking, fuel and pump-out facilities provide important services to the boating community and have benefits beyond the members of the Yacht Club. Any activities that would expand the yacht club's facilities could be expected to have a positive impact on promoting water dependent uses.

Former Woods Trailer Park Site

Just north of the Coxsackie Yacht Club, another bulk-headed portion of the shoreline is currently vacant. Once the location of a small trailer park, the property has been vacant and on the market for several years. Some limited dockage is maintained for personal use by the current landowner and the property's caretaker. The property is level and most of the shoreline is bulk-headed and relatively stable. There are also limited wetland characteristics (i.e. vegetation) on the waterfront but extensive wetlands are present on the south end of the property and to a lesser degree in the north. Water depth is adequate to support marina uses for small to moderate sized pleasure craft.

The site of the former Woods Trailer Park is appropriate for water dependent uses such as a marina.

Primary factors which limit future use of the site include environmental

constraints and the lack of infrastructure. A significant portion of the property is located within the regulated floodplain (Figure 4) and the entire property is bounded by NYSDEC and Army Corps of Engineers jurisdictional wetlands. When the NYSDEC regulated 100' buffer is applied over 2/3 of the property is within the buffer zone. Only a narrow band (approximately 50-75 feet wide) along the property's western edge is out of both the floodplain and wetland buffer. While the presence of the floodplain and wetlands do not prohibit use of the property, permitting requirements would be rigorous.

While the site has ready access to the Village's water system, waste water infrastructure is not available. Any development beyond a small residential project would require the construction of a pump station and approximately 1600 linear feet of pressurized sewer main to reach the Village's system. Another limitation is the condition of both the public and private access to the site. The site can be reach via Center Street or North Street, both of which are narrow and have characteristics that are not supportive of heavy traffic. The access into the actual property is also steep, and is only entered safely from the south via Center Street. The combination of wetland, floodplains and lack of infrastructure will require the investment of significant financial resources which would need to be supported by a substantial project. A mixed used project that integrates residential as well as water dependent is one possible alternative that could support the development of the necessary infrastructure. Other alternative uses for the site could include;

- A partnership of the Village of Coxsackie, Greene Land Trust, NYSDEC, NYS Parks and Recreation could work to acquire the property for public access. Potential uses could include development of facilities to support NYS Parks and Recreation management of the Hudson River Islands State Park, development of a passive recreation park and perhaps a canoe/kayak launch. Limited dockage could be provided for use by Parks and Recreation, NYSDEC and local law enforcement. Passive recreation uses would have minimal infrastructure requirements and waste water could be managed by an on-site system.

- The site would also be ideal for a kayak rental and guided tours. An excellent example is the Annville Creek Paddlesports Center in Dutchess County. Located at the former site of a NYSDOT maintenance facility, the Annville center is a product of collaboration between New York State Office of Parks, Recreation and Historic Preservation (OPRHP), New York State Department of Transportation

Specialized docks for launching kayaks at the Annville Paddlesport Center

(DOT), New York State Department of Environmental Conservation (DEC), and the Hudson River Valley Greenway. Upon conversion of the property to support paddle sports, OPRHP sought competitive proposals from the private sector to lease and manage the center. The center has been managed since is 2002 opening by Atlantic Kayak Tours with kayak and canoe sales, rentals and guided tours run from the site. In addition to the revenues from leasing the center, the private sector tenant provides services that would typically be borne by the state at a typical state park facility. The Coxsackie site would be suitable for a similar use. Infrastructure needs would be minimal, and could be handled on site.

5.3 Coxsackie South

The reach designated as Coxsackie South starts at the lower end of Coxsackie Island and runs south to the location of the former Coxsackie Beach (Figure 7). The area represents the portion of the Coxsackie shoreline where historic waterfront uses were located and most of the shoreline is characterized by deteriorating bulkheads and the remnants of old piers and wharfs. The flat terrain along the river primarily was man-made and was formed by backfilling wooded bulkheads which had been extended out into the river. Along this reach, the shoreline is open to the main channel and is not protected like the Coxsackie North reach. The river is over ¾ miles in width and the shoreline is frequently subject to the river's rapid currents, ice loading and the impacts of large woody debris carried by the river.

In the northern limits of the reach, a wide bay and extensive tidal wetlands along the river's western shore between the Coxsackie Riverside Park and the Coxsackie Yacht Club, severely limit the potential for additional shoreline development. Coming south, the majority of the shoreline is characterized by a hardened shoreline with old bulkheads extending from the Riverside Park to the bottom of the reach. The properties within this focus area present some challenges related to environmental factors. At the Coxsackie Riverside Park, a landfill was once located in the area where the playground and basketball courts once stood. Work on the development of an enlarged parking area a few years ago revealed that debris from the former landfill is buried just below the surface. Also in this reach is the site of a former brass foundry which has been found to have low to moderate levels of contamination and is currently undergoing investigations and cleanup under the states Brown Field Cleanup Program. Other former industrial sites

As frequently as several times a year, low areas such as Coxsackie Riverside Park experience minor flooding when the river overflows

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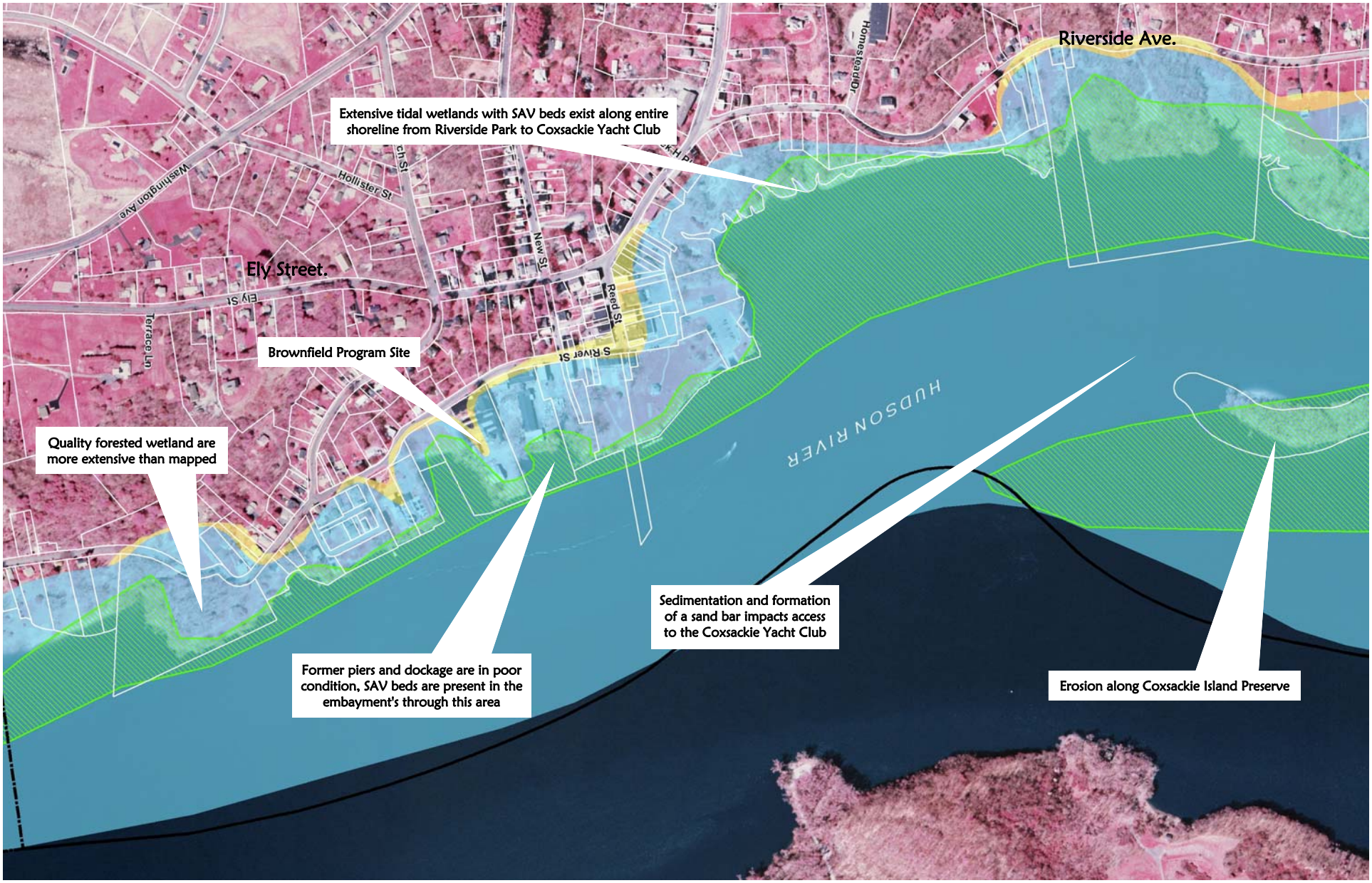
Village of Coxsackie South
Waterfront Site Inventory

Legend
- Town Boundary
- NYSDEC Freshwater Wetlands
- 100 Year Flood Zone
- 500 Year Flood Zone

Figure 7



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Legend
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- 500 Year Flood Zone

W N S E

Figure 8

have some evidence of possible contamination but would not appear to limit redevelopment of these sites.

The presence of extensive regulatory floodplains over the entire reach (Figure 8) is another factor that must be considered in the development of new water dependent uses. In the northern portion of the reach, the floodplain is relatively narrow due to the steep bedrock cliffs that run along the shore. Over the remainder of the reach, the floodplains are broader and cover most of the flatter land and extending well into the historic business district. While the presence of the regulated floodplain does not preclude water dependent uses, careful planning and design must be undertaken to limit flood damage. Since the construction of the Sacandaga Reservoir has effectively flooding in areas along the lower river has been rare.

Positive attributes of the Coxsackie South reach include the availability of both water and wastewater infrastructure, as well as the proximity of the waterfront to the Village's historic downtown business district and residential neighborhoods. The ability to access water and wastewater, as well as the possible linkages to existing business and residential uses makes this reach better suited for the development of water dependent uses that may produce higher levels of traffic. The existing hardened shoreline make it somewhat easier to obtain state and federal permits for rehabilitation of bulkheads and the creation of improved dockage, trails and promenades. Like most small waterfront communities along the river, the lack of adequate space for parking is a primary limitation on the development of new water dependent uses.

On-going efforts to restore the historic Dolan Block are preserving an important component of the Village's waterfront district.

Along the Village's waterfront, property ownership is another factor that will limit opportunities to create new or enhanced water dependent uses. While the Village is fortunate to have a fairly large river front park a significant portion of the waterfront parcels are owned by the Twelve Tribes and are not available for redevelopment. The ownership by the Twelve Tribes has had many benefits, especially their efforts to stabilize several significant historic structures such as the Dolan's Block and the old power station. Prior to the arrival of the group in the community, these structures were severely neglected and in increasing danger of loss due to deterioration or fire. Extensive restoration

efforts undertaken by the Twelve Tribes has saved several key buildings on the Village's waterfront.

While the work of the Twelve Tribes has benefited conservation of these important historical structures, their ownership also eliminates opportunities for the development of new water dependent uses. At the time of this report, the large waterfront parcels are used exclusively by the group for its own purposes and many of the buildings and waterfront area are still vacant and underutilized. As noted earlier in this report, the development of new water dependent uses must recognize and honor the limitations presented by private ownership issues. In Coxsackie, the Twelve Tribes have been engaged in community discussions on the use of the waterfront and opportunities may exist for collaborative initiatives that will enhance the waterfront while not violating the group's basic beliefs and practices. While the reach does present some limitations to the further development of new water dependent uses, there are a number of sites and potential projects that could be undertaken.

Coxsackie Riverside Park

Coxsackie's Riverside Park is owned by NYS Office of Parks, Recreation and Historic Preservation (OPRHP) and is managed by the Village of Coxsackie through a Memorandum of Agreement. The facility was initially limited to the boat launch but was later expanded to the larger area it covers today when the old Baugh Fertilizer Plant site was acquired by the state. While the park is a local favorite, and directly services the local community, it can also be an effective resource for drawing visitors to the Village's waterfront. As noted earlier in this report, the success of an enhanced water dependent use strategy in Greene County is directly related to the ability to bring more people to the waterfront.

Over the years, the park has benefited tremendously from a strong community effort to undertake improvements. The site contains a large Victorian gazebo which was funded entirely by local donations. The gazebo is the largest of these structures along the Greene County waterfront and has proven very popular for concerts as well as weddings or wedding photos. When the gazebo was severely damaged by ice during the January 1996 flood event, the community again responded with donations or cash, materials and labor and the gazebo was fully restored that spring. Other

A new steel bulkhead, concrete promenade and modern lightweight docks were primary components of the parks recent rehabilitation

improvements that resulted from local efforts include a stamped concrete walk to the gazebo and period lighting.

In 2002-04, Coxsackie Riverside Park underwent extensive rehabilitation with over $700,000 in state funding and local donations invested in the improvements. Simultaneous with the rehabilitation of the park, the Village of Coxsackie also completed an extensive rehabilitation of the local road that leads to and from the park. The benefits from these efforts included a new and safer boat launch, rehabilitation of the shoreline bulkhead, a waterfront promenade, increased parking both within the park and along its perimeter, the removal of all overhead electrical lines along that section of the waterfront and a number of other improvements such as curbing and planted islands. While Coxsackie Riverside Park was fortunate to benefit from the extensive rehabilitation work, several components of a master plan for the park still need to be addressed. These include;

Rehabilitation of the Riverside Park shoreline included extensive bulk-head replacement as well as provision of a softer shoreline that allows passive access to the rivers edge.

- Construction of public restrooms and a snack bar type facility were included in the park's master site plan developed by OPRHP. The plan located the facilities at the southwest corner of the park near the entrance from Reed Street. Concept plans envisioned a facility similar to the Dutchmen's Gallery in Catskill's Dutchman's Landing Park with restrooms, a small snack bar and an outdoor plaza. At the time of the park's rehabilitation available funding was inadequate for the development of this component and several alternatives were discussed. Most promising was a proposal by the Twelve Tribes to provide restrooms in the existing historic structure they own at the park's edge. The Twelve Tribes proposed to develop and manage public bathrooms in conjunction with a snack bar type use in the remainder of the building. The proposal would have required a public/private partnership and a mechanism to allow the Twelve Tribes to utilize a portion of the state's property. While the proposal did not advance at that time, it should be a priority for reconsideration. The availability of public restroom facilities as well as the presence of a snack bar type facility would be a tremendous asset and help draw people to the waterfront. Priority should be given to renewing efforts to provide these facilities at the park.

- During reconstruction of the park, basketball courts and playground equipment was removed to accommodate the expansion of the trailer parking area and relocation of the park entrance. The playground equipment was also outdated and did not meet current safety standards. The Village is currently working with OPRHP to design and construct a new playground for younger children. The Village and OPRHP should thoroughly evaluate any plans to replace the basketball courts. While the courts were popular, they require significant space which is limited in this small park. Consideration must be given to the appropriateness of consuming valuable space for an activity which does not require or promote water dependent activities. Any further development of the park should be sensitive to limitations on the amount of land available, and the highest and best use of the space as it relates to the promotion of water dependent activities.

- A number of improvements can be undertaken to better promote use of the park by paddlecraft. These improvements can be quite simple and accomplished with limited funding. While paddlers currently use the motorboat launch area to access the river several opportunities exist to provide a dedicated launching site for paddlers. A separate launch site may be appropriate on the parks northeast corner just off the end of the remains of the Storm King ship, or in the small area of natural shoreline just south of the motor launch site. Improvements would be limited to creating a stabilized area to access the water and the removal of rocks and other hard materials on the river bottom that may damage canoes or kayaks. Additional improvements might include the installation of securable lockers and boat racks that could be used by transient boaters. An area for securing boats would provide paddlers the opportunity to land and visit the community for its shops and restaurant resources.

Paddleboat access can be provided my means of a simple stabilized ramp to the river's edge which is also free of hard materials.

- The development of additional seasonal dockage at the park would allow for more convenient access by visitors to the waterfront. Currently, only a single short section of dock is available. There is adequate room to extend the dockage north along the new bulkhead as well as the ability to add finger extensions to the existing dock to allow more room. Additionally, provisions should be made to provide a section of heavy duty dockage for use by small to mid size cruise ships

and well as the Sloop Clearwater. Heavy duty tie-offs secured directly to the steel bulkhead, a heavier dock style and reinforced swing-arms would be needed if the riverfront were to attract larger and heavier boats on a regular basis.

Dolan Block

The Dolan Block site is a unique property along the Village's waterfront. The site includes a large three story brick structure which once housed street level shops, a vaudeville theater and residential uses. Prior to the Twelve Tribes acquisition of the property, it had been vacant for many years and was experiencing significant decline. The building's roof with its prominent cupola was clearly in decline, with the cupola showing signs of collapse. The building is undergoing a complete restoration by the Twelve Tribes which is working towards restoration of the shops and the old theater.

The Dolan Block as viewed from the river's edge. Expansive open space and deep water depths at the bulkhead make this site attractive for the development of water dependent uses

While the property is currently not available for private development, the property has a number of characteristics that would make it very suitable for water development uses should the property become available in the future. The Twelve Tribes is very sensitive to local issues and is committed to helping the Village retain its historic character and vitality. Recommendations by the Twelve Tribes on the Village's comprehensive plan and proposed zoning ammendments resulted in several key changes that will benefit redevelopment of the Village's waterfront and historic district. The group is also open to discussions on possible ways to maximize the opportunities for use of the group's properties. Further discussions on joint efforts could result in strategies that would benefit all parties. Characteristics of the property that would support water dependent uses include;

- The large open space between the rear of the building and the river provides opportunities to develop parking to support businesses in the restored building or on the waterfront. Space is also available for additional improvements such as plazas, additional buildings and walkways.

- The waterfront is fully bulk-headed. While the bulkhead is in poor condition, it would be relatively easy to obtain permits for rehabilitation.

- The site has adequate water depth along the length of the bulkhead to support access by small to moderate sized boats. Development of dockage would be fairly easy as compared to other waterfront locations.

- The presence of the historic building, and its prominent location in the Village's downtown business district, provides opportunities to integrate the structure with any proposed water dependent uses. Restoration of the building for shops, restaurants or lodging could provided a diversified base for the property helping buffer the seasonal basis of water dependent uses.

Becker Electronics Site

The property generally known as the former site of Becker Electronics is located immediately south of the Dolan Block site. The site contains two older brick industrial buildings, a small wooden shed and several modern additions as accessory structure. The property was the initially the site of an iron foundry in the late 1700's and early 1800's, but in more modern times has been used by various light manufacturing including the production of wire, audio system components and hand crafted furniture.

The Becker Electronic building contains older industrial structures that would be suitable for rehabilitation

The site experienced significant flood damage in the January 1996 flood event and consistent use of the site was halted. The property remained mostly vacant until recently purchased by the Twelve Tribes. The site has some limitation for water dependent uses due to the condition of the shoreline. The configuration and condition of the piers and bulkheads present a challenge for any intensive use at shoreline. Bulkheads that once extended to the deeper water in the river have experienced significant degradation with the current shoreline having retreated over 100' from its former location. The remains of the former pier works are only visible at low tide, and restoration would be impractical in today's regulatory environment.

The site's buildings could also provide a wide range of opportunities for redevelopment consistent with a strategy to enhance the Village's waterfront. The buildings are structurally sound and the industrial type construction allows for a wide range of uses.

Paddlesports retail, arts and craft studios and shops and other commercial uses are examples of possible reuses. The Twelve Tribes is currently evaluating several strategies for reuse of the site. Preferred opportunities would include facilities that could be available for public use for weddings and other gatherings. While the shoreline is constrained for power boat uses, there are two small embayments on the waterfront that would be highly suitable for paddleboats launching.

Limitations on water dependent uses include the condition of the shoreline as well as the location of the site in the floodplain. The type of construction and placement of the historic buildings presents limitations to flood proofing the structures.

M.C. Carter Foundry Site

Immediately south of Becker Electronics is the site of the former M.C. Carter Foundry. The Sanborn maps indicate that a foundry was present on this site as early as the mid 1870's, with extensive expansion of the foundry in the 1890's. The site operated as a brass foundry until approximately 2001 and was vacant for several years until the property was sold. Initially, the site contained a number of large industrial structures which had been poorly maintained over the years. Failure in sections of the wooden pilings that had been driven into the fill for the buildings foundation had resulted in significant settling of the buildings making rehabilitation prohibitive.

Access to deep water, large open space and interesting historical structures are critical elements of the site's redevelopment for water dependent uses.

The current owner removed all of the unstable structures and retained two buildings that were in adequate shape for rehabilitation. Due to the site's history as a brass foundry, the property has been undergoing evaluation and will be remediated under the NYSDEC Brownfield Cleanup Program. The current owner is participating as a Volunteer under the program's rules which indicates the owner is not responsible for any past contamination at the site. The Remedial Investigation Work Plan is almost fully implemented and the

owner will soon begin discussions with NYSDEC and NYSDOH on implementation of a preferred alternative.

The site's testing has indicated low levels of contamination and it appears that remedial solutions may be within the capability of the owner. Redevelopment plans include the establishment of a marina with restaurant. Docking facilities are planned, but fuel and pump-out services are not being considered. The owner is in the very early stages of planning for the site's future use and will need to integrate any elements that may be required to meet site remediation goals. The property's characteristics present a number of benefits for water dependent use including;

- The existing bulkhead is in poor condition, but would be relatively easy to rehabilitate from a structural and permitting standpoint.

- Deep water access is present at the edge of the property, Water depths off the bulkhead are 6' or more just a couple feet off the bulkhead, The site's position on the outside of the bend in the river also provide natural scour and maintenance of the deep water.

- The site also includes frontage on the embayment to the south. This provides an opportunity for more passive access in a protected cover for activities such as canoeing and kayaking.

- The site contains ample space for parking to support the water dependent use.

- The site also contains property on the opposite side of South River Street. While a shallow lot, it does present opportunity for further commercial development that could share parking with the waterfront parcel.

Village of Coxsackie WWTP

The Village of Coxsackie's Waste Water Treatment Plant (WWTP) is located on the site of a former oil terminal just south of the Carter site. While not a priority recommendation, an opportunity to develop an access point to the river is possible. In the area along the site's north and east (riverside) edges, it would be possible to develop a narrow walkway that would lead to a viewing platform at the northeast corner of the property. A trail could be developed using heavy rock for a high bulkhead and moving the fence line 3-4 feet closer to the facility. An access point

could be developed for relatively low cost and could be designed so as to be very low maintenance and resistant to damage from flooding and ice. The site would serve as a "pocket" park and provide access to excellent views up river.

Proposed Zoning

Since 2005, the Village and Town of Coxsackie have been working on the development of a new comprehensive plan as well as revisions to their respective zoning. In the Village, a number of proposed changes to the zoning regulations are designed to promote water dependent uses and redevelopment of the Village's historic downtown. Proposed zoning changes include;

- A significant portion of the Village's waterfront is proposed to be rezoned from its current Industrial zoning to a new Waterfront Development zoning district. Permitted uses in the district include marinas, tour boats, boat sales and repairs, residential above commercial and other water dependent uses. Residential uses will be prohibited is a zone immediately along the river to preserve resources for water dependent uses.

- Established a Waterfront Recreation zoning district which promotes parks, trails, launching sites, boat docks and other activities consistent with low intensity use of the shoreline.

- Establishing standards for set back requirements from the river with exceptions for structures related to water dependent uses.

- In the adjoining Village Center zoning district, zero lot line setbacks will be allowed. This will allow effective infill of lots in the downtown facade as well as allow for new development that mimics historic development patterns.

Section 6
Village of Athens

The Village of Athens has had a long history of water dependent uses that continues to this day. Similar to the Village's of Coxsackie and Catskill as well as the hamlet of New Baltimore, the Athens waterfront was once teaming with activities such as ship building, brick production, shipping, ferry services and the ice industry. The Village also had one of the last remaining ferry boats in the upper Hudson Valley which ran until the late 1930's. The completion of the Rip Van Winkle Bridge in 1935 signaled the end of the last ferry in Greene County.

Today, the evidence of this rich maritime heritage remains in the deteriorated bulkheads, boat remains and old buildings which dominate the Village's waterfront. Like the rest of the Greene County's waterfront communities, the decline of the Hudson Valley's industrial base as well as the river's water quality was especially hard on the Village of Athens. The waterfront which was once the economic engine of the community was abandoned and fell into disrepair. As the river steadily improves and the Hudson Valley builds upon its tourism based economy, these abandoned or underutilized waterfront sites have once again become valuable. Sites such as the Riverfront Park and Athens on the Hudson marina are all planning or implementing expansions and improvements.

For the purpose of this report, the Village's waterfront was delineated into three overlapping zone or reaches. Athens North covers the section from the Athens on the Hudson Marina to the Peckham North Terminal (Amos Post). Athens Center covers extends just north of the Athens Waste Water Treatment Plant (WWTP) while most of the core village waterfront is covered in Athens South. Over all three of the zones, common themes or issues related to physical and ecological features are present. While each zone has its own unique characteristics, topography, wetlands, floodplains and navigation issues are common along the entire waterfront. Key features include;

- The presence of Athens Middleground Flats Island provides for a protected back channel along almost the entire village waterfront. The back channel is isolated

from the higher energy present in the main shipping channel and provides conditions highly suitable for marina uses.

- Extensive wetland complexes are present in areas along the entire village shoreline. The area is part of the Vosberg Swamp-Middle Ground Island Significant Coastal Habitat Area (Figure 9). Large areas of high quality tidal wetlands are present in all sections, but are dominant on the Athens North and Athens South zones.

- Regulatory floodplains cover broad areas of the Village's waterfront. Almost without exception, sites currently used as or suitable for water dependent uses are located within the regulated floodplain. Extensive flooding of the waterfront in January 1996 served as a reminder of the potential for flood damage along the river

6.1 Community Goals

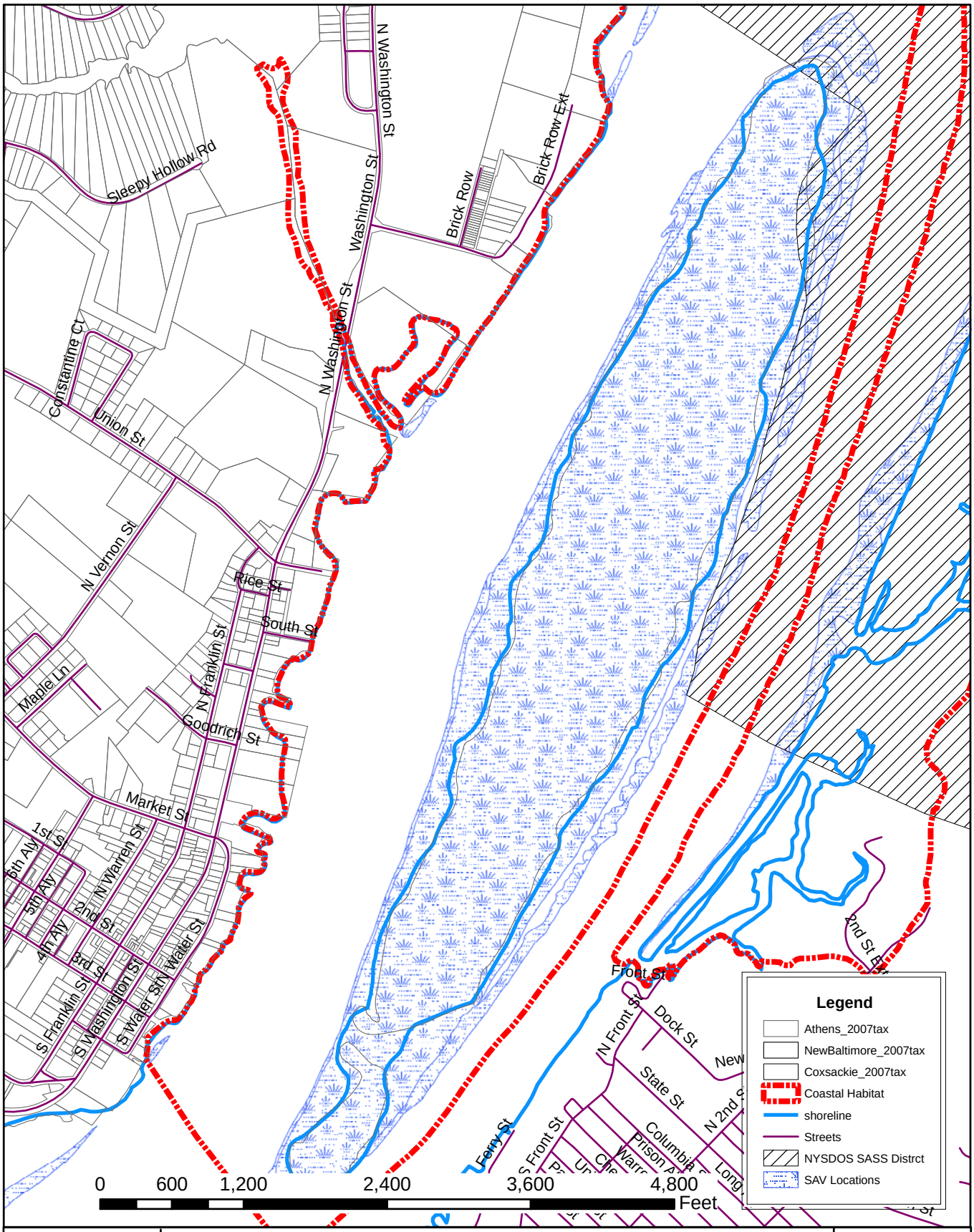
> "The clean and ecologically healthy Hudson River waterfront provides excellent access to the public for a variety of outdoor recreational activities and business enterprises, the charming Village waterfront is linked to convenient historic downtown shopping areas"
>
> *Vision Statement, Joint Athens Comprehensive Pan (2007)*

During a two year period between 2005 and 2007 the Village and Town of Athens worked to develop a joint comprehensive plan for the two communities. While New Baltimore, Coxsackie and Catskill also recently developed new comprehensive plans, the Athens comprehensive plan included far more detail on goals and recommendations for the future of its waterfront. In almost all sections of the comprehensive plan, Athens has made valuable connections between the future of the community and the role the Hudson River. Recommendations include both larger scale projects that will take years of planning and resource development, as well as a wide range of recommendations that could be achieved in a relatively short period of time. Together, these recommendations demonstrate the priority of developing the Village's water dependent economy. Key recommendations in the comprehensive plan can be summarized as follows;

Riverfront Improvements

- Implement projects as identified in the Village's Local Waterfront Revitalization Program (LWRP) to include rehabilitation of the Village's Riverfront Park and 4th Street Boat Launch. Expand uses of the Village's waterfront.

- Dredge and restore the historic ferry slip to develop infrastructure for use by heavy tour boats. Also provide facilities such a small building that can be used as a ticket center and rest rooms. Work to attract a tour boat operation that could run between Athens and Hudson as well as the Hudson-Athens Lighthouse.



Community Natural Resource Solutions

Greene County Water Dependent Use Inventory and Assessment

Figure 9: Significant Coastal Habitats, SASS and SAV Beds in Athens

- ❖ Implement aesthetic improvements to the waterfront area and adjoining historic buildings.

- ❖ Develop additional parking resources in support of revitalized riverfront facilities.

Tourism and Promotion

- ❖ Continue to participate in regional events and programs such as the Great Hudson River Paddle.

Open Space, Environmental, Natural Resources and Scenic Views

- ❖ Work with Town of Athens to develop a Local Waterfront Revitalization Plan (LWRP) which builds upon the Village's LWRP and focuses on habitat and natural resource conservation.

- ❖ Seek to limit future waterfront construction to existing developed areas using redevelopment of existing structures and infill development as the Village's downtown economy continues to expand.

- ❖ Establish local ordinances targeted at marina businesses to insure protection of natural resources.

Vosburgs Swamp is a critical habitat area and presents great opportunities for birding

Transportation and Pedestrian

- ❖ Study potential for pedestrian connection between Brandow's Point Preserve and the Village of Athens.

- ❖ Encourage use of the Hudson River as part of the transportation system. Establish a boat tour operation or ferry service between Athens, Hudson and the lighthouse.

Historic, Cultural and Recreational Resources

- ❖ Increase waterfront awareness. Develop interpretive guides, walking tours of main historic and waterfront sites and sponsor waterfront history and nature programs.

- ❖ Develop a unified theme and message between the various preserves and access points along the Athens shoreline.

- ❖ Work with NYSDOT and adjacent communities to implement a comprehensive signage program to draw visitors to the waterfront areas in Greene County.

- ❖ Promote Hudson River Water Trail sites within the Town and Village.

- ❖ Protect important wetland habitats near Vosburg's Swamp and the shallows and wooded bluffs south of the Village.

- ❖ Secure access to scenic waterfront parcels for additional pedestrian links.

- ❖ Encourage the development of marinas as well as kayak and bike rentals at riverfront parcels.

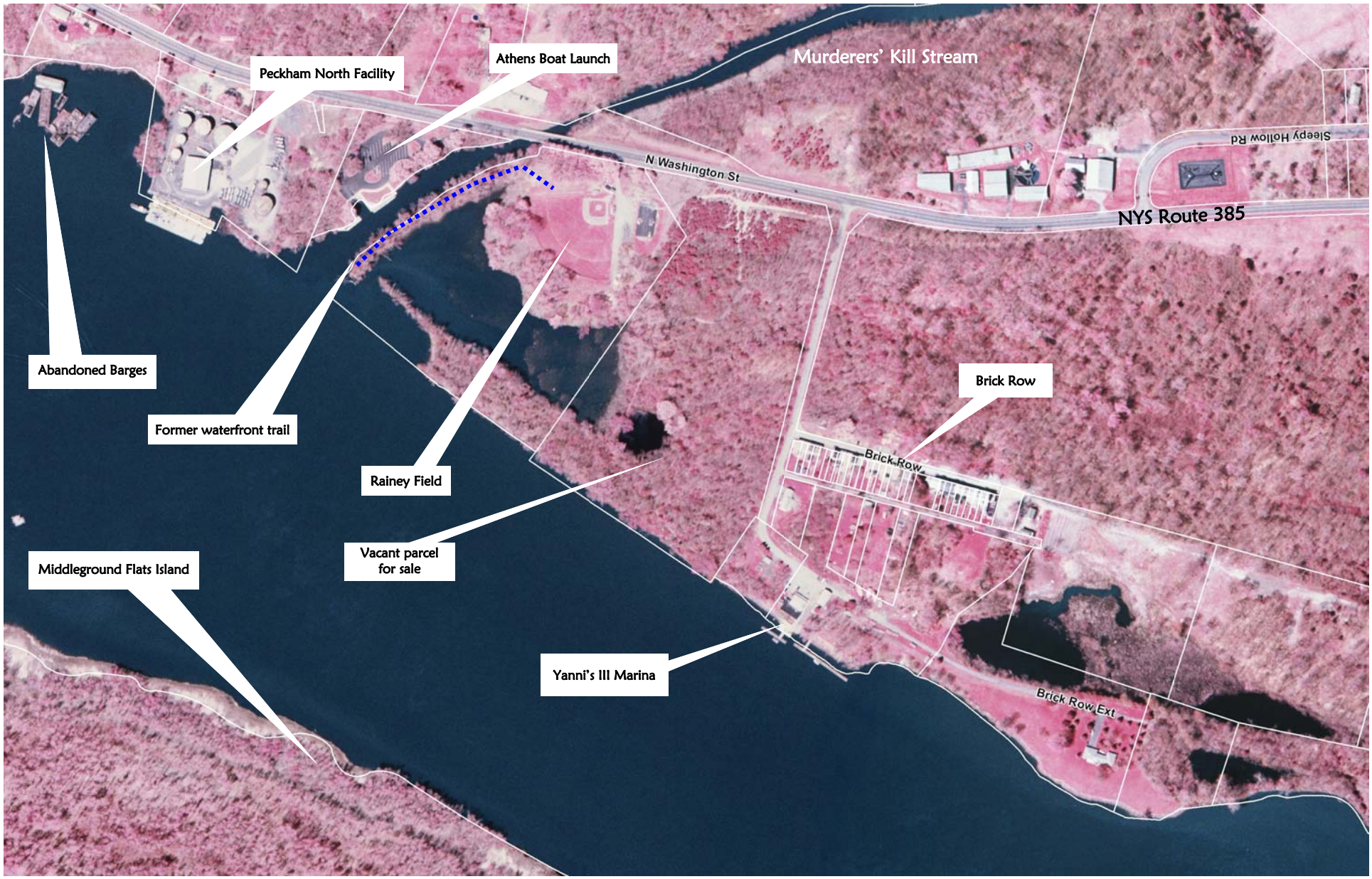
Clearly, the Athens Comprehensive plan sets forth an aggressive yet reachable plan for its waterfront. Cumulatively, the many recommendations set forth in the comprehensive plan can be expected to have a very positive impact on the Village's waterfront and water dependent based economy. Many of these recommendations are discussed in further detail in the following sections.

6.2 Athens North

The Athens North zone, starts just above the Athens on the Hudson Marina and runs to the Peckham North (Amos Post) Terminal (Figure 10). The entire zone is located along the Middleground Flats Island backwater and is protected from the main shipping channel. The zone currently has three significant water dependent uses including the Athens on the Hudson Marina, the Athens Boat Launch and the Peckham Terminal. Additionally, key opportunities exist to further enhance water dependent uses in this reach of the waterfront.

Shallow areas along Athens Middleground Island are important wetland habitats for many species.

The entire zone is characterized by some significant limitations based on floodplains and wetlands (Figure 11). On the south end of the reach, a large tidal wetland is located along the lower Murderer's Kill Creek, and extends north covering the area between Rainey Field and the river. The wetland has high diversity and includes tidal marsh, non-tidal wetlands and forested wetlands.



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Coxsackie, NY 12051

Mapping Assistance by Delaware Engineering P.C.

Not to Scale

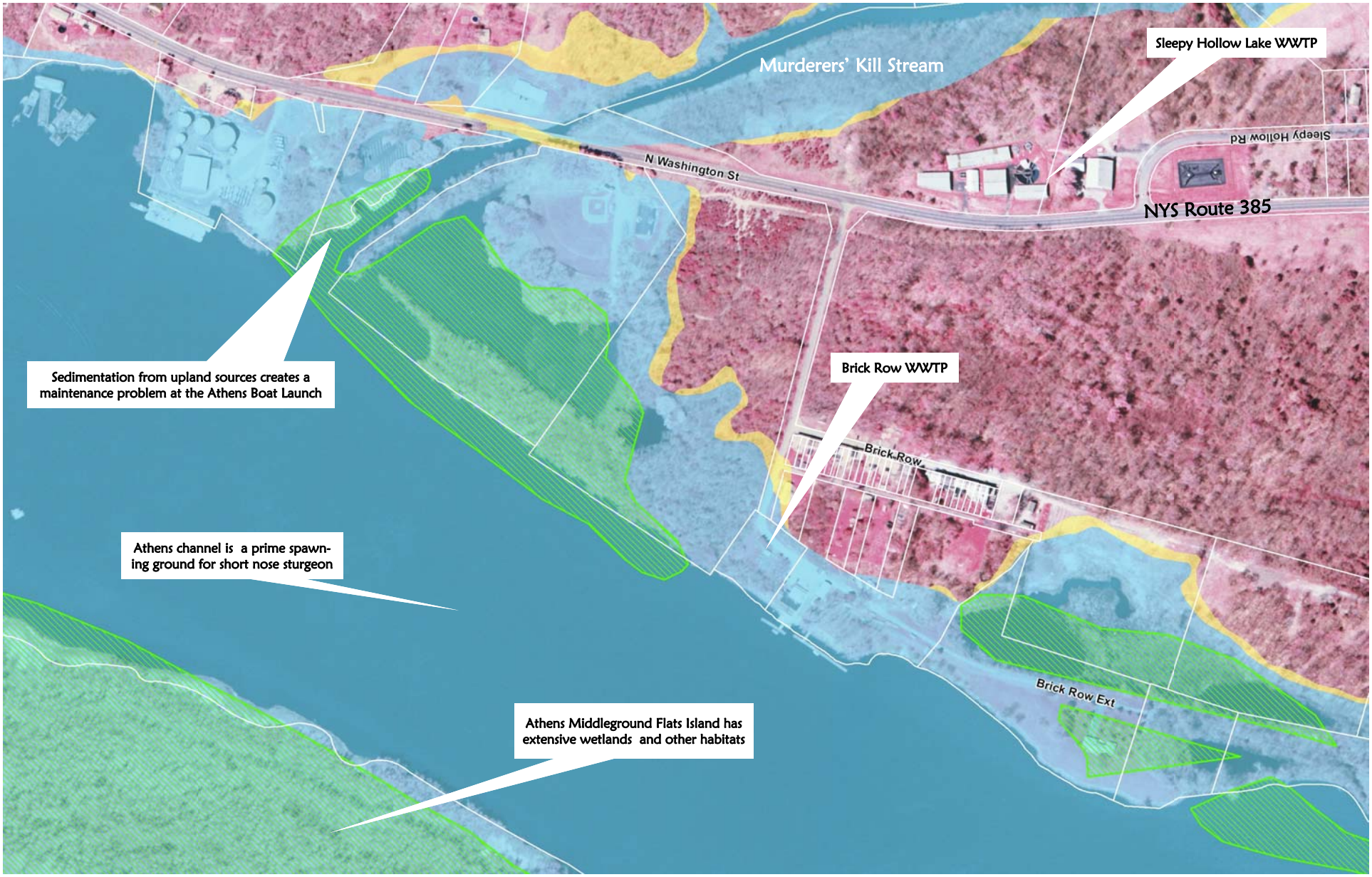
Greene County Water Dependent Use Inventory and Assessment

Village of Athens North
Waterfront Inventory

Legend
- Town Boundary
- NYSDEC Freshwater Wetlands
- 100 Year Flood Zone
- 500 Year Flood Zone

W N S E

Figure 10



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Not to Scale

Greene County Water Dependent Use Inventory and Assessment

Village of Athens North
Environmental Constraints

Legend
- Town Boundary
- NYSDEC Freshwater Wetlands
- 100 Year Flood Zone
- 500 Year Flood Zone

W S N E

Figure 11

Additionally, significant areas of non-tidal wetlands are located between the shore and the upland bluffs just north of the marina. While these wetlands do present a challenge to waterfront development, they also represent an important asset. The wetlands provide opportunities for the development of passive activities. The wetlands are also important for fisheries habitat and contribute to the fishing resource in the area.

Floodplains along the reach are also extensive and cover essentially all of the flatter land along the river. As designated on FEMA Flood Insurance Rating Maps (FIRM), the Peckham Facility, boat launch and marina are all located with in the floodplain. While the Peckham facility does have some provisions to mitigate flooding, the marina and boat launch have no such protective measures. The Boat launch facility was designed to allow for flooding. The bulkheads and promenades are of heavy construction and can withstand flooding. Dock and ramps however have been subject to damage primarily associated with flood discharges from Murderer's Kill Creek. There have also been impacts to the docks and ramps during periods of flood tides as the docks elevate past their normal operating range. At the marina, the site low elevation and the lack of any protective measures make it vulnerable to flood damage. Fortunately, extreme floods such as the January 1996 event are rare since the construction of the Great Sacandoga Reservoir. Flood protection measures such as building elevation, waterproofing and heavy construction of docks and piers can greatly minimize disruption and economic losses.

Athens-on-the-Hudson Marina

Located on the northern limits of the zone, the Athens-on-the-Hudson is an important water dependent use in the Village of Athens. The facility includes seasonal as well as transient docks and offers a full service restaurant facility. Fuel and pump-off services are not offered. The property has capacity for approximately 40 boats and has 15' or more of water at low tide. The marina is one of the few places that can handle deeper draft boats north of Newberg. The property also includes significant underwater rights and most of the shoreline is bulk-headed.

The Athens-on-the-Hudson Marina has deep water dockage and a waterfront restaurant that is very popular.

A small natural cove in located in the northeast corner of the property and could

allow for foot access to the waterfront. Formerly known as Hagar's Harbor, the marina has recently changed ownership. The restaurant and exterior areas have undergone extensive renovations, and are currently operated as Yanni III.

The Athens-on-the-Hudson marina has significant potential for development of additional water dependent uses. While many waterfront properties located within the county's villages are often limited in size, the marina property includes a fairly large open area along the water as well as upland areas between the restaurant and Brick Row. The open space along the river would allow for additional uses such as an improved picnic area, a retail store, larger boat repair shop, a kayak/canoe rental or touring operation or any number of other water dependent uses.

Deep water, extensive underwater rights and the protected channel behind Athens Middleground Flats Island make the site ideal for marina uses.

The upland area west of the current buildings may be suitable for the development of residential or hospitality including townhouses or a small hotel. The past owners of the property had proposed the potential expansion of the facility to include a motel type use but never moved forward with the concept. Underwater land rights at the property also provide an opportunity for a significant expansion of the marina's docks.

In addition to opportunities for further water dependent uses on the current marina site, properties to the north and south of the marina could be integrated into a larger project. The property to the north is currently a private residence property but would be highly suitable for expansion of the marina. The property is mostly open and has been well maintained. A moderate sized wetland is located along the property's western edge, but would not significantly impact development and could double the marina's access to the river.

To the South, a large vacant parcel could also be integrated with the current marina site. While that property does have significant limitations due to wetlands along the riverfront, the properties shoreline is fully bulk-headed and would allow for the extension of the marina's docks. Passive recreation activities such as a small campground, trails or limited sports facilities may be appropriate in the lower portions of the vacant parcel while some form of housing could be developed in the uplands. A townhouse project that provides residents with access to boat slips at the marina is one possibility. Further development of water dependent uses at the Athens-on-the-Hudson marina would benefit from the availability of open land, relatively minor environmental impacts and the presence of municipal water and waste water.

Rainey Field

Located on the north side of Murderers Kill Stream, the Isabella Rainey Park is the site of a softball field with a limited parking area as well as a picnic area. The park is located on the site of an old landfill and is on the edge of a large wetland complex along the river. The property is constrained by the stream to the south, the river and wetlands to the east and the proximity of the adjoining property to the north.

A Wildlife viewing platform was constructed at the eastern limit of Murderer's Kill Nature Trail at the rivers edge.

In the early 1990's, the Village of Athens undertook limited improvements at the site utilizing funding from the Iroquois Gas Transmission System Land Enhancement and Acquisition Fund (LEAP). At the time, there was limited opportunity to make significant improvements at the site. Expansion of the parking area was not possible due to the lack of space and plans for additional fill over the ball field to improve its surface were also not possible due to the presence of the wetlands to the east as well as issues related to the former landfill. Improvements were limited to the development of new signage, planting of the deciduous trees in the picnic area and the development of the Murderer's Kill Nature Trail. The trail was constructed on the narrow sliver of land between the park and the creek and included a small observation platform at its terminus. For a number if reasons the trail saw little use and fell into disrepair.

Opportunities for further development of water dependent uses on the current property are constrained by several factors. Along the creek, the width of the uplands provides limited space for a trail. The area is characterized by a poor surface conditions related to exposed roots from the large cottonwoods and the presence of old bulkheads. The area is also overgrown with extensive patches of poison ivy. Any attempts to provide safe access along the creek would require extensive disturbance and on-going maintenance. Development of a creek side trail is impractical given current site conditions. With tidal wetlands to the east, the ability to expand the current ball field by further fill would not be permitted by regulatory agencies. Space constraints between the existing ball field and the adjoining property the north also limit further development.

There is however a unique opportunity associated with this site to develop a mixed use plan that would include passive recreation, limited development and the restoration of tidal wetlands. These plans would require integration of the large vacant parcel to the north. This parcel has been vacant for as long as 100 years, and has been actively marketed for at least the last 10 years. While the property is large, it has serious constraints. The limited flat land is located along NYS Route 385 directly across the street from the Sleepy Hollow Lake waste water treatment plant which would be expected to impact potential uses.

Opportunities to create additional tidal wetland mitigation areas such as this one constructed by NYSDOT in the Village of Athens may be possible in the Rainey Park area.

Much of the property is characterized by a steep east facing slope with flatter areas at the base of the slope dominated by wetland conditions. The southeast portion of the property includes a large portion of the tidal wetland behind the old bulkheads. The property does include a bulk-headed shoreline with deep draft which would be suitable for docks. With some progress site planning and a great deal of coordination, a joint public/private venture could provide significant enhancements to water dependent uses in this area. Potential activities could include;

- The Village or another entity should work to acquire the large parcel adjacent to Rainey Field. While the site has extensive environmental constraints, opportunities exist for low impact development, creation of public access and development of new or expanded waterfront docks. It is reasonable to suspect that the inability of the owner to sell the property to date is strongly influenced by the fact that as much as 80-90% of the property is only suitable for conservation and passive recreation purposes. Potential developers would be challenged to develop a project that could address cost as well as environmental factors.

- An alternative would be to structure a public/private partnership that could develop a sound plan for mixed use of the property that can generate the necessary funding, protect natural resources and enhance public access. An entity such as the Village of Athens or Greene Land Trust could seek grants from multiple public and private sources to cover acquisition and public access improvements. Matching fund requirements could be met by selling a small section(s) of the property that have the potential for small scale development. For example, some areas along Brick Row Road could support the development of a limited number

of townhouses or even workforce housing rental units. The ability to link the residential units to dock access along the river would add significant value to any project and generate higher value.

- The project sponsor would need to complete a development plan for the site that would inventory natural resource conditions and provide for a detailed strategy for use of the site. Most critical, would be the selection of areas for development. It would be recommended that the project utilize Low Impact Design (LID) principals as well as other criterion that would make the development a model project for site design. Additionally, requirements for LEED certification of any development could provide a unique opportunity to market the project.

Wooded parcel between Rainey Field and Brick Row Road could be creatively developed with special attention to the extensive wetlands along the river.

- The waterfront along the vacant parcel is ideal for development of a marina. Options could include an arrangement with the Athens-on-the-Hudson to extend their docks or a new private dockage associated with the upland development. In either case, appropriate studies and permits will be needed. It would be recommended that the docks not extend the entire length of the waterfront.

- An area in the uppermost portion of the site near 385 could be developed for public access. A parking area, trail head, picnic area and limited recreational facilities could be constructed in that portion of the site that has the least environmental impacts.

- At Rainey field, one option would be to relocate the existing softball field to an alternate location and undertake the development of a wetland mitigation bank on the site of the current field. While further investigations would be needed to determine the extent and impact of the former landfill, sites for tidal wetland restoration along the Hudson River are limited and have significant value. Agencies such as NYSDOT, as well as local municipalities and private developers often have projects that impact tidal wetland and must be off set by wetland mitigation. Recently, a similar project in the Village of Athens was conducted as a partnership between the Village of Athens and NYSDOT. The Village provided a site that had limited potential for development while NYSDOT provided all

planning, design, permitting and construction of a tidal wetland. The project provided mitigation for NYSDOT'S as well as additional area that was proposed to offset impacts associated with the Village's Riverfront Park rehabilitation. Creation of a tidal wetland would require excavation of the fill which could be placed in upland areas and stabilized. A partnership between the Village of Athens and an entity such as the Greene County Industrial Development Agency (GCIDA) could provide a valuable resource that would easily cover the cost of relocating the ball field to an alternate location.

Murderers Kill Creek

The Murderer's Kill Creek is tidal for the short distance between the river and the plunge pool at the Sleepy Hollow Lake dam. The NYS Parks and recreation owns and maintains a public launch site on the creek which had extensive rehabilitation several years ago. The creek is shallow at low tide which limits the size of boats using the boat launch and a low bridge at route 395 limits upstream navigation. The site of the current boat launch was once the Malone Brick Yard and historical photos show extensive bulk-heading along the entire lower reach and barges parked in the creel for loading brick. Potential water dependent use enhancements could include;

The lower Murdererskill Stream is navigable by paddle boats and small outboards.

- The provision of amenities for paddlesports such as kayak racks and lockers at the public boat launch. The launch is a Hudson River Water Trail designated site.

- Property above the bridge on the south side of the creek is privately owned. The site would be suitable for access by canoes or kayaks and may be an appropriate location for a Paddlesports retailer or rental/touring business. While a former commercial building on the site has been converted to residential uses, a water dependent related business could revert the building to a commercial use, or construct a new building in the rear. The site would provide access to protected waters as well as ample room for parking and storage of boats.

Peckham Terminal

The Peckham North terminal, often known as the Amos Post site provides a significant opportunity for the development of water dependent uses. At the present time,

Peckham is working with the Greene County IDA on the development of a new site in the Town of Athens that will provide the company access to rail transportation. As a component of that project, Peckham will be relocating the tanks and maintenance facility to the new site.

The Peckham north terminal will be relocated by with plans to redevelop the site in a non-industrial use consistent with Athens LWRP.

Agreements between Peckham and the IDA call for the riverfront site to be developed for a non-industrial use and in consultation with the Village of Athens. Primary goals would be to develop a project that has a financial benefit to Peckham and Village while remaining protective of natural resources and the Village's character. Potential use could be a marina, hospitality, residential or commercial. The Village of Athens and the Athens Local Development Corporation will be valuable partners and may be able to help generate incentives to insure the type of development most appropriate for the site.

While the property does include areas constrained by wetlands, it has a working dock that is capable of handling larger boats and most of the site is already impacted by development. Redevelopment of the site will face some challenges, but the current use and condition will make permitting issues much easier.

6.3 Athens Center

The center zone of the Village of Athens waterfront starts at the site of the old barges on the north and runs to the NYSDOT mitigation site to the south (Figure 12). The reach includes two water dependent uses at the Peckham South terminal and a small private marina. Much of the reach is characterized by residential properties, but several properties are underutilized and present opportunities for significant water dependent use. Similar to the Athens North and South zones, the center zone is also protected from the main shipping channel by Athens Middleground Flats Island.

Peckham's asphalt facility at Union Street is one of only a handful of active industrial water dependent sites in Greene County

A proposal in the late 1990's to dredge a

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Not to Scale

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Village of Athens Center
Waterfront Inventory

Legend
- Town Boundary
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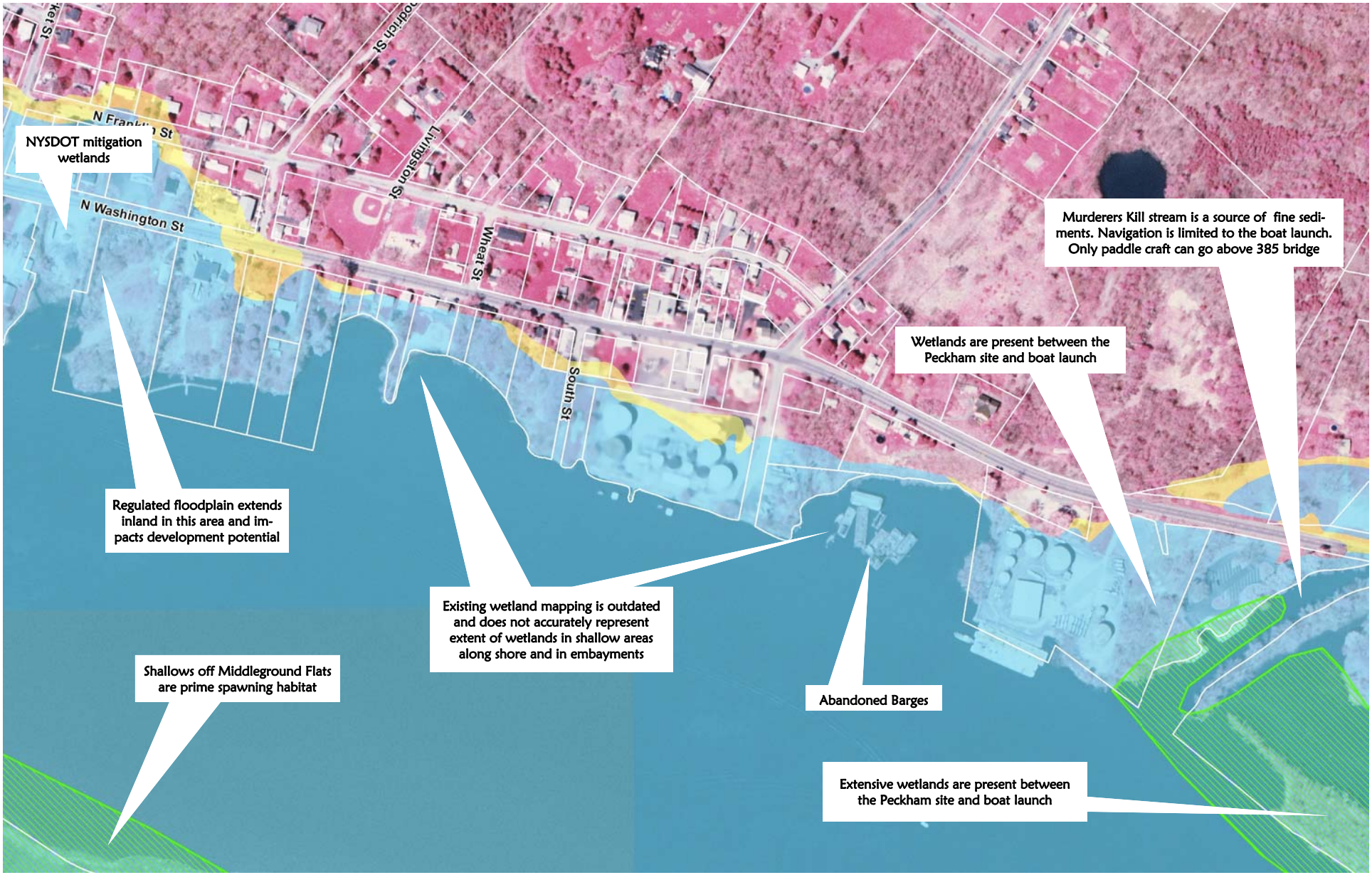
- 100 Year Flood Zone
- 500 Year Flood Zone

W N S E

Figure 12



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W N S E

Figure 13

deeper shipping channel between the Hudson-Athens Lighthouse and the Peckham Terminals and a turning basin for turning barges at the terminal never moved past the feasibility study due to the identification of significant environmental and cost factors. After several years of evaluation, including underwater surveys, sediment sampling, archeology and environmental impact analysis, it was determined by the Army Corps of Engineers that plans to establish a federal shipping channel to the Peckham facilities was not feasible and the project was formally closed.

While the zone presents opportunities for further development of water dependent uses, it also faces significant environmental constraints (Figure 13). All of the flatter terrain along this reach is located within the regulatory floodplain which extends well inland on the southern limits of the zone. Containment berms at the Peckham facility provide protection from flooding at the site, but in the remainder of the zone there are no measures to reduce flooding impacts.

The reach has numerous private properties along the river that have made significant investments in their waterfront.

In addition to the limitations presented by the regulated floodplain, the reach also has extensive areas of tidal wetlands. The current mapping layer for the NYSDEC protected wetlands is outdated and highly in accurate in this reach. While mapping (Figure 10) appears to indicate that there are no wetlands in this area, there are extensive pockets of wetlands in the several coves and embayment's present in the reach as well as along the tidal fringe.

Wetlands are also present along the margins of Athens Middleground Flats Island on the eastern edge of the reach. While not currently mapped, these wetlands are protected, and fall under the jurisdiction of the NYSDEC as well as Army Corps of Engineers. The entire reach is also located within the Vosberg's Swamp-Middleground Flats Significant Coastal Habitat Area and the islands backwater channel has been identified as a primary spawning area for sturgeon.

The zone does present several opportunities for projects related to the development of future water dependent uses as well as general aesthetics of the area. Removal of the abandoned barges, potential reuse of the Peckham Terminal and the development of new or enhanced water dependent activities on several underutilized parcels in the southern part of the zone are discussed here.

Abandoned Barges

The presence of the abandoned barges on the waterfront has been a concern in the Village of Athens for at least 20 years. The presence of the barges and the visual blight they represented was identified in the Village's LWRP as early as 1998. In the recent Village and Town Comprehensive Plan, the barges and a desire to remove them were again identified.

A collection of old work barges on the Athens waterfront have been an eyesore for the past 30 years. Removal of the barges presents a number of challenges.

While there appears to be no formal record of the barges history on the waterfront, interviews with various village residents over the past several years indicates that the barges were moved to the present location in the early to mid 1970's. According to village residents, the barges were obtained at auction in New York City and towed to their present location. Reportedly, plans for the barges included restoration into a complex of waterfront restaurants and possibly some form of hospitality use. Clearly, no work was even undertaken on the restoration of the barges and they have continued to fall into a state of disrepair over the past 30 years.

While there is a strong desire to see the barges removed, a number of issues must first be addressed. Any plans to remove all or parts of the barges and other boats would need to address ownership, environmental and cultural resources issues. As summarized below;

- Prior to any work being undertaken, ownership of the barges must be determined. The person that purchased the barges and moved them to this location reportedly lived in a house that no longer exists in the narrow area between the bay and route 385. This person is deceased, and it has not been determined how ownership of the barges was addressed in the former owner's estate. While Peckham has acquired the upland parcel they were unable to determine the status of the barges in the estate from which they purchased the property. It does not appear that the barges are located in an area where underwater rights extended from the shore, and as such it is likely that the barges would be considered as abandoned property which is sitting on underwater lands owned by the state of New York. Further investigation of the barges ownership as well as the land underneath will be necessary before any action could be taken.

- In regards to ecological factors, the barges were moored in a shallow bay which is characterized by mudflats at low tide. Over the years, sediment deposition in and around the barges and the establishment of wetland vegetation has resulted in a condition where the barges are firmly imbedded in a tidal wetland. In addition to the wetland characteristics around the barges, their deteriorated state has resulted in the interior of the barges being flooded and accessible. The interiors of the barges may play a role in providing protective cover small fish. Any proposal to remove or otherwise alter the barges would require a through investigation of the site's use by fish. It is likely that any removal would be limited to the portions above the high tide line, with the lower portions of the barges being left. It may also be necessary to lie some of the timbers over the cut off hulls to replicate to cover. While partial removal would still leave evidence of the barges, eventually the timbers would be come vegetated and the barges would be no more visible that the miles of old bulkhead that line the shore.

Derrick cranes on barges such as this one are typically used to drive wooden pilings in the construction and rehabilitation of bulkheads.

- The final issue that would need to be considered is related to the potential historical significance of any or all of the barges. It is highly likely that some of the structures may be eligible for listing on the National Register of Historic Places and as such a complete archeological review would be necessary. In this case, photo documentation of the barges as well as research into their history would typically be required before any removal actions.

While removal of the barge superstructure would greatly benefit the Village's waterfront from an aesthetics standpoint, potential reuse of the area would be very limited. The presence of shallow water and extensive water combined with the lack of suitable upland areas for development, would limit the use of the site.

Peckham South Terminal

The Peckham South Terminal is a primary shipping and receiving point for the company's liquid asphalt business. Product is received by barges and off-loaded to holdings tanks before being distributed to end users by tractor trailer. The site also includes the firm's office as well as a laboratory facility for testing product. While it is highly unlikely that such a facility would be permitted in the middle of a historic village waterfront if constructed today, when the current business was developed it was simply using a waterfront site that once included a large ice house owned by Knickerbocker Ice Company. Over the years, Peckham has worked diligently to be a good neighbor and to address any problems that may arise.

The Peckham terminal at Union Street is one of the few remaining industrial users who rely on water transportation. The abandoned barges can be seen to the north of the terminal.

As noted earlier, over the years Peckham has experienced difficulties due to sedimentation in the channel which limits the size and capacity of barges that the site can receive. The channel is constrained by a 16 foot depth at low tide which limits the draft of barges received. Typically, barges received at the site are only partially filled. The inability to bring in fill barges results in a financial disadvantage for the company. While Peckham is seeing an industry trend that is making rail road delivery of product more feasible, the ability to receive shipments by barge is still a critical component of the company's operations. With the development of a new rail facility west of the village, Peckham will have the ability to receive product by either water or rail which gives them a competitive advantage and the ability to respond to changes in sources of liquid asphalt.

It is unlikely that the terminal will become obsolete in the foreseeable future and it would be expected to remain as a feature in the village. Peckham has worked cooperatively with the village to minimize the impact of the facility to the maximum extent possible. Fencing, vegetative screening and color selection for a new tank are some of the techniques that Peckham has employed to minimize its impact. In addition, it has instituted odor control technologies and worked to acquire adjoining residential properties that may be impacted by the facility. In the event that the site becomes obsolete in terms of barge deliveries, there would be great potential to redevelop the site.

Former Ice House Parcels

South of the Peckham facility the remainder of the reach is primarily residential with a single commercial use which includes a small private marina. Between South Street and the small marina at Athens Deli, the reach includes the historic Van Loan house as well as several private residences. In many cases, these owners have undertaken significant efforts to maintain the shoreline for their personal use and enjoyment. In addition to the current residential use, much of the shoreline in this reach is also characterized by tidal wetlands which present a challenge to any significant development.

On the south end, the reach between the Village Green and the post office was once the location of a very large ice house based on the 1895 and earlier Sanborn maps. Today, the site includes two narrow residential properties on the north end and two larger parcels on the south. One of the larger parcels includes commercial uses along route 385 and a small private marina. The largest of the parcels is located across from the post office, and includes a single trailer that is used as a primary residence.

The former icehouse site in the reach includes two properties which have significant potential for water dependent use.

While the two southern most parcels in the reach are currently not available for development, there is significant potential for the development of water dependent uses. Together, the two parcels represent the largest area along the Athens waterfront that is dry yet undeveloped. On the northern lot, the existing automotive repair and fuel delivery business do not have any water dependent connection. Each of these businesses could be located in alternate, off river locations, without any direct impact on the business. On the southern parcel, a single residential trailer is located on a large parcel that could support substantial development for water dependent uses.

As noted in the beginning of this report, the intention is not to be critical of any current owners or uses on waterfront properties. The authors recognize and stress the importance of individual property rights and only seek to provide ideas for further discussion. Also, a Hudson River waterfront owner, the author also understands the strong attraction between waterfront owners and their love of the river. Like all properties, ownership and circumstances change over time and perhaps in the future these sites will become available for water dependent uses. If the five parcels that represent the footprint of the former ice house could ever be consolidated or developed

cooperatively, it would represent one of if not the largest parcels for waterfront development.

These particular properties present some unique opportunities for future development. Individually or combined, these parcels represent a significant area when compared to the availability of vacant or underutilized Hudson River land in Athens or any of the other riverfront villages in Greene County. The five parcels that make up the former icehouse are approximately 6.5 acres and 750 feet of waterfront that is flat and relatively free from environmental constraints. The properties appear to have limited upland wetland features though and proposal for shoreline or dock work would require an extensive environmental review. The parcels are also located directly on Route 385 for easy vehicle access and they are also in close proximity to allow walking to the Villages commercial core. Ready access to a full suite of infrastructure is also a benefit. While the properties are located within a regulated floodplain, elevation of critical facilities and effective flood proofing techniques can be integrated into building and site design. The properties also include significant frontage on the river, with relatively deep draft and excellent protection due to its location on the Athens-Middleground Island backwater.

Potential uses of the site could be a combination of a small boutique hotel, restaurant, marina and boat servicing. Due to the large size of the lots, parking which is a significant limitation in most of the Village's waterfront area could be easily addressed. Potentially, a joint public/private project could provide public marina facilities to encourage day and overnight visitors to the Village. The site's location on Route 385 would benefit drawing non-boating visitors to the hotel of other facilities. The size of the parcels and availability of parking could also allow for uses that might be expected to draw non-boaters to the river.

6.4 Athens South

The Athens South reach was delineated as running from the Village of Athens Wastewater Treatment Plant south to the current site of Elco Boats (Figure 14). The reach includes the heart of the Village's commercial area, and contains a number of current or former industrial sites along the waterfront. This section also includes the Village's Riverfront Park and Forth Street Launch sites. In recent years, the reach has been the focus of activity on the Athens waterfront with new and renovated homes, a restaurant and soon to be implemented improvements at the Athens Waterfront Park, Forth Street Kayak Launch and the Elco site. These completed and soon to be implemented projects represent a significant investment in this area of the Village's waterfront. The riverfront area in the Village has significant architectural character. Over the past 10 years a number of movies have been filmed in the Athens waterfront area to take advantage of its old buildings and historic riverfront character.

Community Natural Resource Solutions
81 South River Street
Coxsackie, NY 12051

Mapping Assistance by Delaware Engineering P.C.

Not to Scale

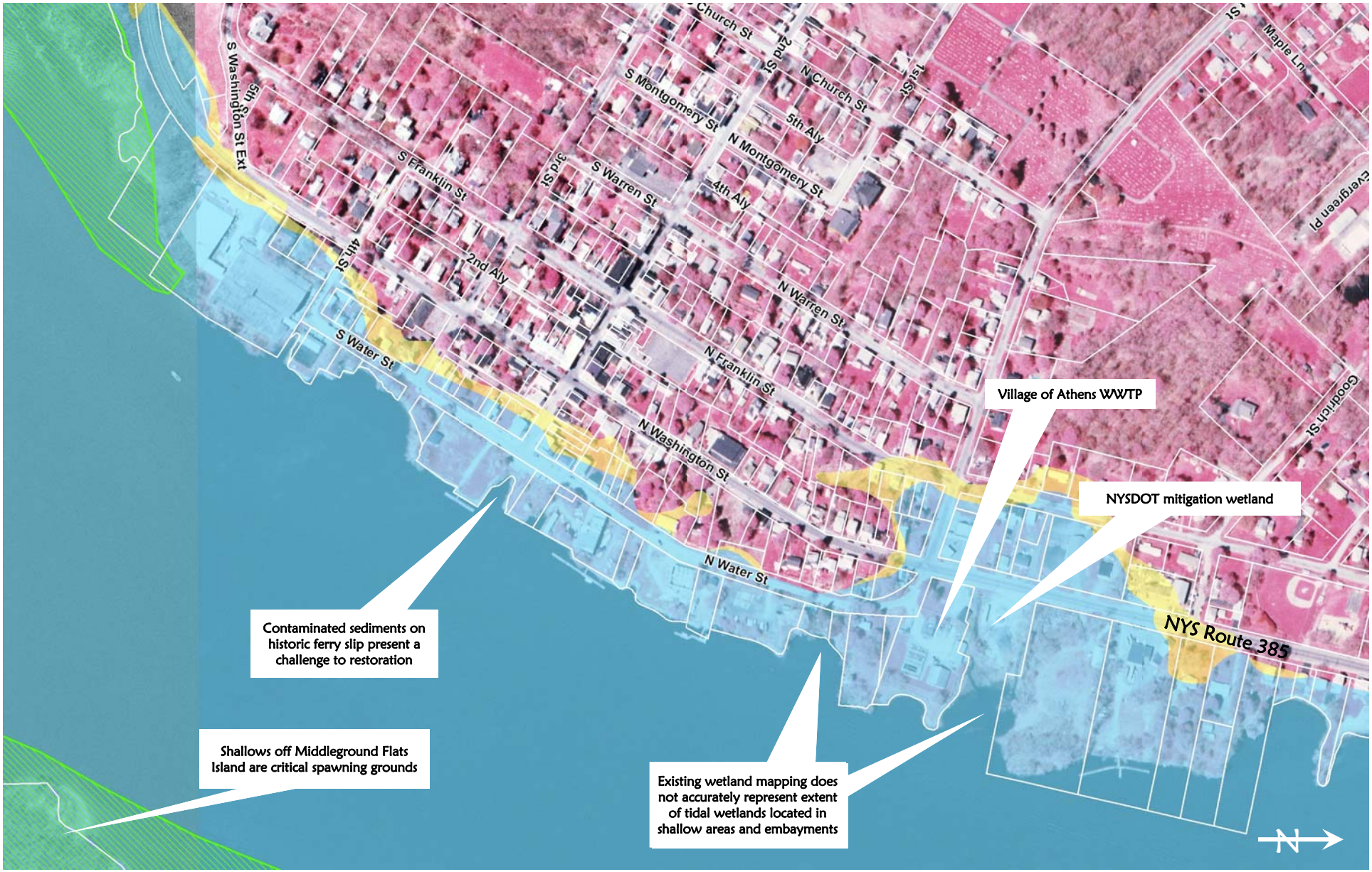
Greene County Water Dependent Use Inventory and Assessment

Village of Athens South
Waterfront Inventory

Legend
- Town Boundary
- NYSDEC Freshwater Wetlands
- 100 Year Flood Zone
- 500 Year Flood Zone

W S N E

Figure 14



Community Natural Resource Solutions
81 South River Street
Coxsackie, NY 12051

Mapping Assistance by Delaware Engineering P.C.

Not to Scale

Greene County Water Dependent Use Inventory and Assessment

Village of Athens South
Environmental Constraints

Legend
- Town Boundary
- NYSDEC Freshwater Wetlands
- 100 Year Flood Zone
- 500 Year Flood Zone

Figure 15

Similar to the other waterfront areas in Athens, this section of the Village is also characterized by significant regulated floodplains (Figure 15). Essentially, all of the area east of Water Street is located within the regulatory floodplain with additional sections of this area within the 500 year floodplain. Flooding along the Hudson River is rare since the construction of the Sacandoga Reservoir, but ice jams associated with a mid-winter rain on snow flood event in January 1996 resulted in flooding along the river that exceed 4' in depth along sections of Water Street. While the floodplains do present a limitation on the types and form of improvements in the area, proper planning and flood proofing techniques can allow for development of the waterfront.

Athens Riverfront Park and the historic ferry slip were transformed to a movie with a working ferry for the movie War of the Worlds starring Tom Cruise.

In regards to other environmental constraints, the current NYSDEC wetland mapping does not indicate any regulated wetlands in the area but the reach is characterized by numerous pockets of tidal wetland that would be identified by NYSDEC in any permit action. These are typically associated with the small embayments located along the shoreline. These areas are protected from the currents in the river itself which traps sediment and promotes wetland vegetation. The reach also does not contain any mapped Submerged Aquatic Vegetation (SAV) beds, but it has been identified as prime spawning habitat for the Atlantic Sturgeon which is an endangered species. Any proposals that would require extensive disturbance of the channel bottom would face significant permitting hurdles.

The majority of the shoreline in the reach (>90%) is characterized by old bulkheads. With the exception of an area south of Riverfront Park and north of the waste water treatment plant, the entire reach was bulk headed at some point in the past. Today, most of the bulkheads are significantly deteriorated with some sections where owners have made improvements to accommodate docks and access to the river. Along much of the reach, large Cottonwood trees dominate the shoreline.

Within the reach there are a number of parcels that would be appropriate for the development of new or enhanced water dependent uses. At the north end of the reach, the Village's waste water treatment plant and the dominance of residential properties limit the potential for new water dependent use. Closer to the center of the Village's downtown, a number of sites are either currently in uses that take advantage of their

location on the waterfront while other sites are underutilized. A summary of the sites within this reach include;

Dionysis Restaurant

This property was formerly used by a small contracting firm and was the location of maintenance shop and equipment storage. The former use was a classic example of an activity that did not take advantage of the site's location on the river. Several years ago the property was sold and converted to a use that was more consistent with its waterfront location. The new owners invested significant money in the site.

The former Dionysis Restaurant is currently vacant and has the potential to be reused for a number of water dependent uses.

The former maintenance garage was rehabilitated and with new additions converted into a restaurant. The project included extensive landscape features such as brick walls and iron gates, as well as the development of parking for the restaurant. Unfortunately, the business was only open for a couple of seasons and has now been vacant for a number of years. While the current owners long range plans are unknown, the site can easily be reopened as a restaurant or retrofitted for another use. Since the structure was constructed prior to floodplain regulations, the recent improvements at the site did not include adequate flood proofing. Any business that would need bank financing for acquisition or remodeling would be required to purchase flood insurance at significant cost. The property has approximately 200 feet of shoreline, with deep water that is very suitable for seasonal docks.

Private Marina

Located just south of the vacant restaurant property is a 0.9 acre parcel that is used for a private marina. The site contains approximately 225' of waterfront, with access to deep draft (10'-15') at low tide. The property also contains an old boat house that is still used for the repair and restoration of boats as well as a small residential trailer. The boat shed building's construction of poles and slat siding is a typical building style for small industrial buildings that used to be located all along the river.

While the site is not accessible to the public, it plays an important role in providing affordable mooring and repair services to local clients. Should the owner ever desire to convert the use to a public marina or some other use, a partnership with the adjoining commercial sites could result in a creative and successful mix of businesses. While the site is within the floodplain, it is level and essentially free of constraints such as upland wetlands. Like the rest of the reach, activities that would impact the shore or open water of the river, would require a rigorous permitting procedure.

Stewart House – River Garden

Located at the corner of Water and Second Streets, the Stewart House has long been the centerpiece of the Village's commercial waterfront. Built in 1883, the building and surrounding streetscape have been used as set for several movies and the main building has been wonderfully restored. In recent years, the owners of the Stewart House have added an outdoor bar and dining area known as the River Garden. While the River Garden is locate on a small parcel, the owners created a quaint and appealing space. The canopy that is the centerpiece of the River Garden has extensive architectural detailing both inside and outside which mimic the historic styling found in Athens's homes and other buildings. The property has a small dock that can accommodate 2-3 visitor boats.

The River Garden site also benefits from being adjacent to the Village's Riverfront Park. Whether visitors are in the area for individual visits to the park or to attend an event, the location and setting of the River Garden is highly likely to attract people from the park. For several years, the Village of Athens and the River Garden owners worked to find a method to integrate the two parcels as part of an extensive restoration of Riverside Park. The plan was to continue the development of a promenade from the park and across the front of the River Garden. The proposed work would have resulted in a safe pedestrian walkway between the public space in the park and the River Garden.

The waterfront River Garden at the Stewart House is an excellent example of potential uses to draw visitors.

Unfortunately, the proposal was not successful and the upcoming park restoration will not include the River Garden site. Partnerships between local government and the private business community are common in many areas where successful riverfront attractions exist. A good local example is Lake George where a Village owned and maintained board walk along the lake shore provides access to docks as well as the businesses along the lake. While the partnership with the Village was not successful, the development of the River Garden is an excellent example of adaptive reuse of a small

waterfront parcel. While the primary use of the site is not directly related to the water, it is the river that serves as the attraction to draw customers to the business.

Athens Riverfront Park

The centerpiece of the Village's waterfront area is its Riverfront Park. Initially the site of large brick industrial buildings, in the late 1970's the buildings were removed and the park created. The site is relatively small and is approximately 1 acre in size. The waterfront area available for docking is 225' and the site also includes the remains of the historic Athens Ferry slip.

Old wooden and concrete bulkheads will be replaced with steel piling. New docks as well as a wide waterfront promenade will be constructed.

Over the years, the Village of Athens, the Athens Betterment Committee and a dedicated group of residents have worked hard to make improvements in the park. A donation funded wooden promenade was constructed in one corner of the park, offering access closer to the water as well as benches and landscaping. In more recent years, a bandstand has been constructed in the south end of the park and is used for concerts and other events. Other improvements included installing electrical service and decorative lighting.

Starting in 1999, the Village started work on a series of studies and engineering designs for a major rehabilitation of Riverfront Park. An initial feasibility study completed by the GCSWCD evaluated all of the potential project components, with an emphasis on the rehabilitation of the bulkhead, development of a larger promenade, and restoration of the ferry slip. The Village has been successful in obtaining additional funding for final design and implementation of the project.

Current plans call for installation of steel bulkhead and the construction of an architecturally stamped concrete promenade along the entire waterfront. The promenade also includes a larger plaza area that will be the focal point at the foot of Second Street. If funding allows, the project design also rearranges parking along the park to gain more capacity as well as creation of a small plaza in front of the small diner to allow for limited outside seating. The project is in the final stages of permitting with construction slated for the fall of 2009.

In the development of the Riverfront Park restoration plans, there has been some late opposition by a small group of people who have advocated for elimination of the projects "hard" features and naturalization of the shoreline. While the current trend to promote natural shorelines along the Hudson is a good idea, it is also important to recognize the need to have strategically located facilities along the river that are designed to accommodate larger crowds and more intensive uses. In the case of Athens, in recent years work by Scenic Hudson, NYSDEC and the GCSWCD has resulted in over 238 acres of protected lands representing well over a mile of shoreline that is and will remain in its natural condition. Properties at Four Mile Point, Brandow's Point and Cohotate Preserve provide ample opportunities for access to natural areas along the river.

Forth Street Launch

Similar to the Athens Riverfront Park, the Forth Street area at the riverfront is scheduled for a significant rehabilitation. Informally used for years to launch small boats, the Village owned property will be made into a formal canoe and kayak launch area. In partnership with the owners of the adjoining properties the Village will be creating dedicated parking and making substantial improvements such as curbing, pavers, signage, boat lockers, landscaping and benches in the launch area. A wooden walkway to reach the deeper water as well as new "paddle-on" kayak docks will be part of the project as well.

Improvements to the Forth Street Launch facility will provide river paddles access to the Village's waterfront.

The owners of the adjoining property have also committed to aesthetic improvements to their properties which will make the facility more attractive. The site will also include a directory to local businesses. As the river enjoys an increasing popularity for day and longer term paddles, access points for landing and resupply can be a small but important part of the county's water dependent economy.

Elco Boat

The southernmost extent of the Village's waterfront area is industrial property formerly occupied by Elco Boat. Initially the site of Athens Boat yard, the property played a key role in WWII when landing craft were constructed here. In later years, the property hosted Grumman-Olsen truck plant as well as a number of succeeding light industries. In 1996, the site was occupied by a graphics production business which sustained heavy

flood damage. The site was essentially dormant for many years until it was sold and Elco Boat set up shop. In 2008, Elco ceased operations and the entire site is vacant and underutilized especially for a water dependent use. The site is approximately 3 acres in size with ± 525 linear feet of shoreline. Like the rest of the reach, the Elco site is significantly impacted by regulatory floodplains. The entire property with the exception of a small strip along route 382 is within the 100 year floodplain. While flooding is a rare event, the January 1996 flood resulted in several feet of water across the site with significant water damage to the industrial business that was located there.

In the upland portion of the property, environmental constraints are relatively insignificant. Environmental Site Assessments conducted in recent years found the property to be relatively clear of any potential contamination, with a small fuel tank removed under NYSDEC supervision several years ago. The upland area is also free of wetlands. In regards to the shoreline, the property presents some challenges. Most of the shoreline is characterized by old wooden bulkheads that are in a significant state of decline. The bulkheads are essentially deteriorated down to the low tide elevation, and the shoreline is slowly eroding due to wave and wake action. The shoreline is typical of many old industrial areas where large poplar trees have colonized the shoreline. Since the poplar are shallow rooted, they are frequently undermined by shoreline erosion.

The shoreline at the Elco boat property is typical of older industrial sites where deteriorated bulkheads and undermined trees make access difficult.

On the northern part of the property water depths off the bulkhead are relatively deep and could support docks for smaller boats. Any marina facility that sought to accommodate boats with deeper drafts (> 4') would need to have docks extended a short distance into the channel. Along the middle and southern portion of the property, the draft off the bulkhead at low tide is shallow to very shallow. Since the property is located at a point were the main shipping channel and back channel meet, the river is very wide, and the site does not benefit from the higher velocities in the back channel that maintain the deep draft at places such as the Athens on the Hudson Marina further up the channel. Associated with these shallower mudflats, is the presence of tidal wetlands. Extensive beds of spatterdock and other aquatic species become increasingly dominant on the properties southern end. NYSDEC has also mapped the presence of SAV beds along the southern portion of the site.

At the present time, buildings cover approximately 50% of the property area. These include an older structure located on route 385 that houses offices, two old interconnected industrial buildings with distinctive barrel roofs and a modern steel building that served as warehouse space. From the perspective of a waterfront dependent use, the site is greatly underutilized. When Elco first came to the site, it was planned that there would be launching and docking areas where Elco boats could be moored for potential customers to try. These plans never materialized, and at this time there is no connection between the Elco boat business and the waterfront. While Elco is using all or part of the two older buildings, much of the building space is underutilized.

The old industrial building along the river could be renovated to shops and small restaurants that front on a common pedestrian plaza along the river.

While it would take a significant investment, this property is well suited for redevelopment as a water dependendent use. With approximately 3 acres of flat land, and several buildings that could be retofitted for other uses, the site presents a number of opportunities. The site is large enough that it could support a number of mixed uses. If the two buildings were seperated, a narrow outdoor plaza could be developed between the two structures. The older barrel roofed buildings could be rehabilited into small shops or workspace for crafts such as glass blowing, pottery, weaving etc. The building closest to the river could be divided into a number of uses that would front on a pedestrian plaza alongthe river. The plaza could connect to the Village's Forth Street Launch to the north.

The Elko Boat site presents many opportunities for water dependent uses. Current uses at the property do not take advantage of the sites waterfront.

If the large steel building was removed, room for parking and new structures associated with perhaps a marina could be constructed. The topography of the site is characterized by a shap incline between Route 385 and the majority of the site. This feature could be taken advantage of with a single level parking structure built under a new building that could house a small hotel,

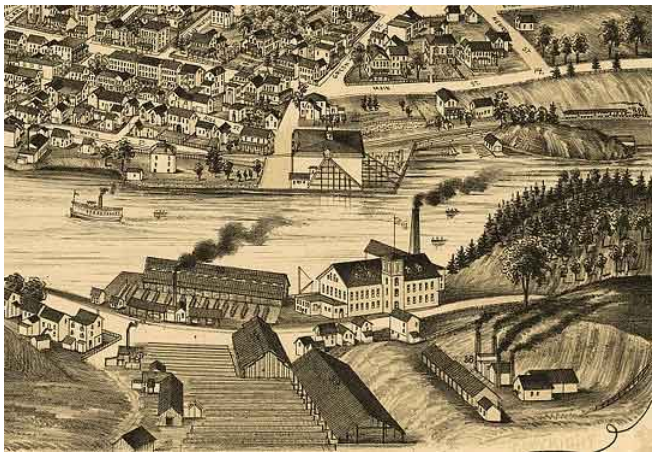
restaurant and street level shops. Any dock facilities could be concentrated in the center of the property and extended to the north. On the south, a well landscaped shoreline with paths and perhaps a small gazebo or a faciulity similiar to the Stewart House River Garden could take advantage of the natural setting.

Any redevelopment of the site would need to give high priority to its location in a historic neighboorhood. The historic Van Loan house across the street as well as several other significant historic residential structures above the site, would need to be considered in both the scale and architectura of the site.

The Village of Athens waterfront presents several unique opportunities for enhancing a water dependent economy. The Athens-on-the Hudson Marina, Peckham Terminals, the former icehouse site and the Elko Boat property all have the potential for significant redevelopment. The sites are all served by municipal water and wastewater and while environmental constraints are present they can be affectively addressed by proper planning. The presence of floodplains presents the greatest limitation on development along the river, but many features of any waterfront business can be designed and constructed so as to prevent flood damages. Another limitation in much of the Village is the close proximity of the waterfront sites to residential properties. Any future or enhanced water dependent uses must minimize impacts on surrounding neighborhoods. The presence of the protected Athens-Middleground Island backwater benefits the siting of marina uses. Channel depth has been shown to be a problem for barge traffic, but the 15' plus depths along much of the bulkhead is highly suitable for small to large pleasure boats.

Section 7

Village of Catskill



The Catskill waterfront has a long and historic past. During the hay day of river travel, Catskill was the linking port between day liners carrying people north from New York City and the majestic mountain houses on the northeast facing slopes of the Catskill Mountains. The Village's waterfront was also home to traditional riverfront village industries such as ship building, ice harvesting and brick making.

Prior to being settled by the Dutch and others, the area that is today Catskill Point did not exist. The area was a shallow mud flat and likely was characterized by an extensive wetland complex at the confluence between the Catskill Creek and Hudson River. The native Iroquois preferred to place their settlements at natural low flat areas along the Catskill Creek. Over time, bulk heads were constructed and backfilled, creating most of the area that is level along the creek. The bulkheads and fill were necessary to reach the deeper waters of the rivers channel allowing for access by larger boats. In addition, the newly created upland area allowed for a rail line to be constructed that picked up visitors at the boats and transported them west to their vacations at one of the historic mountain houses.

Today, the Village of Catskill covers approximately 2 square miles and it enjoys both Hudson River frontage as well as approximately 1.5 miles of navigable water in the lower Catskill Creek. While Catskill faces significant limitations related to steep slopes, extensive wetlands and private ownership on much of its direct frontage on the Hudson River, it does have two primary factors that make it the best candidate for the development of significant water dependent uses. First, the protected harbor provided by the Catskill Creek is attractive to transient boaters. It provides shelter during inclement weather, and with the exception of the occasional flooding of the creek from upland rainfall, it is generally calmer than the open river. Second, the Village has the best potential for developing an attraction for both transient boaters as well as non-boaters. The critical mass of commercial space, and the potential to develop shops, restaurants and other attractions, can directly support water dependent uses.

While several areas in Athens may present larger, less constrained sites that could support new waterfront development, available commercial space within walking distance of the waterfront is limited. This is the same for the Village of Coxsackie. In both of the other Village's, their community character essentially limits sites to small or medium sized

developments. In Catskill, a mixture of public and private lands in key areas presents a unique opportunity for new partnerships between the Village, Town, County and most importantly waterfront owners. The close proximity of both the Main Street and West Bridge Street commercial areas to the Catskill Creek has the ability to develop a synergy, with each feature of the community supporting the other. Effective linkages, in a pedestrian friendly setting, could be expected to draw boating visitors to the downtown commercial areas while the presence of inviting public plazas and waterfront activities could benefit from non-boating visitors to the commercial area. The Catskill waterfront is also designated as a Significant Coastal Habitat Area and the Catskill Point area is also in a Scenic Area of Statewide Significance (Figure 16).

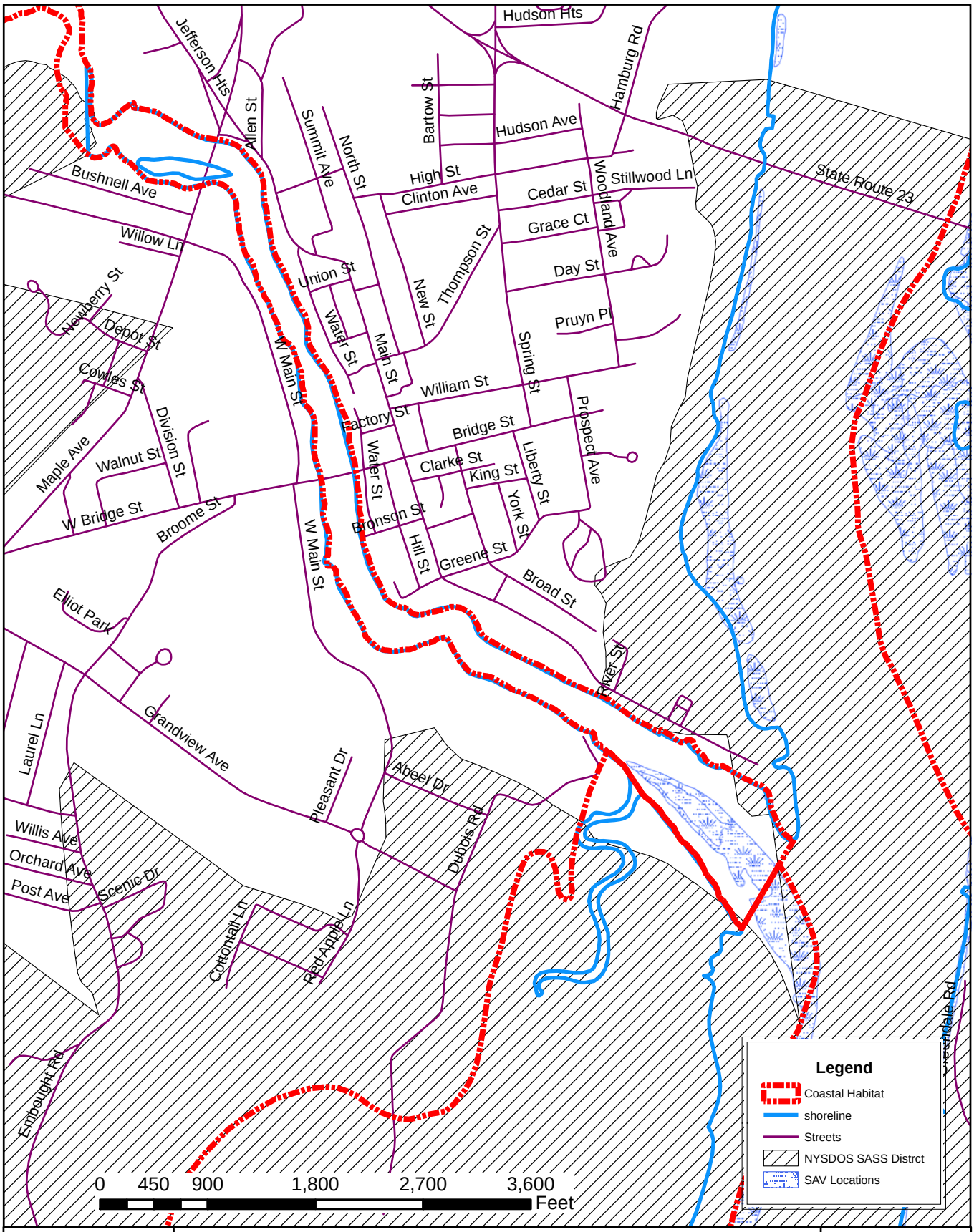
For the purpose of this report, the Village's waterfront was delineated into three separate but overlapping reaches. The Catskill Point reach includes the point and extends up the Catskill Creek to the hop-o-nose area. The remainder of the Catskill Creek from Hop-o-nose to the Route 9W Bridge was divided into two separate reaches. Catskill Creek South is located between Hop-o-nose and the Uncle Sam Bridge while Catskill Creek North runs between the Uncle Sam Bridge and the Route 9W Bridge.

7.1 Community Vision and Plans

Over the past 25 years, the Village of Catskill waterfront has been the subject of several planning initiatives. Initially, in 1984 the Village and Town of Catskill established a joint committee to undertake development of a Local Waterfront Revitalization Plan (LWRP). In 1991, the LWRP committee oversaw the development of a Catskill Harbor Study which focused on the navigable portions of the Catskill Creek and the Catskill Point area.

The Village of Catskill waterfront area along the Catskill creek has the been the subject of various studies looking for ways to enhance the community's economic status while protective of natural resources

More recently, in 2005-07, the Town and Village completed a joint comprehensive plan for the two communities. To date, the Town has adopted the comprehensive plan while the Village has not. The following provides a summary of the key points or recommendation set forth in these documents as they relate to the development or promotion of water dependent uses.



Community Natural Resource Solutions

Greene County Water Dependent Use Inventory and Assessment

Figure 16: Significant Coastal Habitats and SAV Beds in Catskill

N
W
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Comprehensive Plan

In 2005 and 2007, a joint committee of the Town and Village of Catskill worked with Saratoga Associates to develop a new comprehensive plan for the two communities. Similar to other waterfront municipalities, the Town and Village found itself facing increasing development pressures and a seriously outdated plan for the community. Upon review of the final comprehensive plan it was noted that there was almost no attention focused on the waterfront.

Limitations or parking on the Village's waterfront as well as downtown commercial district is typical of most historic waterfront communities.

While the plan made numerous recommendations focused on the vitality of the Village's downtown commercial districts, the plan is remarkably quiet in its attention to the Village's historic or current waterfront uses. As the Hudson River and the lower Catskill Creek are such unique resources, one would have expected the comprehensive plan to recognize its importance and included specific recommendation targets at the waterfront. The Comprehensive Plan does contain several recommendations that would be consistent with development of water dependent uses. These can be summarized as follows

- *Recommendation 1.13 – Work with property owners along important waterways to permit public access at priority locations. The county parking lot along the creek is identified as a priority site. The plan also calls for inventorying waterfront properties for potential access and opening discussions with property owners.*

  In order to meet most of the goals and objectives identified in the comprehensive plan, LWRP and harbor study, it is critical to find a way to engage private landowners in the development of public access. With the right mix of waterfront uses, the provision of public access can be an effective tool to draw visitors to the waterfront and in turn to the businesses located there. Without the vision and cooperation of the waterfront property owners, a cohesive waterfront plan will never be a reality and waterfront uses will remain fragmented both from each other as well as the surrounding community.

- *Recommendation 2.4 – Develop a commercial signage linkage between shopping districts and waterfront. These signs would be like store locator kiosks common in malls and would provide direction to visitors.*

  The ability of visitors to navigate the Village's commercial core and waterfront will be largely dependent on the visitor's knowledge of what is available for them to do. Good signage can provide aesthetic value as well as encourage visitors to explore and take advantage of the mixture of offerings the village has.

- *Recommendation 2.7 – Develop a repair and maintenance plan for the footbridge.*

  The foot bridge located on the old railroad trestle just above the high school property is a unique resource. To try and construct a similar structure in this day and age would be cost prohibitive and would require years of environmental review and permitting. The bridge is a critical resource for enhancing pedestrian facilities in the Village. It should be a priority to protect and maintain the existing structure as it would be nearly impossible to replace.

  In addition, the bridge serves as the support structure for Village water and wastewater systems. The loss of the bridge would not only be a major loss to pedestrians, but it would also come with a significant cost to the Village to replace and repair the infrastructure,

The rail road bridge footpath was identified in the comprehensive plan as a key resource needing a repair and maintenance plan.

- *Recommendation 5.1 - Finish the LWRP Process with New York State.*

  The NYSDOS Coastal Zone Program is one of the few state programs that still administers significant grant funding. Many of the recommendations in this report as well as the comprehensive plan, LWRP and Harbor Study could benefit from formal NYS adoption of the LWRP. Since the plan is dated, it would be expected to need some level of revision. The existing plan also represents an older model as required by NYSDOS Coastal Zone Program. In more recent years, the DOS has amended their program guidance to allow for much more streamlined planning documents and in fact even allows LWRP's targeted at specific priority areas within the state's designated zone.

- *Recommendation 5.3 - Conduct a downtown parking study for the Village.*

Typical of most small waterfront communities along the Hudson, the Village of Catskill has significant issues with parking in its downtown commercial areas as well as on the waterfront. While the presence of Village, Town, County and private professional offices significantly benefit the Village and its downtown businesses by bringing people to the area, they also create a significant and competitive need for parking. Any significant development in the Village's waterfront area will require creative solutions to address parking

Catskill Harbor Study (March 1992, revised April 1993)

In 1989 the LWRP committee received a grant from the NYS Legislature to conduct a focused study of the Catskill Creek. After a delay in starting due to state contracting, in March 1992 (revised April 1993) a study was completed by Geoffrey Steadman and Ocean and Coastal Consultants, Inc. The harbor study presented a through evaluation of the current status of the Catskill Creek harbor and identified a number of issues that are still current today.

The 1992-93 Catskill Harbor Study identified the need to insure moorings and other docking features do not impact the use of the harbor.

The Harbor study also included extensive recommendations in regards to land use regulations and other local ordinances that would provide the Village the tools to effectively manage its harbor resources. Many of these recommendations were implemented in recent zoning code revisions which target appropriate uses for the waterfront and include incentives as well as fees to encourage the development of public access. Recommendations in the harbor study that most directly related to enhancing water dependent uses included;

- Recommendation 1.1 – Village should encourage and support operation of commercial marinas and private boat clubs, use village planning board and zoning to protect and promote water-dependent facilities.

- Recommendation 1.2 – Consider harbor carrying capacity when reviewing and approving future boat facility development.

- Recommendation 1.7 – development of waterfront use such as condominiums should incorporate access for general public.

- Recommendation 1.8 – Enhance current and develop additional public boating facilities

- Recommendation 1.9 - Adequate dockage and other facilities are necessary for transient boaters.

- Recommendation 1.13 – NYSOGS should continue its policy of non additional underwater land grant in the Catskill Harbor unless it directly supports water-dependent use.

- Recommendation 5.1 – Village should encourage and support opportunities for public access to the Catskill Creek.

- Recommendation 7.4 – The use of non-structural measures for shoreline protection should be promoted to the extent possible,

- Recommendation 8.3 – Opportunities for stimulating economic growth through water-dependent uses should be evaluated and if feasible pursued.

- Recommendation 8.7 – The Village should support and encourage appropriate new or expanded or enhanced water-dependent uses within the carrying capacity of the Catskill Creek Harbor.

Local Waterfront Revitalization Program

The Town and Village of Catskill jointly developed a Local Waterfront Revitalization Plan (LWRP) which was never submitted to NYSDOS for formal approval. Started in 1984, the LWRP planning process moved slowly. Planning activities continued into the early 1990's with the 1992 (revised 1993) Catskill Creek Harbor Study which was coordinated by the LWRP committee. By the mid to later 1990's the process had ceased and the approval process was never completed. In 2003 and 2005, the Village of Catskill did adopt and codify the recommended local laws as set forth in their LWRP and as required by NYSDOS for formal state

Relocation of the Greene County highway facility and restoration of the historic freight-master building were key recommendations in Catskill's LWRP

approval.

The LWRP included numerous recommendations targeted at revitalization of the Village's waterfront in general as well as specific sites. The LWRP addressed the community's extensive coastal area with recommendations related to agriculture, industry, natural and open space, and residential development. LWRP recommendations are summarized as follows:

- Create integrated public access system linking: pocket parks and green space for passive recreation, bird watching stations, nature preserves, fishing piers, public boat docks, etc.

- Given its location at the confluence of Catskill Creek and Hudson River, Catskill Point should serve as an "entrance" to Catskill. Desirable uses for this significant site include a day liner/trip boat stop, museum, park and passive recreation, small public docks when possible, open market for sale of local produce and artisan crafts, as well as kiosks providing tourist information.

- Dredge the channel adjacent to the old ferry slip, rehabilitate riverbank bulkheads, replace rotting pilings, and remove some or all of existing salt and equipment storage sheds.

- Encourage integration with waterfront access where appropriate, such as Dutchmen's Landing.

- At Dutchmen's Landing, include the use of natural landscape buffers/screens to shield sewage treatment facilities and oil tanks from park and recreational boat traffic.

- Re-establish a lift-bridge (or other design), which will provide upstream access to larger watercraft.

- Maintain a navigable channel in Catskill Creek from the Hudson River upstream to the Uncle Sam Bridge.

- Conduct a feasibility study to address flooding and creek side erosion.

- Considering its ecological significance and designation as state

The Uncle Sam Bridge limits boat navigation to the upper part of the Catskill Creek harbor with only 15' of clearance at low tide and as little as 10' at high tide.

habitat, conduct a Natural Resource and Land Use Feasibility Evaluation of Ramshorn Marsh, one of the largest forested wetlands on the Hudson River.

- Explore the suitability of additional boat launch facilities.

- Revitalize the Central Business District with pedestrian facilities, street improvements, off-street parking, restoration of building facades and second story reuse, directional signing and promotion, and signs/streetscape enhancement.

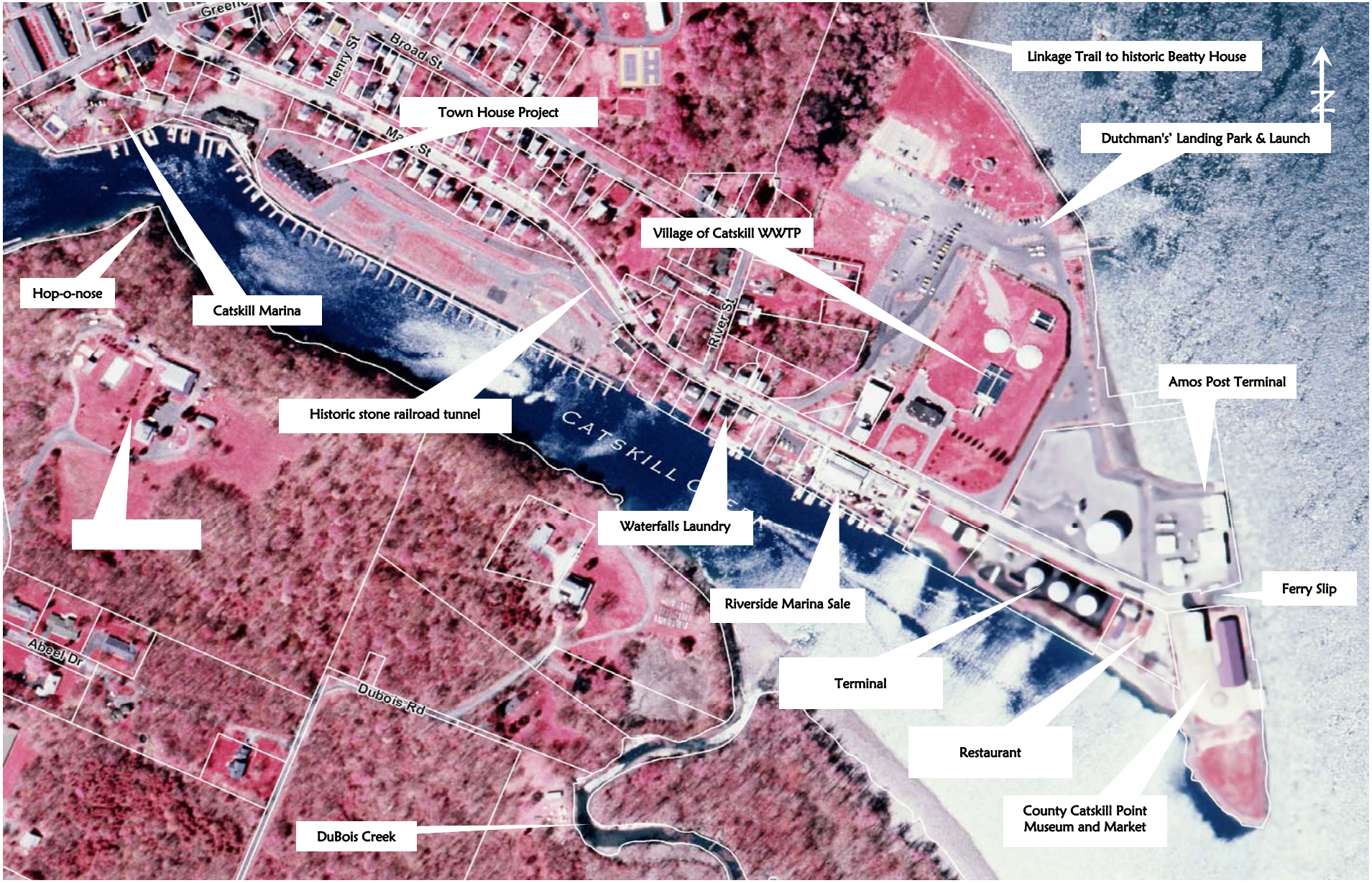
While the Village of Catskill waterfront has been the subject of several planning efforts, to date implementation of the recommendations in these studies has been intermittent and uncoordinated. Key projects such as the revitalization of the former county highway garage and improvements to Dutchman's Landing have been undertaken, but many other recommendations remain to be completed. In addition to the specific projects listed in these plans, important recommendations regarding leadership and oversight of the waterfront remain unanswered.

7.2 Catskill Point

The Catskill Point reach includes Dutchman's Landing and the lower portion of the Catskill Creek up to the Hop-o-nose (Figure 17). Most of the developed portion of the waterfront in this reach exists on former underwater lands which had been bulk-headed and filled. In the lower reach, these fill areas represent a broad area at Dutchman's Landing while along the remainder of the reach the fill sections are narrow and hug the steep upland slopes along the Catskill Creek.

Catskill Point, located at the confluence of the Catskill Creek and Hudson River is characterized by manmade fill on its northern shore and extensive wetlands on the south shore.

While the north bank of the creek and the actual point area are intensively developed, the south shore is largely natural and contains extensive tidal wetlands and forested floodplains. The south shore contains Dubois and Ramshorn Creeks which are rich ecological resources. On the north side, a significant portion of the area that is now Dutchmen's Landing Park was once the site of the Village's landfill. Much is the area is the former landfill with a minimum of cover over the solid waste.



Community Natural
Resource Solutions
81 South River Street
Coxsackie, NY 12051

Mapping by
Delaware Engineering P.C.

Not to Scale

Greene County Water Dependent Use Inventory and Assessment

Catskill Point
Waterfront Inventory

Legend
- Town Boundary
- NYSDEC Freshwater Wetlands
- 100 Year Flood Zone
- 500 Year Flood Zone

W N S E

Figure 17

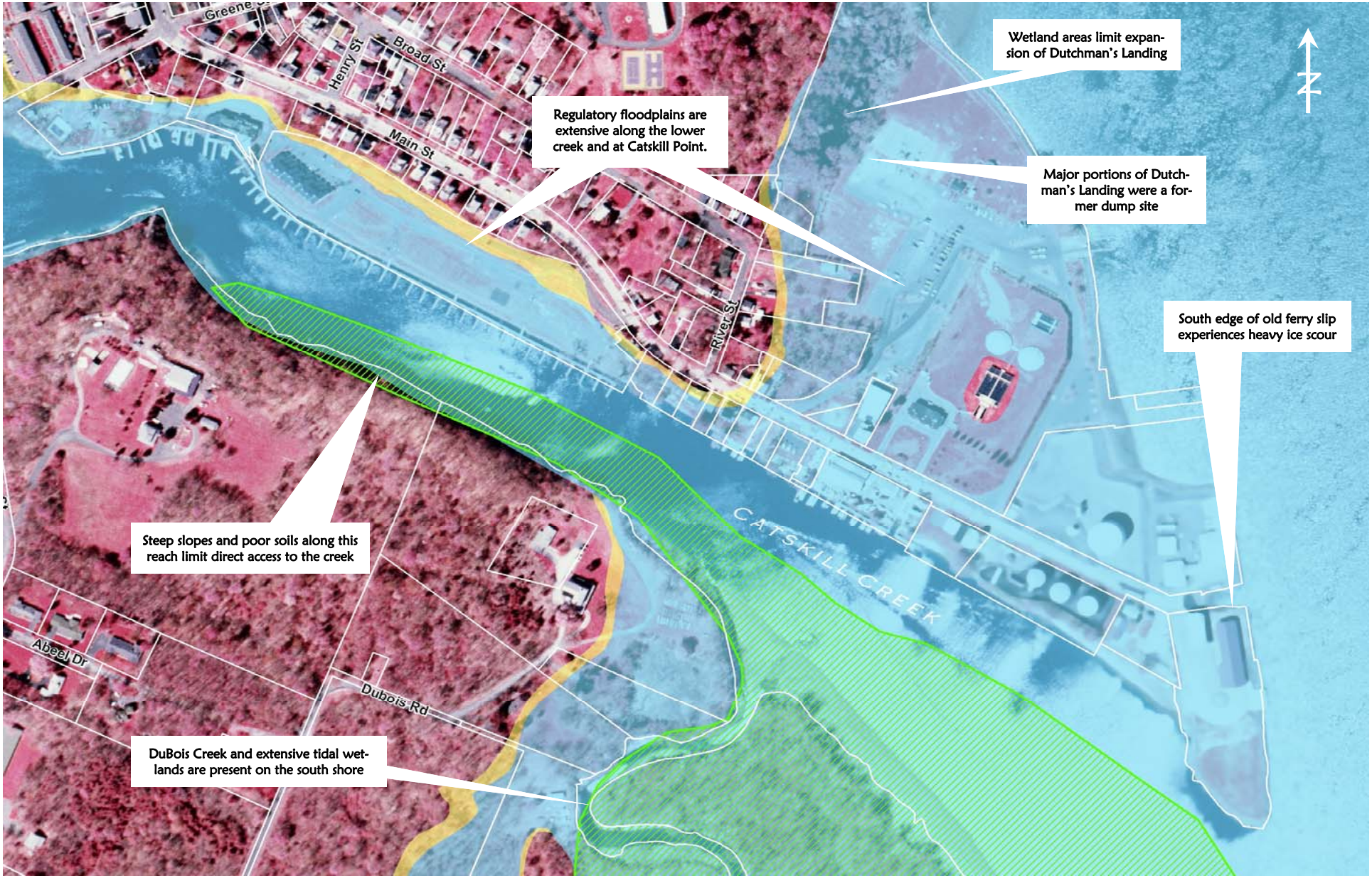
Typical of the low lying areas along the entire county waterfront, the Catskill Point reach is characterized by extensive floodplains (Figure 18). The entire waterfront with the exception of the Village's wastewater treatment plant is located within the regulated floodplain. This also includes the narrow strip between the creek and Main Street. None of the structures in the reach are adequately flood proofed. At the Kosco oil terminal, the storage tank and associated piping are somewhat protected from flooding by the containment structure but the office, maintenance space and truck parking areas are prone to flooding. This is the same situation at the Main Care facility on the Catskill creek where the tanks are protected by the containment berm while the office building is not. The county facilities at Catskill Point have been flooded several times over the past 7-10 years.

Another critical flooding issue in Catskill is associated with the extreme flood events that originate in the Catskill Creek watershed. Combined, the Catskill Creek and Kaaterskill Creek watersheds drain approximately 250 square miles, with much of it steep and subject to high levels of runoff. The watershed drains the east and north slopes of the Catskills which are often subject to intense rainfall.

Large woody debris collects on the waterfalls located on the Kaaterskill Creek at Cauterskill Road. Large floods often wash this debris into the Catskill Harbor and can inflict significant damage to docks and boats.

When large storms hit the watershed, the Catskill Creek becomes a raging torrent, carrying sediment and significant floating debris to the Hudson River. Every few years, a storm of this magnitude occurs with docks and boats experiencing varying degrees of damage. On the larger flood events, entire sections of dock with boats still moored have broken loose, only to be recovered down river later. When the peak flood flows from the Catskills watershed occur at the point or a high tide, or when the river is high from broader flooding in the Hudson Valley, the flooding from the Catskill Creek can be much worse. Since there are no easy solutions to preventing these floods, it is important that the design and construction of any rehabilitated or new facilities integrate materials and methods that limit damage and speed recovery.

The Catskill Point reach also has extensive wetlands primarily in the south bank of the Catskill Creek. These wetlands are emergent, and also include extensive forested



Community Natural Resource Solutions
81 South River Street
Coxsackie, NY 12051

Mapping by
Delaware Engineering P.C.

Not to Scale

Greene County Water Dependent Use Inventory and Assessment

Catskill Point
Environmental Constraints

Legend
- Town Boundary
- NYSDEC Freshwater Wetlands
- 100 Year Flood Zone
- 500 Year Flood Zone

W N S E

Figure 18

wetlands. The south bank of the Catskill creek near the river also contains significant areas of SAV beds which are critical components of fisheries habitat along the river. The entire reach is also located in the Ramshorn Significant Coastal Habitat area and the Catskill Creek is well known as a spawning area for both anadromous (migratory) as well as resident species. Alwifes, blueback herring, white perch and American shad are some of the primary species that utilize the creek for spawning habitat. The creek also includes a significant bass population.

One final feature of the Catskill Creek that is significant from a water dependent use perspective is the presence of a federal navigation channel in the creek. Authorized in 1971, the federal navigation channel starts at 250' in width at the mouth of the Catskill creek and tapers down to 100' in width over the first 3/10ths of a mile of the creek. From that point, the navigation channel extends upstream to approximately 600 feet south of the Uncle Sam Bridge.

The Hop-o-nose is a rock outcropping in the Catskill Creek that creates a narrow channel for boat passage.

The authorization language allows for the Army Corp of Engineers to maintain a channel depth of 12' (at mean low tide) in the lower, wider section and 8' in depth for the remainder of the channel. In 1975 a maintenance dredge was conducted in select area of the channel with the materials deposited at what is today Dutchman's Landing. No dredging has occurred since that time. While designation of a federal navigation channel provides the Army Corp of Engineers the authority to under take maintenance dredging, this is not automatic and is dependent on the Corp receiving funding. Any dredging of the stream is also subject to state and federal permitting requirements and given the Catskill Creek's role in fisheries habitat, any proposal to dredge the channel would require an extensive and quite expensive environmental review. One benefit of the federal channel is the U.S. Coast Guard maintained buoys at the mouth of the creek.

While the Catskill Point area provides a number of opportunities for future development of new or enhanced water dependent uses, any proposal will have to address the need for parking. Typical of all the county's riverfront Village's, they were generally developed in the days of horse and carriage and little room was left for parking and movement of modern vehicles. The parking issue is more acute in the Catskill Point area due to the presence of both Dutchman's Landing as well as the County's Catskill Point facility. Both sites were intended to be used by larger crowds of people and parking is a

limitation at both sites. While parking appears at first to be an insurmountable problem, some creative use of space could greatly help the parking situation.

Catskill Point Park

At just over 3 acres, the Catskill Point Park was once the center piece of an active waterfront economy. The site was a terminal for shipping of goods as well as passenger service. The day-liners arriving from downriver cities would disembark passengers at the site who would board the train for transportation to the historic mountain house resorts that were located on the eastern escarpment of the Catskill Mountains. The property is also bounded on the north by the former ferry which transported people between Catskill and Hudson.

The county's Catskill Point facility provides a number of resources that support water dependent use.

As the era of the day-liners and mountain houses passed, and river transportation of goods to downstate buyers was replaced by truck or rail, the site's importance in the local economy also waned. At some point, the property was acquired by the county and used for a highway maintenance facility. The selection of the property for use by the highway department is a classic example of how the perceived value of lands along the Hudson declined with the river's water quality. As the condition of the river declined, so did the use of its waterfront.

In its rehabilitated condition, the facility is an excellent example of rehabilitation of a riverfront site for an appropriate water dependent use. Initiated in 1998, the county relocated the highway department and completed an extensive renovation of the facility. The historic freight masters building that once housed the county's mechanics was converted to a small museum that focuses on the history and ecology of the Catskill waterfront.

A long wooden structure that once served to warehouse agricultural products and other good awaiting shipment downstate was rehabilitated and now provides a large indoor space for events. The building also hosts an active farmers and artists market in the summer. The remaining buildings were removed, and an attractive and functional plaza

was constructed. On the riverside, a sturdy wooden wharf that can accommodate the larger passenger ships operating on the Hudson was reconstructed while on the creek side the county maintains a group of seasonal docks for use by visitors. Unfortunately, technical and cost issues did not allow for flood-proofing the site and every few years the county has to deal with minor to moderate flooding of the property. While the site is essentially restored, a number of additional improvements could be made should funding become available.

Larger cruise ships use the Catskill Point Park on occasion providing an influx of visitors to the Village of Catskill.

- Restore the historic ferry slip on the site's north side. The slip could be reconstructed to handle current day tour boats such as the Dutch Apple, Rip Van Winkle, Teal and others. Restoration of the slip could provide a dedicated facility for use by tour boats and ideally the county could draw a boat to use the site as its home base.

- With over 1200 feet of shoreline on the Hudson and Catskill Creek, the site will always require maintenance of its shoreline to prevent erosion. At the current time, the county is focusing on stabilization of a portion of the site in the area of the ferry slip and the north east corner of the property. This area is exposed to the direct flow of the river as well as significant ice scour.

- Replace the gravel walking path around the park's perimeter with a more permanent surface similar to the plaza area. While the existing stone path is functional, it does present some limitations to handicapped persons and requires maintenance. Replacing the gravel with a paved path will greatly increase the site's aesthetics as well as function.

The shoreline at Catskill Pont is subjected to the forces of the Hudson as well as Catskill Creek. Maintenance of the shoreline is an on going effort and improvements must account for ice forces

- Continued renovation of the historic freight master's second floor could provide valuable

space for additional programs. Damage from an earlier fire would require extensive restoration of the buildings roof system, but the space could be used for offices. Once possibility would be to provide office space for operation of a tour boat if one could be drawn to the site. Improvements in the warehouse building that are needed include painting, windows and weatherization. Imporovements to the warehouse would significantly increase the opportunities for additional uses as well as year round use.

Even without further work, the Catskill Point facility is truly a catalyst for additional rehabilitation of the Catskill point. Since its completion, the Village of Catskill did significant rehabilitation of a section of lower Main Street leading up to the facility. The county facility benefits from a number of features. The site provides ready access to the river as well as Catskill Creek. It contains deep navigable water on the river as well as adequate water for small crafts on the Creek side. The freight masters building is an excellent facility for its current use as a museum and the larger warehouse structure provides space that can accommodate larger groups and events. The paved plaza and the grassy knoll to the south provide more ample space to accommodate groups for events such as festivals. Combined, the Point offers a number of resources that are critical to effective use of the waterfront.

Mariners Restaurant

Immediately west of the county property, is a small parcel that has been the site of a restaurant for many years. While it operated for many years under two successive owners and had built a good reputation and clientele, in more recent years the property has changed hands several times and each successive owner has struggled to recapture the business the site once enjoyed. Similar to the county facility, the site contains very limited on-site parking with customers competing for the limited spaces on the street when the place is busy.

The property includes a small ice cream shop in a separate building and a fairly large dining area along the creek. Over the years, the outdoor dining area has undergone numerous renovations and is currently mostly enclosed. The site does include ample docks and the water off the bulkhead is deep enough for most pleasure boats. In the past, the site has often served as the weigh-in station and hosted the awards ceremonies for the numerous bass tournaments that take place at Catskill Point. While a narrow fringe of intertidal wetland can be found

Mariners Restaurant at Catskill Point (left) is surrounded on the west and north by two oil terminals.

running along the shoreline, for the most part the site has limited environmental constraints. The bulkheads are typical of most of the Greene County waterfront having deteriorated to the low tide mark. Below this point, the constant saturation of the pilings prevents decay and the old bulkhead is still effective in maintaining a reasonable draft at the bulkhead line.

While the site has limitations in size and parking, it could offer great potential if its renovation was better integrated with the county facility to the east and ideally with removal of the oil terminal to the west and the redevelopment of that site. The site could benefit from renovation of the building exterior, and the outdoor dining area in the rear needs to be redeveloped in a manner that is architecturally consistent with historic buildings in Catskill. The River Garden facility located at the Steward House in Athens is an exceptional example of an outdoor space that was constructed in a style that is consistent with the historic architecture of area. Unfortunately, the semi-enclosed space at Mariners has been done in a manner that is functional, but does not take advantage of the historic nature of Catskill. The presence of a successful restaurant on Catskill Point can benefit other surrounding waterfront uses by either drawing visitors to the point or by providing food and beverage for people who come to visit the county facility or Dutchmen's landing.

Oil Terminals

Catskill Point contains two oil terminals which are the last remnants of the Catskill's waterfront industry. The larger and more active of the two is the Kosco facility located at the very foot of lower Main Street while the Main Care (formally R.E. Smith) is a smaller terminal located on the north bank of the Catskill Creek. The Kosco site contains a single large tank while Main Care has three smaller tanks. Both facilities include containment structures designed to hold the tanks contents in the case of a rupture or leak.

While Main Care no longer receives shipment by barge, the Kosco site is still an active terminal. Deep water off the bulkhead allows for larger barges to make deliveries to the site. Kosco, along with Peckham in Athens and the Cement plans further south in the Town of Catskill represent the last of the industrial users of river transportation in Greene County. The redevelopment of the oil terminals presents a

The site of the two oil terminals at Catskill Point could provide vast opportunities for community and waterfront development if a strategy for relocation of the terminals could be implemented.

number of issues that would need to be addressed before any alternative uses of the site could be considered.

On one hand, there are a number of factors that would seem to weigh against the oil companies when using this location. These include;

- The location of the terminals is not necessarily an ideal situation for the oil companies from an access standpoint. While the site does provide access to oil that can be delivered at much cheaper rates, the location requires oil trucks to navigate the narrow Village streets as they enter and leave site. Lower and Upper Main Street are not suited for truck traffic.

- The close proximity to the river's edge could be a liability in the event of a spill event. While the facility is well maintained and routinely inspected, there is always a possibility that a containment structure would not work as hoped. If there was a leak in the containment structure, there is limited distance between the containment dike and the river which would provide limited options for containment of the leak. Managing a spill within a containment structure is difficult and expensive enough without dealing with the oil reaching the river. Ideally, tanks would be located further inland, allowing clear access all the way around the containment structure and adequate room to manage a spill before it could get to the river. The added cost to pump oil an additional 50-100 feet in from the shore is insignificant when compared to the liability that exists when the tanks are closer to the water.

- The site's low elevation also makes it prone to flooding. While much of the site would suffer little physical damage from flooding, cleanup of the site and repairs to buildings and fences are a nuisance at best.

The Kosco facility as Catskill Point is a storage and distribution point for fuel oil deliveries. The site's location can present a challenge for access by the company's oil trucks due to narrow roads.

- The site's location near public spaces also presents potentially added liability. As the Catskill Point area continues to undergo a revitalization and the public is drawn to the area in increasing numbers, the chance for problems increases, Whether dealing with the increased traffic and

narrow roads made worse by parked cars or the potential for trespass on the terminal property, increasing public use of the point has the potential to clash with the industrial uses.

While the location of the terminals may present some limitations and liabilities for the two oil companies, any proposal to relocate the businesses and reuse the site would have to address several key issues.

- Another waterfront location that could receive barge deliveries would be critical to the relocation of the Kosco site. The economy of bulk delivery by barge would be almost impossible to match with any alternative transportation though rail delivery may warrant investigation. In the case of the Main Care facility, they are not dependent on deliveries by barge and they could be located almost anywhere that allowed room for the tanks and easy access by trucks. There have in the past been general discussions about whether the barge facilities at one of the cement plants could be jointly used by the cement plants and Kosco. This area should be investigated further.

- Like any other project, cost is always an issue. While the oil companies may be able to realize a substantial return on selling the terminal properties for another use, it is not likely that this value would cover the cost of acquiring an alternative site and undertaking all of the necessary work such as relocating the tanks and setting up the necessary loading and off-loading equipment. There are a number of grant programs that may be able to assist in funding relocation costs and public assistance may also be appropriate. Investment of public funds in relocation of the existing business could result in significant benefits if the terminals are redeveloped in a manner that increases the direct assessable value of the property and/or indirectly helps support a robust economy centered on the waterfront. Public assistance could be in the form of direct grants or even tax incentives that could help produce a favorable situation that would support relocation.

Relocation of the current users is complicated by the cost of developing new tanks, containment structures and loading racks.

- While both terminals appear to be well maintained and there is no known contamination, the "perceived" environmental liability is often enough to block projects such as this. Often, owners of these sites know they are clean, but they just do not want to take the risk of selling and later having something discovered for which they are liable. Conversely, there is also a strong perception on the part of developers to stay away from sites that have even the most remote of possibilities that contamination may be present. Fortunately, the NYS Brownfields Program can provide a number of tools to help address these issues but without significant changes to include expanded indemnification from civil suits, the question of potential liability will remain the most frequent reason that redevelopment of potential or known brownfields are unsuccessful.

- Another significant hurdle to redevelopment of these sites is the extensive work it would take to coordinate such an effort. While the technical issues are difficult enough, the coordination of dozens of agencies, the current users, potential users. local municipalities and others would take a significant effort. It is not likely that either of the existing businesses would undertake this effort alone unless there was a major change in their business model which made the facilities obsolete. A public entity such as the Greene County Industrial Development Agency, Greene County or even a local development corporation may have the ability to undertake such a project but it would require a major investment in financial as well as other resources.

If all the complications with relocation of the current business can be addressed, the two terminal sites offer a tremendous opportunity for development of a significant water dependent use. If the two terminals could be planned in association with the Mariners site and the county's facility, it would represent close to 12 acres of prime waterfront. This could provide adequate space for new buildings as well as the creation of parking. The properties are fully bulk headed, with the shoreline in good to fair condition. Any new use at the site would likely need to improve the shoreline to support public access, but permitting is much easier given the fact that the bulkheads exist already and have been reasonably maintained. Deep water is available on the river off the Kosco site while the Main-Care property has significant frontage on the Catskill Creek that has adequate draft to support marina uses. Combined, the two properties represent over 1200 linear feet of shoreline that would be suitable for docks and a public promenade.

From an environmental perspective, the sites have no upland wetlands, and any wetland conditions on the shore are limited to a narrow band. The deep water characteristic of both sites does not provide conditions that would support extensive tidal wetlands or SAV beds. As noted earlier, the sites do not appear to have any visible problems with contamination, but they would require extensive investigation to determine what if any contamination problems may be present. The primary environmental factor that would need to be addressed is the presence of regulated floodplains over 100% of both sites.

With effective planning, elevation and flood proofing of any site improvements could effectively address the floodplain issue.

Dutchman's Landing

The Dutchman's Landing Park is a municipal facility owned by the Village of Catskill. Located on the north side of the point, the 13+ acre property is the largest municipal park on the river. A portion of the property was once the site of the Village's landfill. In 1975, dredge spoils from the Catskill Creek were used to cover and elevate the site. The facility has a large, double boat launch that is popular and often hosts regional or even national bass fishing tournaments. The site contains fairly good parking, with lots set up for cars as well as trailer parking. A small gazebo, walking trail, playground and picnic tables/grills are other improvements that are available to visitors. The park also is the site of the southern trail head of a riverfront trail that links the park to the Village owned Historic Beatty-Powers House.

One unique feature of the park is a small snack bar/restroom building called Dutchman's Gallery. Constructed and owned by the Village of Catskill, the facility is operated by a private party under a multiple year lease. As part of the lease, the operator is required to maintain the restroom facilities for public use. Under this scenario, the Village can provide important services to visitors while receiving revenue to help payback the Village's investment. The park is the only riverfront park in Greene County that provides food as well as public restrooms.

The Dutchmen's Gallery is an good example of how public/private partnerships can provide cost effective services to park visitors

The Village, with assistance from Greene County and community groups such as the Fortnightly Club, continues to make improvements to the park. A new playground was recently installed, and the Village has received grant funds for the purchase of new docks. The Village is also working with NYSDEC to undertake improvements to the launch ramp. The park's shoreline is mostly rip rapped and is in good condition. In regards to environmental constraints, the site is mostly built out, A small wooded area remains

along the parks western boundary, but it is a wetland and would be difficult to integrate with the park.

The presence of the Dutchman's landing park is a critical part of the Village's water dependent economy. The facility draws many people to the Catskill waterfront, exposing them to the shops, restaurants and other activities the Village has to offer. When the larger bass tournaments are held, local hotels, diners and shops often see a brisk business due the many fishermen and their families that come to the village. In any master plan to promote enhanced water dependent uses on Catskill Point, the park would be an important resource. The only significant limitation is once again associated with parking. While the park has adequate capacity for the average day on most high use days (i.e. holiday weekends) capacity is limited.

Village WWTP

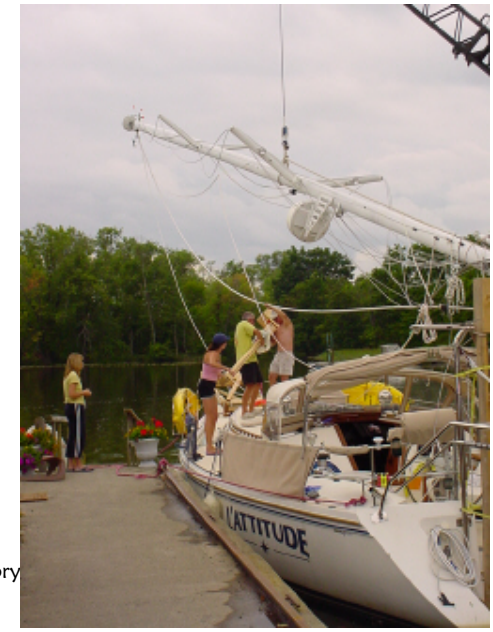
The Village's waste water treatment plant (WWTP) is located on a large parcel in the center of Catskill Point. The site is well maintained, and the village has worked hard to screen the facility from the adjoining park. While the WWTP would play an important role in providing critical infrastructure to any new or enhanced waterfront projects, the Village should investigate the potential to develop portions of the site to help address the parking needs at the point.

Open area in front of the WWTP could be converted to much needed parking

An area in front of the plant, as well as an open field east of the driveways, have adequate space for the creation of additional parking. If properly planned and landscaped, the parking could be attractive as well as help support further development on the point. As many as 75 parking spots could be provided which is a substantial increase from the limited on-street parking currently available. If the Village were to consider using permeable pavement systems, grants may be available from a number of sources.

Riverview Marine Services

The Riverview site is the only commercial use on the point that is directly water dependent. The site is



Riverview Marine Services provides a wide range of critical services such as removal of masts for sail boats heading to the canal system

slightly less than 1 acre in size and includes approximately 350 linear feet of waterfront. The site contains one large building that is used to store and repair boats as well as an office and ships store. The marina provides dock space as well as support services such as fuel, supplies, boat repairs and the winterizing and storage of boats. Riverview also retails new and used boats and personal water craft and provides boat rentals. The Marina also is one of the few facilities in along the upper Hudson that lowers or raises masts for larger sailboats that are heading to or returning from the canals to the north. The marina provides a full range of maintenance services and has the capacity to haul out boats up to 40' for repairs or winter storage.

Full service marinas such as Riverview are a critical component of a water dependent economy and must be considered as an asset for the entire community. Riverview is well known on the traveling boater community, and it draws visitors to the Village. Boaters that dock for marina services are likely to also visit local restaurants, stores and attractions.

Waterfall Laundry Site

The Waterfalls Laundry Site consists of two small parcels. The waterfront site is just under a half acre in size and has approximately 185' of frontage on the Catskill Creek. The second parcel is a small triangular lot directly across the street to the east of Dutchman's Landing exit. The two properties were formally the site of the Waterfall Laundry and were acquired by Greene County on a tax foreclosure. The county removed the buildings from the property and stabilized the site.

Greene County has a unique opportunity to promote a water dependent use at the Waterfalls Laundry site

The county has owned the property for approximately 10 years and has long debated its use. At the present time the county plans to put the property out to bid in an effort to liquidate excess property and generate revenue. The county has held off on selling the property for a short period to provide one last opportunity to evaluate different options for use of the site. Regardless of the County's final decision to sell or develop the property, priority should be given to insuring the site is used in a manner that will help promote the water dependent economy. While the property could be sold to a private owner with no long term public or economic benefit, it could also be used in any number of scenarios that would have benefits that extend beyond the site itself. While potential uses of the property are numerous, a few that may deserve more detailed consideration include;

- Conduct a RFP process to investigate potential partnerships with a private sector business. The RFP should set general criteria that would seek proposals for development of a water dependent commercial use that would also be open to the public. The County could enter into a joint development agreement and use the property as an incentive to promote the local economy.

- Develop a Proforma to evaluate the fiscal impacts of various scenarios for the site. While a sale of the property may provide a one time revenue source for the county, could the property produce more revenue over time if the County controls the end use of the site and undertakes development that maximizes long term revenue through property value, sales tax and the multiplier effect of money spent in the community? On one hand, the county could make an unrestricted sale of the property for private use, which will generate little property tax, no sales tax and not enhance the waterfront economy. On the other hand, the county could look at the property as an asset in their economic development tool box and leverage the value of the property to achieve an end use that is paying more property tax, produces sales tax and has other public benefits.

- As a public entity, the County has the ability to access grants and other funding to undertake improvements at the site. One potential scenario would be for the county to maintain ownership of the site and seek grant funding for improvements that would support a water dependent use. Once the site was completed, the County could lease the site to a private operator. A successful example of this model exists in the Dutchman's Galley across the street in the Village's park.

- One potential use of the property could be as a home base for a tour boat business. Several currently operate on the river, and it would take some rather simple improvements to make the site usable. A tour boat could be expected to draw additional visitors to the Catskill Waterfront which would benefit the local economy. Not only would a local tour boat have direct benefits to the Village of Catskill, it would also support Greene County resorts. Currently, local resorts bus visitors to Albany or the Mohawk River to provide their guests a boating experience. The site's location on the creek, the close availability of marine support services and the proximity of

Small tour boat operations on the river can draw visitors to the Village and its waterfront.

restaurants and shops, could all provide or for a synergy with a tour operation.

- Another use may be as a Paddlesport center. In recent years the, use of kayaks and canoes on the Hudson River has experienced tremendous growth. Where as ten years ago it was rather uncommon to see a kayak, they are now present in large numbers. A model for the use of the Waterfalls site exists in Westchester County near the City of Peekskill. The Annsville Creek Paddle Sport Center is a public-private partnership that was promoted by Governor Pataki. The facility is owed by NYS and was formally a NYSDOT satellite garage. The property is located on the tidal Annsville Creek, just off the river and it's was rehabilitated by the state and made a part of the Hudson Highlands State Park. The state converted the former garage into a building for rental and storage of kayaks and created a parking lot and dock facility that is designed for paddleboats. One the property was improved, the state entered into a multiyear lease with Atlantic Kayak Tours which operates and maintains the center. Atlantic also operates a paddle sports retail store and rents and stores kayaks. The company also runs a very successful touring service, with visitors paying a fee for a guided paddle. Lessons for kayak certification are also offered. Discussions are currently underway between the state and Atlantic Kayak tours to open a similar facility at the Norrie Point State Park in Dutchess County. At Annsville, the public is also provided free access to the facility to launch their boats. A similar operation at the Waterfalls site could have the potential to draw significant visitors that would also seek food, fuel, lodging and other services in the area. It is also reasonable to project that Paddlesports will continue to grow in popularity as fuel price impact power boating.

The Annsville Creek Paddlesports Center is an excellent example of a public-private partnership that provides public services at no cost to the state as well a vibrant water dependent business that can benefit the local economy.

Harbor Lights Town house

The Harbor Lights project is located on a 5.6 acre property with approximately 1100 feet of frontage on the north bank of the Catskill Creek. The project includes townhouses built along the creek as well as dock facilities which can be purchased separate from the residence. Development of the site was started in the early ninety's with an initial phase that include 10 or the 50 proposed residential units and all of the 52 boat slips. The project has seen a slow growth rate even during the period after September 11 when new second home projects were being developed within many parts of the county. The project was stalled at the initial phase until recently when the second block of units was

constructed. At this time, the project is struggling to sell units and has been advertising steep discounts.

Harbor Lights is typical of many sites in waterfront communities where private residential uses compete for sites that could support water dependent business

The Harbor Lights project is a classic example of a dilemma that many waterfront communities have faced. The development of residential structures with direct water access is attractive to many buyers. When these projects are undertaken, they often compete with potential waterfront commercial uses for a small pool of waterfront sites suitable for development. While these residential projects can bring value to a community by providing customers for local business, they also make it difficult for water dependent business to acquire these valuable lands. In some communities, the conversion of their waterfront into residential uses has significantly reduced public access and limited water dependent commercial uses.

Some communities have developed local ordinances that prohibit or limit the amount of their waterfront that can be developed for residential uses. Locally, the Village of Coxsackie's new zoning ordinance prohibits any residential construction near the river in the downtown center. In other portions of the waterfront, residential uses are only allowed above the first floor. The goal of these requirements is to maintain open space along the river that can provide public access or water dependent uses that can enhance the Village's economic structure. By allowing residential structures on higher floors, the Village is seeking projects that would provide shops and other public space on the ground floor, yet give the developer the ability to integrate residential use which can help balance the project's financial structure.

The Harbor Lights project is typical of many waterfront areas in the Hudson Valley where residential uses compete with commercial uses for prime locations

As the Harbor Lights is a private development project and its fate rests in the hands of its owners, there is limited ability to influence the future of the site. In light of the fact that the project has been under development for close to 20 years and 1/3 of the site remains undeveloped, the owners may find it advantageous to examine the long term development goals and evaluate potential amendments that may

integrate non-residential uses on all or part of the undeveloped portion of the site.

Catskill Marina

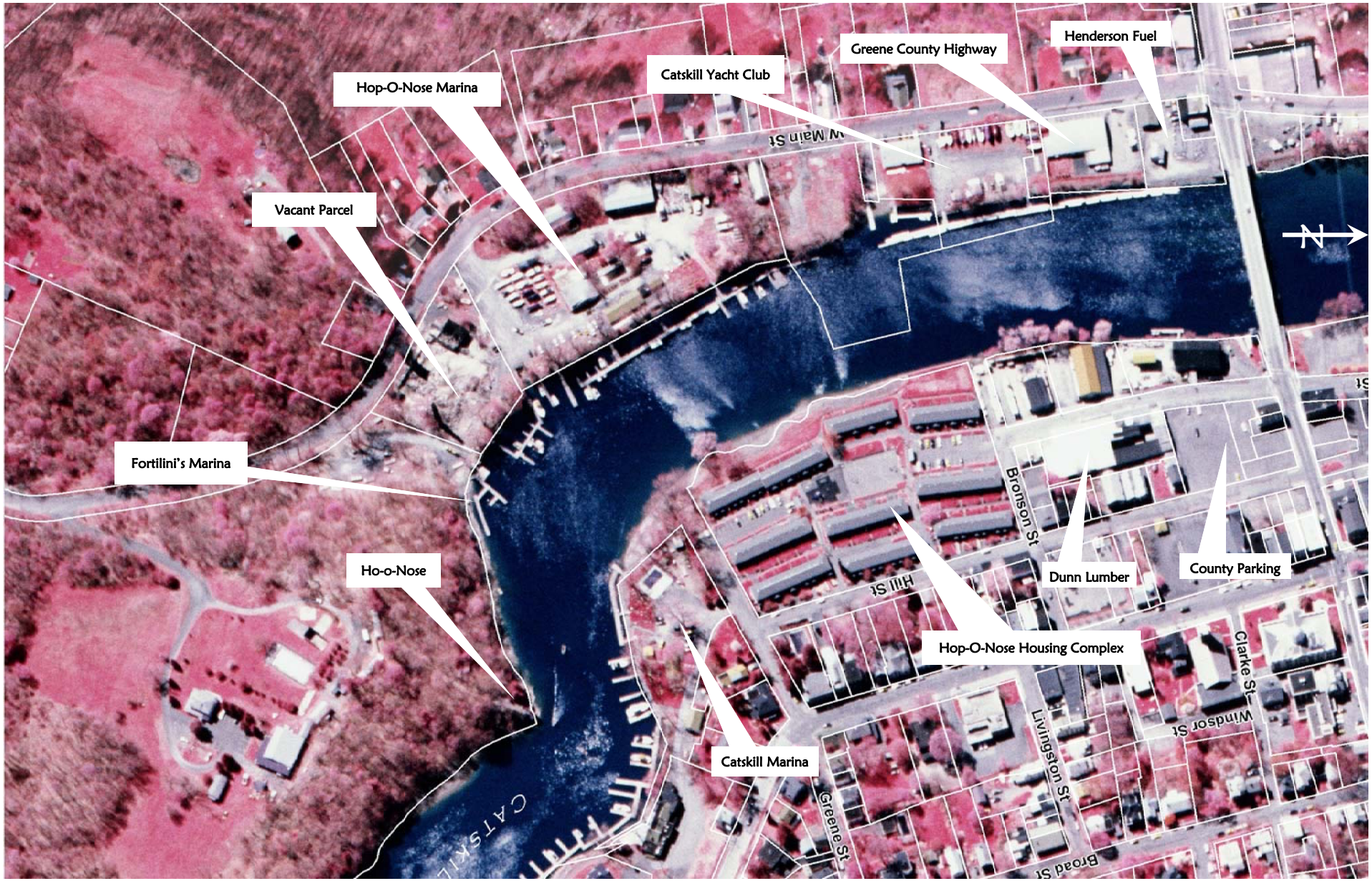
The Catskill Marina provides a wide range of amenities to support transient boaters in a tranquil setting.

The Catskill Marina is one of four commercial marinas operating on the Catskill Creek. It is located on the north bank of the Catskill Creek at the foot of Green Street. The facility includes approximately 44 slips with 10 reserved for transient boaters. The Marina targets the transient boating marking by providing a wide range of amenities. Showers, Laundromat, heated pool and complimentary cable and wireless are services important to transient boaters. The marina also has a ships store and it provides fuel and pump out services. The site is the closest marina to Catskill's Main Street and it a short walk for boaters to visit the shops and restaurants in the downtown area. The marina does not offer repair services. Like Riverview Marine Services, the Catskill Marina is an important component of the county's water dependent economy. Transient boaters are attracted to the protected harborage in the Catskill Creek and the opportunity to get off the boat and explore.

7.3 Catskill Creek Lower

The Catskill Creek East reach was delineated as starting at the Hop-o-nose and running upstream to the Uncle Sam Bridge (Figure 19). The delineation of the reaches was not based on any physical or other attributes but simply for ease of presenting the locations on the aerials included in this report. To some extent, physical features such as the Hop-o-nose and Uncle Sam Bridge provide barriers to linkages between properties in each reach and make for a practical segregation into the two reaches.

This stretch of the Catskill Creek is still navigable by larger motor boats with the federal navigation channel running most of its length. The reach includes a number of significant waterfront sites that are currently in water dependent uses as well as a number of parcels that are currently not associated with the water. The primary sites in this reach include Forlini's Marina and Restaurant, Hop-o-Nose Marina, Catskill Yacht Club, the Greene County Highway Department, Henderson Fuel, Dunn Lumber and the Hop-o-nose public housing project.



Community Natural Resource Solutions
81 South River Street
Coxsackie, NY 12051

Mapping by Delaware Engineering P.C.

Not to Scale

Greene County Water Dependent Use Inventory and Assessment

Catskill Creek East
Waterfront Inventory

Legend
- Town Boundary
- NYSDEC Freshwater Wetlands
- 100 Year Flood Zone
- 500 Year Flood Zone

W N S E

Figure 19

Along most of the reach, the shoreline is protected with riprap, concrete or old wooden bulkheads. This section of the creek has a long history of industrial use and the remnants of the piers and docking facilities still remain. The reach is relatively free of tidal wetlands due to its depth and the strong scouring action of the Catskill Creek which limits the development and maintenance of sedimentation areas necessary to support wetland development. Similar to all the county's waterfront areas, this reach is also significantly constrained by regulated floodplains (Figure 20). The reach is some what unique in that the floodplain is more extensive in width on the west side of the creek and narrower on the east.

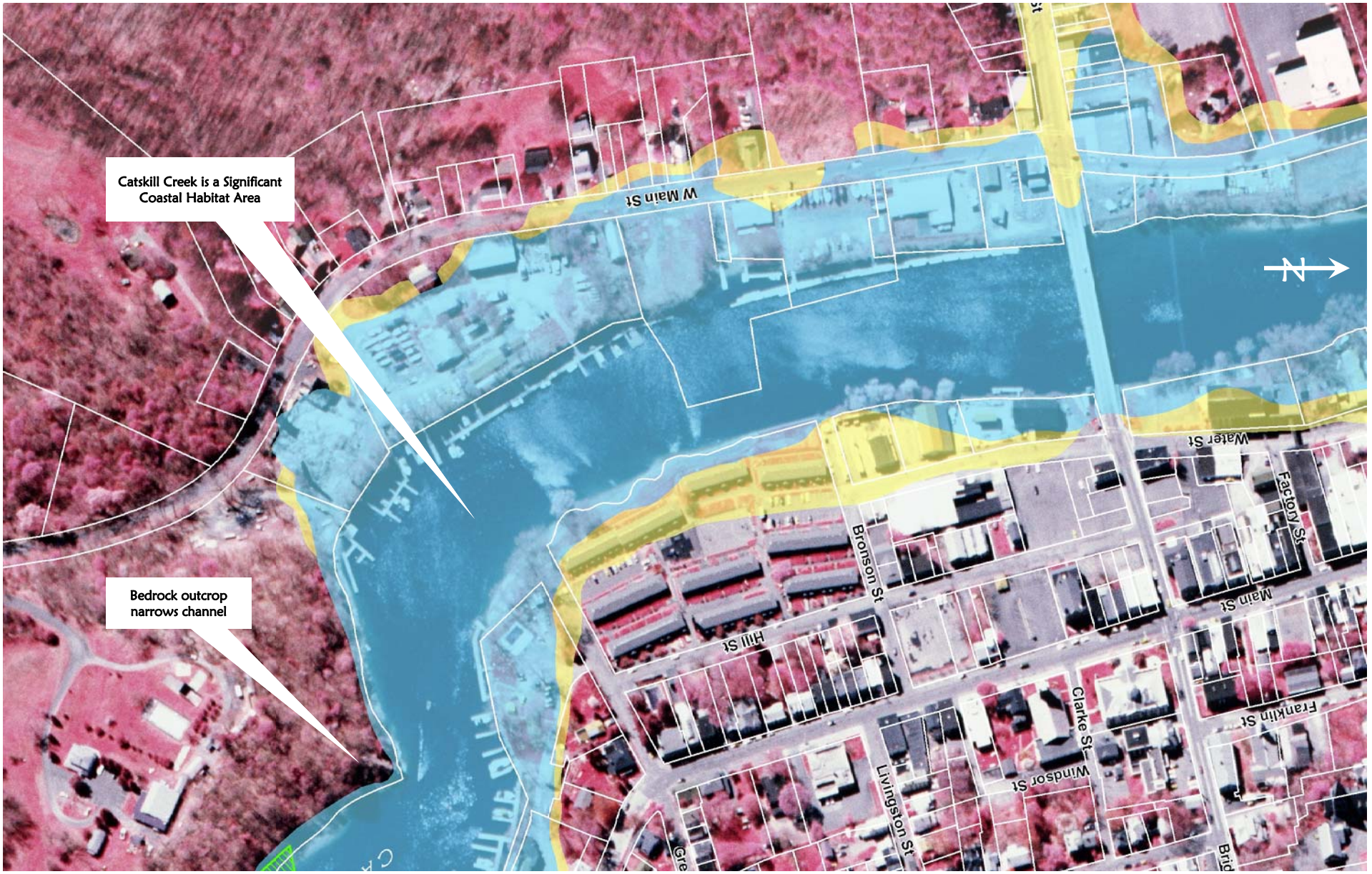
Forlini's Marina & Restaurant

Located on the southern bank of the Catskill Creek, Forlini's offers 30 wet slips and 8 slips dedicated to transient boaters. The marina itself offers limited service with no fuel, supplies or repairs available. The marina does provide access to bathrooms. The marina is located on a 24 acre property that includes the Hop-o-Nose and is characterized by steep slopes along the creek.

The Forlini's property presents a unique opportunity to develop a destination level facility that could support the water dependent economy as well as upland stores and restaurants in Catskill.

Once a popular resort, the property contains a number of structures in various states of use. A restaurant and home on the site are still is active use, but most of the other resort features such as seasonal cottages, a pool and recreation facilities are no longer is use. While the site does present some challenges, it also provides significant opportunities for redevelopment. Limitations include site topography which makes access to most of the shoreline difficult and the site's location on higher terrain directly across from the Olana Historic Site. Any development proposals that would result in significant clearing of the site or the construction of large structures, would likely meet stiff resistance from the state and federal agencies that would need to issue permits.

In regards to opportunities, the size of the parcel, access to water and wastewater services and limited environmental constraints make the site attractive for development. Properly planned, with integration of the site's natural features, the site could support a significant redevelopment. While the site would be attractive for the town house market, it is much better suited for a commercial use that will bring greater economic benefit as well as provide some level of public access.



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Not to Scale

Greene County Water Dependent Use Inventory and Assessment

Catskill Creek East
Environmental Constraints

Legend
- Town Boundary
- NYSDEC Freshwater Wetlands
- 100 Year Flood Zone
- 500 Year Flood Zone

W N S E

Figure 20

Hop-o-Nose Marina

The Hop-o-nose marina is the largest of the commercial marinas located in Catskill. The site is on the west bank of the Catskill Creek between Forlini's and the Catskill Yacht club on a site that was once the Ferrier and Golden Brick yard. The site is approximately 3.6 acres in size and has 575 feet of creek frontage. Started in the early 1970's, the facility is a full service Marina catering to both local slip rentals and transient boating traffic.

Hope-o-nose marina is the largest on the Catskill Point and provides a full range of services to local and transient boaters.

Amenities include 82 slips, fuel, pump-out service, a ship store and marine repair services. Like Riverview Marine Service, Hop-o-nose also provides mast removal and setting for sail boats that need the lower clearance to travel the canals. Boat repair services including a canvas shop are available and the marina has the equipment for hauling out, winterizing and storing boats. A restaurant on the property serves both boating and non-boating customers. The Hop-0-nose is an important water dependent use on the Catskill waterfront. Like the other marinas, the facility attracts transient boaters who support local business as well as provides access to the local non-boating community through its restaurant. The marina would be a key component of any future efforts to develop and promote Catskill historic commercial districts a destination area.

Catskill Yacht Club

The Catskill Yacht Club is a member's facility located on the west bank of the Catskill Creek just above the Hop-o-nose Marina. The club provides services to its local membership as well as services to members of other yacht clubs. As a member of the Mohawk-Hudson Council of Yacht clubs, the Catskill Yacht Club services are available to

The Catskill Yacht Club serves local members as well as members of other clubs on the Hudson and Mohawk Rivers bringing visitors to the Village of Catskill.

members of other member clubs in the council. The Mohawk-Hudson covers the Hudson River down to the Mid-Hudson Bridge and west out to lock 8 on the canal. The council also has an agreement with the Hudson River Yacht Club Association which covers the private marinas in the lower river and allows access participating clubs to access services at other member's facilities.

The yacht club is located on a 1.2 acre parcel and has a little over 200 feet of frontage on the creek. The club maintains approximately 600 feet of docks using frontage along several adjacent properties as well as its own property. The entire shoreline on the club's property was previously wooden bulkhead and is currently rock rip-rapped and in stable condition. The waterfront has more than adequate draft for larger boats and there are no upland or tidal wetlands present. Scouring action of the channel along the old bulkheads appears to do an adequate job of preventing sediment build up.

The club has a total of 48 slips and provides fuel, restrooms, showers and a restaurant for member and visitor use. While the club is a members only facility, its association with the Mohawk-Mohawk Council as well as the Hudson River Association means the facility is used by members from many other clubs when boating in the area. These boaters could be a source of visitors to Catskill and customers for local shops and restaurants.

Greene County Highway Office

The Greene County Highway Department maintains its main administrative offices as a sign shop on a property on the west bank of the Catskill creek. The property is approximately 0.65 acres with 180 feet of waterfront. The shore is characterized by older wood pile bulkhead below the low tide level and rich rip-rap on the upper show.

The Greene County Highway office building is located on a prime creek side property. The County has a unique opportunity to use the property to support the development of an enhanced water dependent economy along the creek

The site has no upland or tidal wetlands and SAV beds are not present. A single building used for highway department offices and the county's sign shop, as well as fueling facilities for the county's fleet are located on the parcel. Greene County is aware of the fact that the current use does not utilize the site to its maximum potential and alternative for the relocation of the highway facilities is under discussion.

Similar to the Waterfalls Laundry site discussed earlier, the county has a unique opportunity to use the property to promote an enhanced water dependent use along the creek. While the county could sell the property in an unrestricted sale for a one shot source of revenue, it is strongly recommended that the property be evaluated with the Waterfalls site to determine alternative uses which could support the development of a waterfront strategy. Alternatives such as those outlined in the Waterfalls Laundry Section as well as other options such as providing parking and a public dock should all be evaluated. At the current time, the Catskill Yacht club uses the county's waterfront for docks. Any proposal for redevelopment of the county property should be done cooperatively with the yacht club to help the club deal with the possible loss of dockage.

Henderson Fuel

The Henderson Fuel site is located on the west bank of the creek between the Greene County Highway facility and the Uncle Sam Bridge. The property is 0.44 acres with approximately 150 feet of creek frontage. For many years the property was used by Henderson Monument service which still is still located on the site. In recent years, a small pole building was erected to house trucks from Henderson Fuel; The site contains no fuel storage facilities and is not dependent on the creek for deliveries.

The Henderson site includes a burial monument service and a home fuel delivery business, bit non-water dependent uses

The site is characterized by a well stabilized shoreline with old wood bulkheading below the low tide level and rock rip-rap above. The property is entirely within the regulatory floodplain, but it is free of upland or tidal wetlands. No SAV beds have been mapped along the shore. The property is a key location due to its close proximity to the West Bridge Street commercial area and its high visibility from the Uncle Sam Bridge. Unfortunately, the current uses of the property do not benefit from such a prime location on the creek and could operate perhaps even more effectively on an off-water site.

The property could be developed independently, or in conjunction with the Greene County highway facility property for a larger project. Due to its close proximity to the Catskill commercial District, uses that would transition between the waterfront and the commercial areas would be ideal. The property's high visibility offers an opportunity to develop alternative uses that would serve to attract visitors passing through on Route 385 top stop and explore. Waterfront shops, a public promenade/plaza, public docks or other uses could all serve to draw visitors to the waterfront.

Herrington's Lumber

On the east bank of the Catskill creek is the site of the former Dunn Lumber Company. Within the past few months, Dunn Lumber was sold to Herrington Lumber and is now operating as a Herrington's store. The property was not sold with the business and remains in local ownership. The site consists of six parcels with a total of approximately 1.82 acres. The property includes a mixture of older buildings currently used to store building supplies. Some of the buildings on the waterfront date to the period when they were used as warehouses for shipping of local goods. The site was also used to load passengers on some of the day boats.

The former Dunn Lumber site is located close to the Main Street commercial district and is highly suitable for redevelopment for a water dependent use,

The combination of properties has approximately 1000 feet of creek frontage with a short section of docks that are for the private use of the owners. On the northern end of the site a large stormwater outfall structure discharges stormwater from Main Street and areas east of Main Street. All three of the waterfront parcels are protected by old wooden piling, rock rip-rap and vegetation and appears to be relatively stable. Constraints caused by upland or tidal wetlands are low and there are no mapped SAV beds along this section of the creek.

Buildings at the Dunn Lumber site date to the period when Catskill had an active water dependent economy. The buildings location and shape make them desirable for reuse

One additional benefit is that less than 50% of the waterfront parcels are located in the floodplain. The parcels east of Water Street are completely outside the regulatory floodplain. Unlike the other properties discussed previously in this section, redevelopment of this site would have a greatly minimized cost related to flood proofing. The site is also adjacent to a series of parcels owned by Greene County and used parking for county employees.

While the lumber company is an important local business that should be supported, its location on this set of parcels represents a significant underutilization of the site's

potential. The current uses of the property do not realize any benefit from its prime location on the creek and its close proximity to both Main Street and West Bridge Street commercial areas. In addition to tying up a key waterfront parcel the lumber business must also deal with a public roadway that essentially runs right through the center of its parcel. A public-private partnership between the owner, Greene County and the Village of Catskill could result in the development of new uses for the site that that would provide commercial business, restaurants and perhaps craftsmen studios. A creative pedestrian focused development would be possible if the Village dedicated all or part of South Water Street for use as a pedestrian mall and space for public gatherings.

Hop-o-nose Housing Complex

The Hop-o-nose housing complex is located on the east bank of the Catskill Creek just below the Dunn site. The property is owned and managed by the non-profit Catskill Housing Authority and consists of 80 units in 10 buildings. The property is 4.3 acres and has approximately 600 feet of frontage on the Catskill Creek. The upland area is essentially free of wetlands and SAV beds have been mapped in this area. The shoreline is stable with a short concrete bulkhead and rock rip-rap protecting the shoreline. Most of the property is located outside the regulated floodplain.

The facility has fenced off access to the creek likely due to the number of young children living in the housing complex. While the buildings are exceptionally well maintained by the housing authority, the buildings and the development's layout are typical of public housing projects initiated in the 1960's and 70's.

The Hop-o-nose public housing project is located on a significant waterfront parcel but has no access to the water

Vacant Parcels

Within the Catskill Creek Lower reach, there are two vacant parcels that would be suitable for development of water dependent businesses. The properties are located on West Main Street on either side of the Hop-o-nose Marina. Both properties are free of significant environmental constraints in the upland areas and the waterfront is absent of

tidal wetlands or SAV beds. Both shorelines have old wooden bulkheads, with varying areas of rock riprap and other materials that have been used to stabilize the shoreline. The southern site has a brick chimney that was kept when the former brick industrial building was demolished. The properties have access to water and sewer.

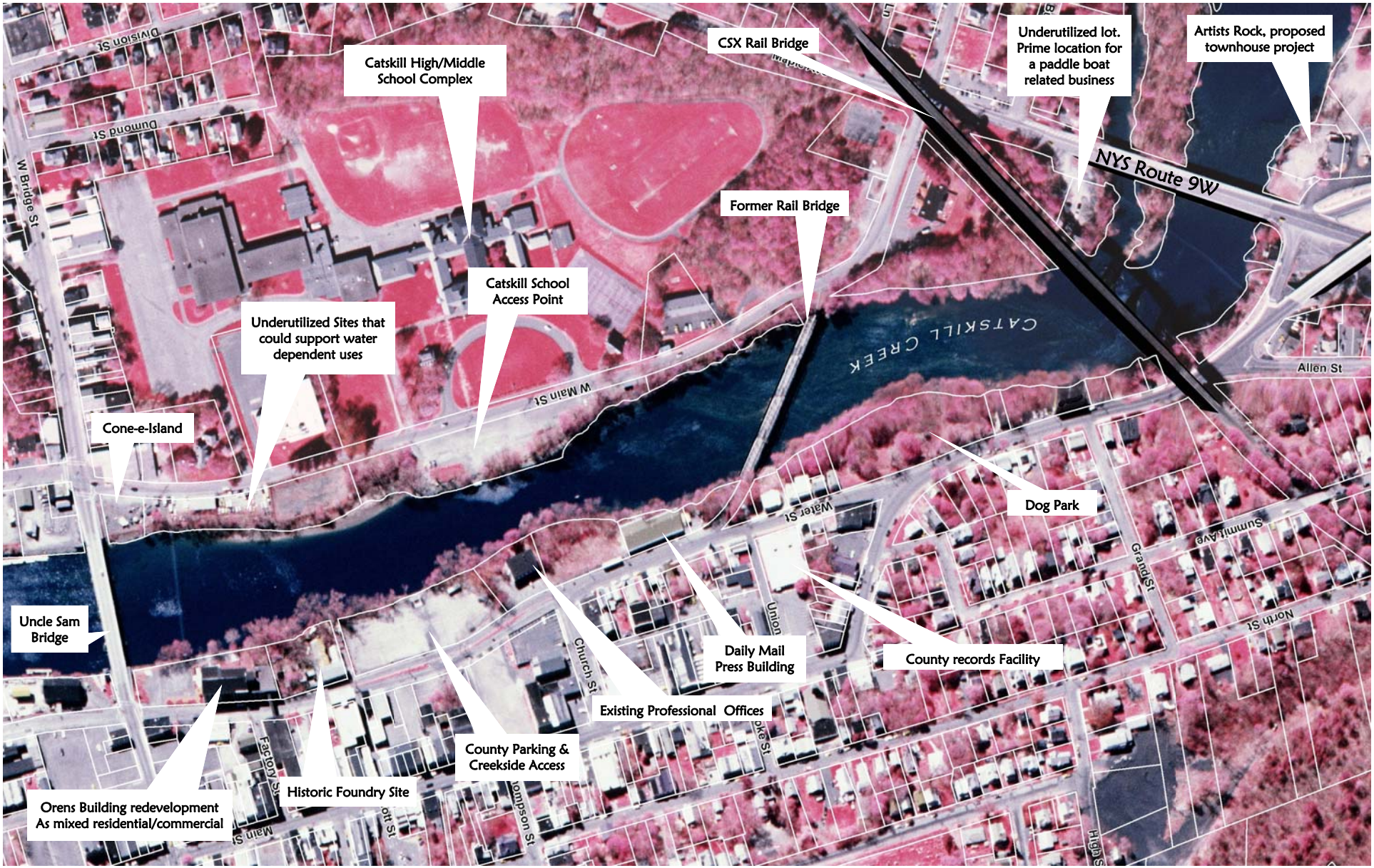
Vacant waterfront parcels on West Main Street can be key pieces increasing water dependent uses

While there are no known proposed uses for the properties at this time, it be preferable to see the sites used to enhance the water dependent economy. The County, Village and other local agencies should meet with the owners of the vacant as well as adjoining parcels to see if some form of joint development plan can be drafted. As noted earlier, the development of commercial uses that can draw visitors to Catskill should be preferable over residential projects. Expansion of services at either the Hop-o-nose or Forlini marinas would also be an appropriate use for the properties.

7.4 Catskill Creek Upper

The upper reach of the Catskill Creek starts at the Uncle Sam Bridge and runs to the Route 9W Bridge (Figure 21). This section represents the upper most extent of navigation by power boats though canoes and kayaks can travel further up the creek. Due to the height constraints associated with the Uncle Sam Bridge, the potential uses in this reach are somewhat different than the uses below the bridge. At high tide, only the smallest of boats can pass under the bridge which limits the development of marina uses or dockage in this reach. The reach also is characterized by areas where the steep high bluffs along the creek limit access to the water and potential water dependent uses.

The upper reach of the Catskill Creek has significant limits to navigation by larger boats but it does have numerous sites that could be used to enhance a water dependent economy.



Community Natural Resource Solutions
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Not to Scale

Greene County Water Dependent Use Inventory and Assessment

Catskill Creek West
Waterfront Inventory

Legend
- Town Boundary
- NYSDEC Freshwater Wetlands
- 100 Year Flood Zone
- 500 Year Flood Zone

W N S E

Figure 21

In regards to environmental constraints, the reach is similar to the lower portions of the Catskill Creek where floodplains present the most significant hurdle facing any new development (Figure 22). The floodplain is wider and more extensive on the west side of the creek where it extends a short distance up West Bridge Street. The floodplain includes West Main Street over much of the reach. Any development in this area would need to undertake extensive Flood proofing measures. The reach does exhibit some tidal wetland conditions, predominately in the area along the west shoreline between the school's site and the Uncle Sam Bridge. Sedimentation of the channel has created shallow mud flats which support wetland vegetative communities. Most of the rest of the reach is absent of well defined wetland with only isolated pockets occurring in areas were the current is allowed to slow and sediments deposit. There are no mapped SAV beds within the reach.

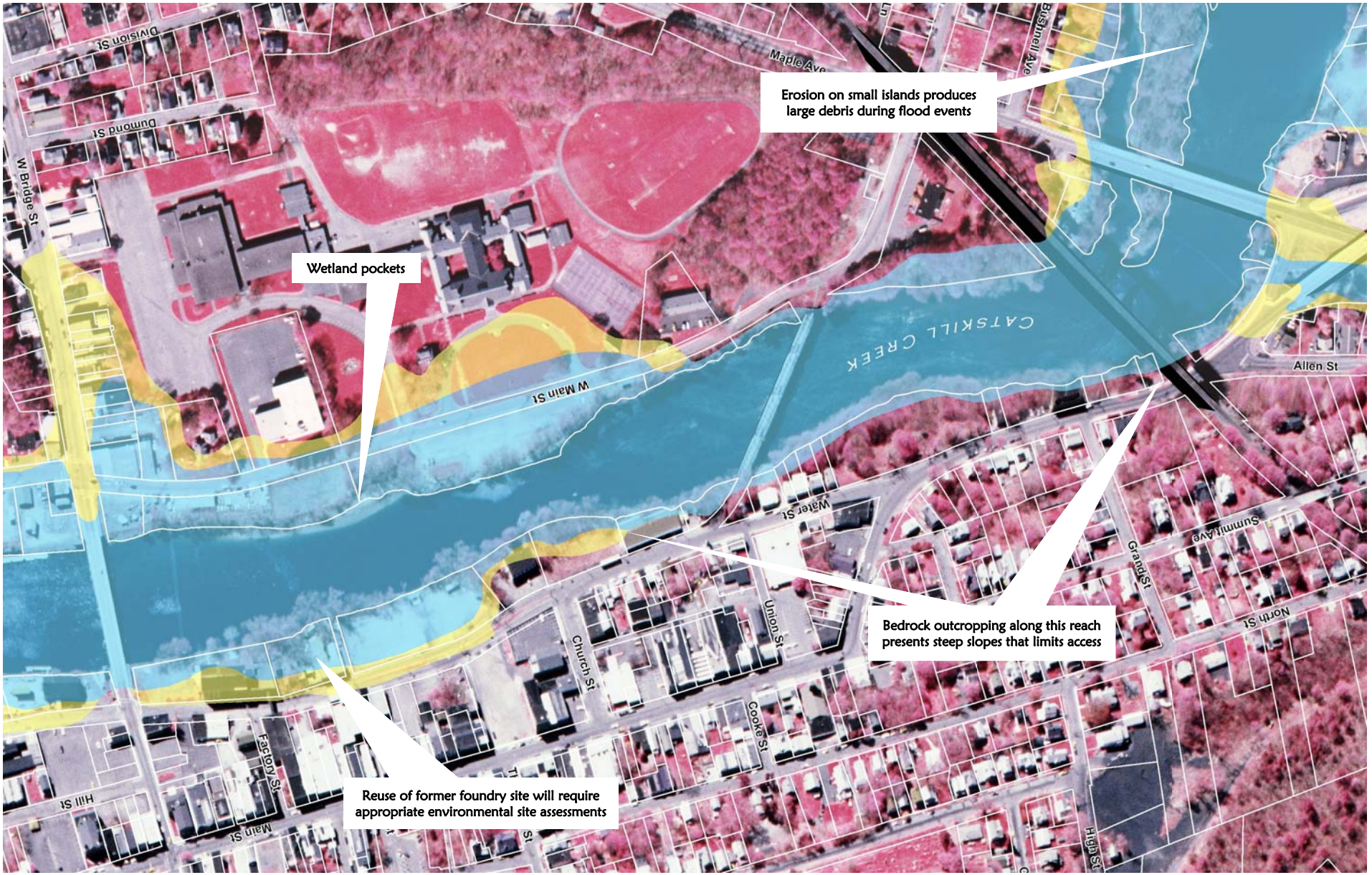
One of the unique features in this reach is the presence of three bridges that have accommodations for pedestrian traffic. The Uncle Sam Bridge, old railroad bridge and the Route 9w Bridge all contain pedestrian walkways. This provides for an opportunity to create a looped pedestrian trail that could access key waterfront parcels as well as links with the Main Street and West Bridge Street Commercial areas. Specific sites that may be suitable for water dependent use include;

Cone-e-island

The Cone-e-island site is a group of parcels that includes a site on the Catskill Creek as well as properties on the west side of West Main Street. The two parcels along the river are 1.12 acres in size combined, with an additional area of just over an acre across the street where the tee-shirt printing shop is located. All of the properties are owned by Mountain Tee-shirt.

The Cone-e-Island site is popular with local residents for its ice cream during the summer season

The creek side properties have approximately 600 feet of frontage on the water, but are constrained by both the lack of water depth and the width of the parcels. While the site runs +/- 600 feet along the creek, its width only ranges from 75 feet to 100 feet. The site also is constrained by the lack of deep water off the shoreline. While the shore is relatively stable and has suitable condition for the development of docks, the shallow draft would limit its use to the smaller power boats and perhaps paddle boats. All of the properties are located almost entirely within the regulated



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Not to Scale

Greene County Water Dependent Use Inventory and Assessment

Catskill Creek North
Environmental Constraints

Legend
- Town Boundary
- NYSDEC Freshwater Wetlands
- 100 Year Flood Zone
- 500 Year Flood Zone

W N S E

Figure 22

floodplain. Upland wetlands are non-existent or isolated in small pockets or dranageways but the site does include some tidal wetland in the northern portions.

The site does have a number of beneficial features including its high visibility from the Uncle Sam Bridge as well as its close proximity to the West Bridge Street and Main Street commercial areas. The property also has access to water and waste water infrastructure. While the site could be considered for redevelopment as a group of parcels, including the lots west of West Main Street, the presence of the street between the creek side and upland parcels is a constraint that would be a challenge to address. West Main Street has a fairly heavy traffic load including traffic to the school district campus. Recently, the waterfront portions of the site were proposed for the construction of townhouses but the project never moved past the conceptual phase.

The properties in this area have strong potential for redevelopment as a more water dependent use or in a manner that could draw more visitors to the waterfront. The current Cone-e-Island business is an excellent example of a business that can benefit from the location on the creek as it attracts people to the site. An expansion of the site, perhaps with more rides for the kids, picnic areas, a place to rent canoes and kayaks and other activities could benefit the business itself as well as the adjoining downtown area. The site is clearly not large enough to support a real amusement park, but the addition of a few key family oriented rides might be suitable for the property.

The site contains a multi-bay garage that currently houses an automotive detailing business. This is a classic example of underutilization of the property as that type of use is not dependent on the water front location and could be located almost anywhere in the community's off-water commercial areas. An alternative may be to develop the building as a paddle boat center where canoes and kayaks could be sold or rented and a kayak touring business based.

Catskill School

The Catskill School District property is a 1.6 (+/-) acre parcel located on the west bank of the Catskill Creek. The site has approximately 750 feet of frontage on the creek but is quite narrow with less than 40 feet in width at its narrowest point and only 100 feet at it's widest. The property is primarily used as a parking lot by the school, but in recent years improvements to the site have included establishing a canoe/kayak launch as well as a small gazebo and an outdoor classroom facility. The property is frequently used by local fisherman as the shoreline is easily accessible.

At one time, the property was a brickyard and evidence can still be found in the fill materials exposed by the creek's erosion. At this time, most of the shoreline is in fair to good condition. The remnants of the former wooden bulkheads can still be seen in some areas, but the area above the bulkheads has eroded the shore leaving a flatter, more shallow slope between the flatter upland and the water's edge. In the area of the Gazebo

and launch site, rock rip-rapping has been used to stabilize the shore. Most of the reach is characterized by a narrow vegetative zone that also provides stability.

The entire parcel is in the regulated floodplain which also extends west of West Main Street. Current structures on the site including a small maintenance shed are not flood proofed but are constructed of materials that would limit the damage from short term flooding. The site does contain some isolated upland wetlands as well as some tidal wetlands along the southern end. Sedimentation in the channel has created a mudflat area that has become colonized with common reed (Phragmites). The sediment deposition has also created small tidal back channels and pools that contain emergent species such as spatterdock.

The Catskill School site provides important water dependent uses to the community but has additional opportunities for enhanced us.

While the Catskill school parcel already provides critical waterfront services such as fishing access, the launch site, and just sitting and enjoying the creek, the site could be used as a significant node on a pedestrian trail around the upper reach of the creek. Enhanced public access, including more green space, plaza and walkways, could create an attractive as well as functional facility on the creek. Its current primary use as parking does not take full advantage of the property's resources. In addition to having parking on the parcel in the first place, it is also not well defined. In the absence of any curbing, stripping or other traffic control measures, the parking is disorganized and consumes more space than is required.

A possible alternative would be to free the site for enhanced public access by relocating the current parking spaces to a new lot constructed between the two driveways at the middle school. If well designed and landscaped, a parking lot in that area could be attractive as well as closer to the school. If relocation of the parking lot is not feasible, then the development of sidewalks and curbed landscaped islands could be used to better define the parking spaces in the current lot. Better organization of the parking would allow for more area to be dedicated to landscaping or a public promenade along the creek.

Twin County Recover Services

The Twin County site does not take advantage of the extensive frontage on the Catskill Creek. The site may be able to be used jointly with the Easy Street site to the west.

The Twin County site is located on the west bank of the creek just below the CSX railroad overpass. The site is 1.6 acres in size and has approximately 550 feet of shoreline. Much of the property is fairly level terrain high above the creek. The site contains one building that was originally constructed as a restaurant and night club but was later converted to offices by Twin County. The facility provides alcohol and drug recovery including residential services. The shoreline in the area is predominately natural, with trees and rock outcroppings providing stability. Most of the parcel is outside of the regulated floodplain, with only a narrow strip along the creek impacted by flooding. There are steep slopes along most of the property, with a flatter terrace located along the creek. Some isolated pockets of upland wetlands exist, but the shore is essentially free of wetland vegetation. No SAV beds are mapped in this area which is not unexpected considering the high energy in the channel at this location during flood flows.

Like many of the properties along the creek, the Twin County site does not benefit from its location on the creek. The current use at the site could just as easily be accommodated at off-water locations. While the site's topography limits access to the waterfront, other uses such as retail or restaurant use could be expected to draw more visitors to the waterfront and be a more appropriate use of the site. The site could also be developed to include some form of outdoor facility for public gatherings or used for other passive activities. The site is located directly below the CSX train trestle and as such would not be suitable for residential uses.

Catskill Daily Mail

The Daily Mail site is too steep for creek access but the building is located in a prime location on the access point to the foot bridge

The Catskill Daily Mail site consists of two small parcels (0.45 Ac) on the east bank of the Catskill Creek on the south side of the footbridge over the creek. The parcels contain a single story block building that houses the Daily Mail's printing press. The property is extremely steep along the shoreline and access to the creek is not practical. However, the

property is located on a prime spot on the foot trail over the Creek. The current use as the paper's print shop does not take advantage of the building's location on the waterfront and could be located at an off-water location. The Daily Mail building is in good condition and could easily be renovated for any number of uses that would be consistent with the development of a pedestrian loop around the upper Catskill Creek area. Potential uses could include but are not limited to retail, crafts or arts studios or a youth arcade. The building and adjoining areas could be redeveloped as a primary node on the pedestrian trial.

Vacant Parcel

Immediately south of the Daily Mail building is a 0.61 acre vacant parcel. The property is steep, but does include a terrace that could be used for access to the creek. The shoreline is mostly natural, with steep bedrock exposures at the shoreline. A concrete bulkhead along one section of the shoreline is in relatively good shape and could be used in developing public access. The site would support construction of a new multi-story building that could include a retail use that opens to the street and a use such as a restaurant that opens onto the creek in the back. The terrain and presence of bedrock would benefit the development of a small multi-level parking structure. A parking structure could provide for public access along the water with parking above.

An existing concrete bulkhead on the vacant parcel provides for a level area along the creek that would be suitable for a plaza or fishing pier.

Professional Office

This 0.43 acre parcel is located just before the county parking lot and consists of a single building which houses professional offices on the first floor and residential space on the upper floors. While the site includes approximately 150 feet of shoreline, the terrain is very steep and any access to the creek would require the development of an extensive walkway system. The current use as professional space does help to draw people to the waterfront and the existing building is appropriate for its location. If a pedestrian walkway is established to loop the upper Catskill Creek, this property could provide

The professional space at the foot of Church street could easily be integrated into a waterfront trail.

important link between the sites to the north and the county parking lot location.

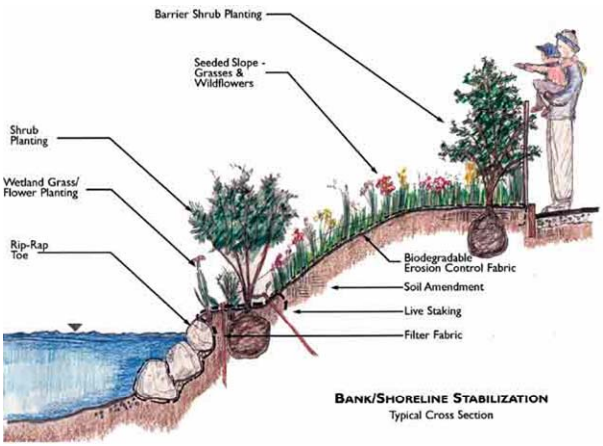
County Office Building

The County Office Building site is a parking lot on a 1.22 acre parcel located on the east bank of the Catskill Creek. The parking serves the county's new office building on the opposite side of Water Street. The County has received several grants that will be used for the development of public access along the creek.

Greene County has already secured funding to undertake improvements to the parking lot that will create public access along the creek

The walkway will integrate the existing stormwater outfall and will be designed to provide access for fishing, walking or space where county employees can enjoy the creek on their breaks. The project has also received grant funding from NYSDEC to implement measures to provide for a natural shoreline as well as to address stormwater management from the adjoining parking lot. Conceptual plans also include creating areas for fishing access.

Recently, the county completed development of a new staircase structure to provide access to the parking lot from the county building which is on a higher level. The stairs allow for safe access from upper to lower Water Street. The goal is to integrate the County office building, stairs and waterfront access to create a link to Main Street. The county also plans on working with the Village of Catskill which owns a narrow access point to the creek on the south end of the county's property. The Village is planning to create a link between Water Street and the waterfront as well as possibly a kayak dock. Another alternative for use of the site includes development of a multi-level parking structure to serve the county's needs. A parking structure could integrate retail or other public space along the creek or on the garage's upper level.



The shoreline stabilization at the county site will integrate vegetation stabilization practices to produce a natural shore

Old Foundry/McDonald Property

This 0.53 acre parcel is located on the east bank of the Catskill Creek and was formally a foundry. The property contains older industrial buildings that are in fair to poor condition. The site has approximately 152 feet of creek frontage that is characterized by wooden bulkhead that is in poor condition. The site has deep water off the bulkhead, but as noted earlier the Uncle Sam bridge limits access to this portion of the creek.

The McDonald property contains a number of old industrial buildings that could be renovated for various commercial uses such as studio/retail space for artist and craftsmen

Approximately 2/3 of the property is located within the 100 year floodplain, but there are no significant wetlands of SAV beds present. Due to the site's former industrial use any redevelopment would require an Environmental Site Assessment to determine if any contamination is present. The site does have a prime location and could easily be integrated with the public walkway to be constructed on the county and village parcels to the north. Restoration of the buildings with the development of public space along the creek would benefit a water dependent economy. The site would be appropriate for reuse as any number of commercial uses.

Oren's Furniture

The final parcel in the Catskill Creek Upper reach is the former Oren's Furniture warehouse. The 0.84 acre site is located between Water Street and the Catskill Creek and is highly visible from the Uncle Sam Bridge. The property has little environmental constraints and only the lowest floor of the building is impacted by the floodplain. The site is currently undergoing rehabilitation with plans for retail space on the lowest floors and condominiums on the upper 3.5 floors. The current plans for the site are

Renovation of the Orens building is highly consistent with helping promote a water dependent economy on the creek

highly consistent with promoting water dependent uses along the Catskill Creek. Retail and restaurants on the lower floors will draw visitors while residential units above will also provide people who will use the waterfront resources.