

## SECTION 3d - RISK ASSESSMENT: LAND USES AND DEVELOPMENT TRENDS

### SECTION 3d - RISK ASSESSMENT: EXISTING LAND USES AND FUTURE DEVELOPMENT TRENDS IN HAZARD AREAS

#### Historic

Rensselaer County was originally inhabited by the Mohican Indians who thrived on the area's abundant natural resources for centuries. In 1609, Henry Hudson sailed up the river which would later bear his name, discovering the Albany area on his voyage. The Dutch would later claim this area as their own (as part of "New Netherland"). In 1620, the Dutch West India Company (a company of Dutch merchants) was granted authority to make contracts and alliances with princes and natives, build forts, administer justice, appoint and discharge governors, soldiers, and public officers, and promote trade. Through the DWIC's Charter of Freedoms and Exemptions of 1629, members of its company were granted the sole privilege of establishing patroonships in New Netherland. Upon being deeded the land, patroons were commissioned to establish a settlement of at least 50 families within four years. Substantial settlement and development of Rensselaer County began largely when the County's lands were deeded to Kiliaen van Rensselaer by the Dutch West India Company in 1630. A Dutch jeweler and merchant and one of the original directors of the Dutch West India Company, van Rensselaer incorporated in his patroonship "Rensselaerswyck". Dutch patrons owned all of the land in the patroonship, and used feudal leases to maintain control of the land. Beginning with the death of Stephen Van Rensselaer III (the eleventh patroon of Rensselaerswyck) in 1839, tenant farms began to revolt the feudal system, refusing to pay taxes to the sheriff's deputies and eventually marking the beginning of the end of the van Rensselaer patroonship.

Rensselaer County's economy has traditionally been dominated by agriculture, back as far as the early tenant farms of van Rensselaer's patroonship. Settlement was slow in many areas until after the American Revolution for fear of attack by natives and Tories. Following the American Revolution, New Englander's began to migrate and settle in Rensselaer County.

Because of the ideal geographic location of Rensselaer County and the abundant water supply available, the area became a fast leader in the industrial development of the Northeast. Agriculture remained strong as population centers grew up near streams, where the water powered mills of various kinds (woolen, flax, paper, powder, grist mills, saw mills, textile mills, etc). Most residents were farmers, growing crops used in the local industries. Opportunities for transport of goods and services abounded with the County's natural waterways combined with the construction of the Erie and Champlain Canal systems as well as the birth of the railroad.

In the 19<sup>th</sup> century Rensselaer County enjoyed being one of the leading producers of livestock, orchard and dairy products, lumber and iron in New York State. Schaghticoke's powder mills; Sand Lake's glass factory; Walter Wood's agricultural equipment business in Hoosick Falls; the Burden Iron Works (which was powered by the largest waterwheel in the world); Fuller, Warren and Company, Troy's largest stoveworks; the iron products of the Albany Rolling and Slitting Mill (later the Albany Nail Factory and Rensselaer Iron Works); and the precision instruments made by W. & L.E. Gurley – to name a few. During the mid-1900's, the City of Troy became known for its clothing products - collars, cuffs and shirts. The nickname, "The Collar City" still is heard today. The cities of Troy and Rensselaer became centers for shipping these products to New York City, Chicago, Boston and beyond. The large labor force needed to work the County's many factories and farms fostered the growth of the towns and cities in Rensselaer County.

## **SECTION 3d - RISK ASSESSMENT: LAND USES AND DEVELOPMENT TRENDS**

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The early 20th century brought with it an expanding industrial economy driven primarily by profit, with little regard for workers or surrounding environments. Legislation abolishing abusive labor practices, and promoting child welfare and education, wildlife protection and reforestation, city planning and subdivision control all were created during this period. Major construction projects of the day included local efforts to widen and deepen the Hudson River, dam Rensselaer County's rivers and lakes, and expand its transportation networks. Development of many kinds was cut short by the stock market crash of 1929 and the Depression which followed.

Over the course of the latter half of the 20<sup>th</sup> century, and after years of relocated industry and population, Rensselaer County (like much of the post-war United States) began to turn its attention to renewing its blighted cities. Federal and state funding for urban renewal and highway construction played a significant role in re-shaping not only Rensselaer County's urban centers but also its transportation routes through rural areas. Roadway systems were expanded, and public services were extended, bringing with them increased residential and commercial development in new areas.

Many of these old industries are gone, but they have been replaced by others who have come to rely on the highly skilled workforce available in Rensselaer County. Today, while Rensselaer County is still a largely rural county with a strong agricultural base, it is becoming a fast leader in high technology. Rensselaer County is the location of choice for numerous national and global companies across a variety of industries, including Albany International, Fujicolor Processing, Inc., MapInfo Corporation, and MetLife. In addition, Rensselaer County is home to Rensselaer Polytechnic Institute's Incubator Center, housing dozens of promising start-up companies, as well as the Rensselaer Technology Park in North Greenbush, representing a wide diversity of technologies from electronics to physics research and biotechnology to software. The County has implemented a farm protection plan to help sustain existing farm families.

### **Existing Land Use**

Rensselaer County is located in the eastern portion of New York State in what is known as the Capital Region. The Hudson River and adjacent Saratoga and Albany Counties make up the western boundary of the County, and its eastern boundary is shared by the states of Vermont and Massachusetts. Washington County is located to the north. The county seat of Troy lies approximately 150 miles east of Syracuse, and seven miles northeast of Albany. According to the US Census Bureau, the County is 654 miles in area (not including open water). Rensselaer County is bounded by (counties). All other areas are bounded by water and represent international borders with Canada, with Lake Ontario immediately to the west and the St. Lawrence River to the northwest.

There are 22 municipal jurisdictions in addition to the County, with the City of Troy designated as the County seat. The Countywide population as determined by the 2000 Census was 152,538 and the U.S. Census Bureau estimated the 2009 population to be 155,043. The New York Statistical Information System at Cornell University projects the County's population to decrease steadily thereafter through 2035, back to a level of 137,187. The Census 2000 population gives the County a population density of 233 people per square mile, while the population density for New York State overall is significantly higher at 402 people per square mile.

Figure 3d.1 presents a graphical depiction of land use in Rensselaer County, and the component data used to compile this figure is presented in Tables 3d.1 and 3d.2, which present total acreages of land currently

## **SECTION 3d - RISK ASSESSMENT: LAND USES AND DEVELOPMENT TRENDS**

under various land use categories and their relative percentages within each municipality and in the County overall.

Together, Tables 3d.1 and 3d.2 and Figure 3d.1 show that 16.4 percent of the county is currently used for agriculture, 39.6 percent is residential, and 29.6 percent of the land is vacant. Furthermore, 8.9 percent of the land is parks and open space and 1.6 percent is used for office, general business, and commercial uses. The remaining 3.9 percent is comprised of community services/institutional, industrial, utilities, transportation, or open water.

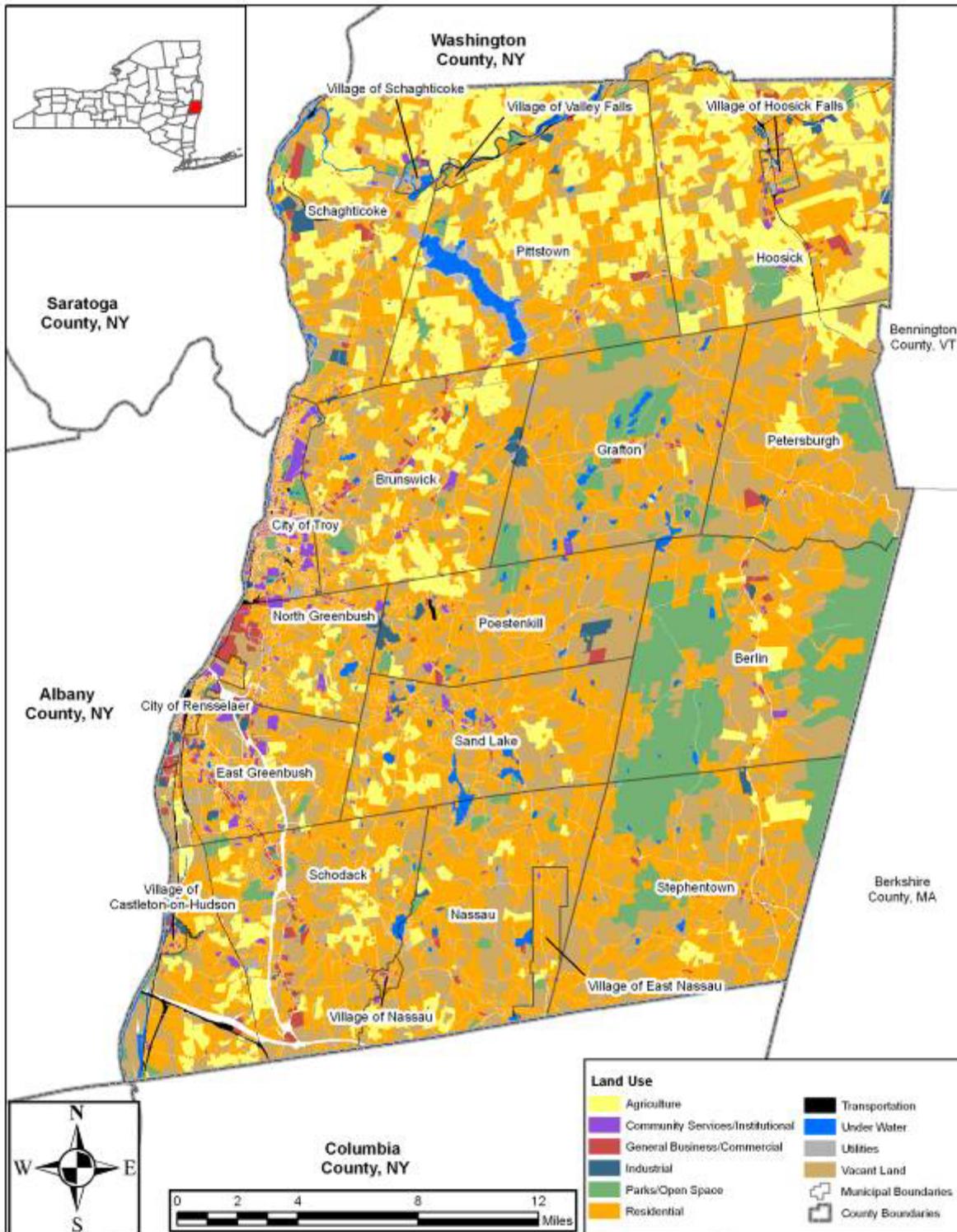
Significant areas of designated protected undeveloped land include the following:

<u>Location</u>	<u>Number of Acres</u>
• Cowee Conservation Easement – Petersburgh, Berlin, Stephentown	5,501
• Capital District State Wildlife Management Area - Berlin	4,048
• Taconic Ridge State Forest - Petersburgh, Stephentown	3,330
• Berlin State Forest – Berlin	2,508
• Grafton Lakes State Park – Grafton	2,312
• Pittstown State Forest – Grafton, Pittstown	1,192
• Schodack Island State Park – Schodack	958
• Tibbetts State Forest – Hoosick	907
• Dyken Pond Environmental Education Center – Grafton	523
• Frear Park – City of Troy	216
• Papscanee Island Nature Preserve – East Greenbush	201
• Bennington Battlefield State Historic Site – Hoosick	160
• Cherry Plain State Park – Berlin	150
• East Greenbush Town Park – East Greenbush	122

This Working Draft Submittal is a preliminary draft document and is not to be used as the basis for final design, construction or remedial action, or as a basis for major capital decisions. Please be advised that this document and associated deliverables have not undergone internal reviews by URS

## SECTION 3d - RISK ASSESSMENT: LAND USES AND DEVELOPMENT TRENDS

**Figure 3d.1:** Rensselaer County Land Use



SOURCES: ESRI, U.S. Counties, 2005; Rensselaer County BRIS, Rensselaer County Municipal Boundaries, 2009, Tax Parcels; U.S. Census Bureau, Rensselaer Area Hydrography, 2007.

SECTION 3d - RISK ASSESSMENT: LAND USES AND DEVELOPMENT TRENDS

**Table 3d.1**  
**Land Use Acreage Breakdowns by Municipality**

Municipality	Residential	Community Services/Institutional	Offices/ General Business/Commercial	Industrial	Utilities	Transportation	Agriculture	Parks/Open Space/Conservation	Vacant	Under Water	Total (Acres)
Berlin, Town of	10,610	140	231	58	75		1,342	16,224	8,927	92	37,699
Brunswick, Town of	12,196	350	569	192	171		5,893	554	7,360		27,285
Castleton-on-Hudson, Vill. of	208	63	5	99	5	9		6	27		422
East Greenbush, Town of	6,213	643	650	276	86	123	766	207	5,396		14,361
East Nassau, Village of	1,569	18	6		1		100	72	1,171		2,937
Grafton, Town of	10,349	166	136	161	26		128	4,325	13,574	23	28,888
Hoosick, Town of	10,515	341	610	355	45	227	17,337	1,292	7,641		38,363
Hoosick Falls, Village of	388	51	20	61	46	19		52	182		818
Nassau, Town of	12,401	38	143	52	107	0	2,005	673	9,123	247	24,789
Nassau, Village of	244	42	10		2			2	108		408
North Greenbush, Town of	4,865	386	944	157	214	25	1,189	104	3,223		11,108
Petersburgh, Town of	10,929	38	207	54	40	23	1,782	2,464	10,558		26,095
Pittstown, Town of	14,474	74	185	120	3,201	154	14,115	1,174	6,691		40,188
Poestenkill, Town of	9,175	124	328	690	23	53	809	767	8,258		20,227
Rensselaer, City of	499	177	205	115	39	120		72	480		1,707
Sand Lake, Town of	11,774	237	95	122	40		1,956	89	7,432	500	22,245
Schaghticoke, Town of	9,100	119	694	601	676	123	12,881	538	5,947		30,680
Schaghticoke, Village of	93	43	12		77	10	15	88	111		449
Schodack, Town of	16,951	234	828	89	292	534	5,301	964	11,834		37,026
Stephentown, Town of	17,054	42	175	145	34		1,258	6,212	11,635		36,554
Troy, City of	2,082	1,312	414	101	125	89		455	1,075	11	5,663
Valley Falls, Village of	118	2	3	1	2	11	34	30	61		262
<b>County Total</b>	<b>161,807</b>	<b>4,640</b>	<b>6,470</b>	<b>3,449</b>	<b>5,327</b>	<b>1,520</b>	<b>66,911</b>	<b>36,364</b>	<b>120,814</b>	<b>873</b>	<b>408,174</b>

SECTION 3d - RISK ASSESSMENT: LAND USES AND DEVELOPMENT TRENDS

**Table 3d.2**  
**Land Use Percentage Breakdowns by Municipality**

Municipality	Residential	Community Services/Institutional	General Business/Commercial	Industrial	Utilities	Transportation	Agriculture	Parks/Open Space	Vacant	Under Water	Total (Acres)
Berlin, Town of	28.1%	0.4%	0.6%	0.2%	0.2%	0.0%	3.6%	43.0%	23.7%	0.2%	37,699
Brunswick, Town of	44.7%	1.3%	2.1%	0.7%	0.6%	0.0%	21.6%	2.0%	27.0%	0.0%	27,285
Castleton-on-Hudson, Vill. of	49.3%	15.0%	1.1%	23.5%	1.2%	2.1%	0.0%	1.4%	6.4%	0.0%	422
East Greenbush, Town of	43.3%	4.5%	4.5%	1.9%	0.6%	0.9%	5.3%	1.4%	37.6%	0.0%	14,361
East Nassau, Village of	53.4%	0.6%	0.2%	0.0%	0.0%	0.0%	3.4%	2.5%	39.9%	0.0%	2,937
Grafton, Town of	35.8%	0.6%	0.5%	0.6%	0.1%	0.0%	0.4%	15.0%	47.0%	0.1%	28,888
Hoosick, Town of	27.4%	0.9%	1.6%	0.9%	0.1%	0.6%	45.2%	3.4%	19.9%	0.0%	38,363
Hoosick Falls, Village of	47.4%	6.2%	2.5%	7.4%	5.6%	2.3%	0.0%	6.4%	22.3%	0.0%	818
Nassau, Town of	50.0%	0.2%	0.6%	0.2%	0.4%	0.0%	8.1%	2.7%	36.8%	1.0%	24,789
Nassau, Village of	59.7%	10.3%	2.5%	0.0%	0.4%	0.0%	0.0%	0.4%	26.6%	0.0%	408
North Greenbush, Town of	43.8%	3.5%	8.5%	1.4%	1.9%	0.2%	10.7%	0.9%	29.0%	0.0%	11,108
Petersburgh, Town of	41.9%	0.1%	0.8%	0.2%	0.2%	0.1%	6.8%	9.4%	40.5%	0.0%	26,095
Pittstown, Town of	36.0%	0.2%	0.5%	0.3%	8.0%	0.4%	35.1%	2.9%	16.6%	0.0%	40,188
Poestenkill, Town of	45.4%	0.6%	1.6%	3.4%	0.1%	0.3%	4.0%	3.8%	40.8%	0.0%	20,227
Rensselaer, City of	29.2%	10.4%	12.0%	6.8%	2.3%	7.0%	0.0%	4.2%	28.1%	0.0%	1,707
Sand Lake, Town of	52.9%	1.1%	0.4%	0.5%	0.2%	0.0%	8.8%	0.4%	33.4%	2.2%	22,245
Schaghticoke, Town of	29.7%	0.4%	2.3%	2.0%	2.2%	0.4%	42.0%	1.8%	19.4%	0.0%	30,680
Schaghticoke, Village of	20.8%	9.5%	2.6%	0.0%	17.1%	2.3%	3.4%	19.6%	24.7%	0.0%	449
Schodack, Town of	45.8%	0.6%	2.2%	0.2%	0.8%	1.4%	14.3%	2.6%	32.0%	0.0%	37,026
Stephentown, Town of	46.7%	0.1%	0.5%	0.4%	0.1%	0.0%	3.4%	17.0%	31.8%	0.0%	36,554
Troy, City of	36.8%	23.2%	7.3%	1.8%	2.2%	1.6%	0.0%	8.0%	19.0%	0.2%	5,663
Valley Falls, Village of	45.0%	0.8%	1.1%	0.3%	0.7%	4.1%	13.1%	11.5%	23.4%	0.0%	262
<b>County Total</b>	<b>39.6%</b>	<b>1.1%</b>	<b>1.6%</b>	<b>0.8%</b>	<b>1.3%</b>	<b>0.4%</b>	<b>16.4%</b>	<b>8.9%</b>	<b>29.6%</b>	<b>0.2%</b>	<b>100%</b>

## SECTION 3d - RISK ASSESSMENT: LAND USES AND DEVELOPMENT TRENDS

### Land Use Planning

Land use planning in the State of New York is primarily a function of local communities, with Rensselaer County serving a coordination function for those elements that are best served on a regional level. The Rensselaer County Planning Department serves as technical staff to the County and its municipalities.

In support of a multitude of specific County programs, staff provides project development and administration, grant writing, and research and analysis services. Many other County-wide project and program areas are also administered.

Also, the Department provides local government technical assistance to various town and village boards in the development and implementation of comprehensive plans, land use regulations, and community and economic development plans and strategies. The Department staff members also review new laws pertaining to land use, as well as some land use proposals.

Administration and enforcement of the New York State Uniform Fire Prevention and Building Code (Uniform Code) occurs at the local level in all municipalities. Further, 73 percent of municipalities have zoning statutes; 77 percent have subdivision statutes; and 73 percent have master plans in place. Table 3d.3 presents a summary of standard land use regulation tools by municipality.

<b>Table 3d.3</b>				
<b>County Communities with Land Use Regulations</b>				
<i>(Source: Capability Assessment Questionnaire Responses)</i>				
Municipality	Building Code	Zoning Statutes	Subdivision Statutes	Comprehensive /Master Plan
Berlin, Town of	√	√	√	
Brunswick, Town of	√	√	√	√
Castleton-on-Hudson, Village of	√	√		√
East Greenbush, Town of	√	√	√	√
East Nassau, Village of	√	√	√	√
Grafton, Town of	√		√	√
Hoosick, Town of	√	√	√	
Hoosick Falls, Village of	√	√	√	√
Nassau, Town of	√	√	√	√
Nassau, Village of	√	√	√	√
North Greenbush, Town of	√	√	√	√
Petersburgh, Town of	√		√	√
Pittstown, Town of	√	√	√	√
Poestenkill, Town of	√	√	√	√
Rensselaer, City of	√	√	√	√
Sand Lake, Town of	√	√	√	√
Schaghticoke, Town of	√	√	√	√
Schaghticoke, Village of	√			
Schodack, Town of	√	√	√	√
Stephentown, Town of	√	√	√	√
<i>Troy, City of</i>	<i>A local Capability Assessment Questionnaire was not completed by the City.</i>			
Valley Falls, Village of	√			

At both the County and municipal levels, land use and development planners in departments, federations, boards and councils are active in guiding Rensselaer County's growth and work toward providing a

## **SECTION 3d - RISK ASSESSMENT: LAND USES AND DEVELOPMENT TRENDS**

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unified framework for development that coordinates activities between municipalities and the County overall.

### **Future Development Trends – County Overview**

Rensselaer County is striving to achieve new development in a manner that is sustainable and adds to the character, desirability, and quality of its rural areas while minimizing the potential to negatively impact current communities and their transportation systems, infrastructure, open space and parks, and quality of life. It is likely that, in the future, Rensselaer County will continue to balance the pressures of supporting its agricultural communities while fostering the development of new industries. County Planning has indicated that they expect to see future development trends characterized by infill development in the western portion of the County, more development of low-density housing in the woodlands of the central-eastern section, and proposed higher density development in regions around the cities with some loss of existing farmland.

### **Future Development Trends in Each Municipality**

A “Land Uses and Development Trends Questionnaire” was distributed to all jurisdictions in the County and asked jurisdictions to:

- (1) describe development trends occurring within their jurisdiction, such as the predominant types of development occurring, location, expected intensity, and pace by land use; and
- (2) describe any regulations/ordinances/codes their jurisdiction enforces to protect new development from the effects of natural hazards.

A full summary of responses contained within all the completed Land Use and Development Questionnaires returned by individual jurisdictions is presented in Table 3d.4.

**SECTION 3d - RISK ASSESSMENT: LAND USES AND DEVELOPMENT TRENDS**

**Summary of Responses – Land Use and Development Trends Questionnaire**

<b>Table 3d.4</b> <b>Summary of Responses</b> <b>Land Uses and Development Trends Questionnaire</b> <i>(Source: Core Planning Group Members)</i>		
<b>Community</b>	<b>Land Uses and Development Trends in Hazard Areas</b>	<b>Regulations/Codes/Ordinances To Protect New Development From Natural Hazards</b>
Rensselaer County	Infill development in western portion of County, more development of low density housing in woodlands of central-western sections. Proposed higher density in ring around cities. Some loss off farmland and abandoned farmland.	No enforcement powers. Assists communities in updating and adopting local land use laws, comprehensive plans, etc. Renews new laws pertaining to law use, as well as some land use proposals.
Berlin, Town of	Development of both farmlands and woodlands for second home housing is occurring	Land Use Regulations require compliance with all SEQR requirements.
Brunswick, Town of	Higher density residential development has been approved in areas of the Town of Brunswick where public water and public sewer are available (i.e., NYS Route 7, NYS Route 142). Limited commercial development is occurring along the NYS Route 7 corridor (i.e., Capital Communications Federal Credit Union branch). Elsewhere in the Town of Brunswick, limited single-family residential development is occurring along existing roadways. Very few residential projects include construction of new roads.	None.
Castleton-on-Hudson, Village of	Single family residential development occurring in undeveloped land in one subdivision. Village does not have a large amount of undeveloped land available for construction.	The Village enforces regulations, ordinances and codes to minimize effects of natural hazards. The Village has in place critical environmental zoning regulations to protect against slumping, sliding and erosion. The critical overlay area has been designated in Rensselaer County soil and water conservation Map as type HUE (250e) soils (at least a 25% grade). The Village also has flood Hazard Zoning regulations as described by the Flood Hazard Boundary Map issued by the Federal Emergency Management Agency.
East Greenbush, Town of	Residential development has slowed with the economic downturn. A number of residential projects are being proposed, presumably to obtain approvals prior to improved economic conditions. About 800 residential units have either received approval and have not commenced with construction or are actively seeking approval. Most of these units are concentrated around the intersection of I-90 and US Route 4. The unit mix consists of a mix of detached and attached single-family and multi-family units. Fed Ex Ground will be constructing a 250,000 sq facility in the same area.	The Town's comprehensive zoning law includes a Watercourse Management Overlay District. A primary purpose of the district is to preserve natural resources and protect people and structures from flood hazards. The Town's Zoning Law also includes Erosion, Sediment Control and Stormwater Management regulations that prevent disturbances on steep slopes, 25% or more, and excessive cleaning and grading operations.

**SECTION 3d - RISK ASSESSMENT: LAND USES AND DEVELOPMENT TRENDS**

East Nassau, Village of	Currently, with the sour economy, there is no development.	We have adopted the NTIP. We also have, in the hilly terrain adopted driveway standards. We do enforce the NYS Building Code. *Comprehensive plan in effect. Our current land use regulations and the revised law that will probably be adopted 9/15/10 can be assessed on our website: <a href="http://villageofeastnassau.org">villageofeastnassau.org</a>
Grafton, Town of	Residential Subdivision Development – (Vacant woodland and waterfront) throughout the entire town. Approximately 3-5 minor subdivisions per year and 1-2 major subdivisions per year. Very little “commercial” site plans - 1-2 per year.	Yes-SEQRA requirements and regulations enforced along with Town Subdivision and Site Plan Codes. Also special conditions depending upon type and location of Development.
Hoosick, Town of	Development is very low in Town at this present time there are a few single family dwelling being constructed on previous farm land (subdivisions) also a small amount of commercial development Mostly remodeling of existing building.	We do have building codes that have to be followed (some NYS, some local). As far as regulations or ordinances our town is new to this. We just adopted a “Land Use Law” (Zoning law) It is a work in progress with adjustments being made when problems are noticed.
Hoosick Falls, Village of	Two new housing developments have been built on the upper outskirts of the Village of Hoosick Falls over the last 15 years. This has caused an increase in runoff and a change to the natural water course. Flooding has occurred in the lower section of the Village where the water runs into a brook which runs into the river. The Village needs to develop improvement alternatives that could be pursued to mitigate flooding.	No.
Nassau, Town of	Single family residential development is occurring in predominantly undeveloped forest and former agricultural lands throughout this rural municipality. Density of development is low: while the minimum lot size is two acres in the Rural Residential District, which represents the majority of the Town, most recent development has been on lots somewhat larger than this size. Development has occurred on generally easily-developed lands near existing roadways with ready access to existing infrastructure. There is some pressure to develop residential sites more distant from road frontages.	The Town enforces regulations, ordinances and codes to minimize effects of natural hazards on new development. Flood Hazard development (NFIP) is enforced for development in flood hazard areas. Steep slope ordinance to limit development on areas of 15% or greater slopes is under review for proposed incorporation to revised zoning code. The current state building codes are enforced in new development or for major modifications of existing developments. There is limited seismic hazard issue in the Town, which is mapped as class B.
Nassau, Village of	The Village of Nassau is only two square miles and does not have enough vacant land for a development.	Yes. The Code Enforcement Official/Building Inspector enforces regulations in the Floodplain area on building improvements. Also, he enforces drainage problems in other areas.

**SECTION 3d - RISK ASSESSMENT: LAND USES AND DEVELOPMENT TRENDS**

<p>North Greenbush, Town of</p>	<p>Our community is on the edge of major development. It has been slowed by the economic crisis, but there continue to be plans for when things ease up. Up until about ten years ago this was a mixed sleepy suburb and farming community. This is being radically changed. Currently, we have two major housing projects going up. One is a senior housing complex on what was undeveloped land that a long time ago was a farm. The other is a middle class town house project that again is being put on acreage that was previously undeveloped. As part of this project, 34 acres have been deeded to the town for a forever wild recreation area. Approval has been given for a second phase apartment complex as well as several smaller housing projects. Also an upscale mixed single home/duplex home project is in the approval process now. This will be located on lake front. In addition, we expect to see a number of commercial projects in the next couple of years. One is a mall; a second is a major stand-alone store; a third is a mixed use development with small commercial, professional and possibly some apartments. Along with the latter, I understand that there will also be a hotel and apartment complex located nearby. There are plans for additional companies coming into the RPI Tech Park including a second phase of GE and a research and development installation for Momentive Performance. In each case, the project will be on previously undeveloped, open land. With the exception of the Lake project, all the development is taking place in Defreestville, a hamlet of No. Greenbush.</p>	<p>Yes, we have a full-time building inspector, a fire inspector and a part-time utilities inspector. In addition, we have a consulting engineer along with a Planning Board and a Zoning Board of Appeals. We have a Comprehensive Plan with a committee working to update the codes in accordance with the changes stemming from the Plan. The staff are tasked with insuring that plans comply with the various building and fire safety codes as prescribed by the State and town and that building projects and existing establishments remain in compliance. The Utilities Inspector oversees installation of water and sewer pipes and, along with the Highway Superintendent, assures compliance with MS-4 regulations. The Engineer and the Planning Board are responsible for reviewing all proposed building projects to ensure compliance before approval is granted. We have a flood plain ordinance as some of the town is in a flood plain area, particularly along the Wynantskill Creek. There is no new development along this creek right now. Plans are in progress for building a new bridge over the creek which will accommodate the rise and fall of the water flowing through. The mall, stand-alone store and senior complex are being/will be built on a hillside. The mall has already blasted into the hill and created a flat plateau which has been subjected by the town and state to scrutiny for proper drainage and flood control along the road. As a result the builders have been required to do some redesign to accommodate proper drainage and control of water flow during heavy rains. In every housing project, there are requirements for retention ponds to regulate the drainage during storms and snow melts. Finally there are regulations concerning the height of buildings. I believe nothing over 3 stories is allowed without a special exemption. This recognizes that we are subject to nor'easters and have had the threat of tornadoes in the community.</p>
<p>Petersburgh, Town of</p>	<p>Individual single family construction on existing or subdivided lots. No general development at this time.</p>	<p>SEQRA required for subdivisions. SWPPP required for major subdivisions. Site Plan Review required for land use changes.</p>
<p>Pittstown, Town of</p>	<p>Until the past two years we had active single family residential development in undeveloped woodland areas and farmland. There is no commercial development or retirement housing. Due to the economy very little residential development currently.</p>	<p>Yes thru Land Use Regulations and thru higher level jurisdiction authority. Some are driven by who is building and requirements of financing agency.</p>

**SECTION 3d - RISK ASSESSMENT: LAND USES AND DEVELOPMENT TRENDS**

Poestenkill, Town of	The Town of Poestenkill has and will continue to experience low density (1 acre zoning) residential development in the western portion of the town where most services are located. However in the past ten years there has been a number of new homes built in the sparsely populated eastern area of the town. This development presents significant issues for emergency response. There is little to no commercial development in the town.	Yes. We do have a flood control law and seek construction mitigation within the hundred year floodplain. Planning board examines all aspects of development including slopes. While we implement the state building code we do not have special local laws relative to earthquakes or wild fires
Rensselaer, City of	The City of Rensselaer is an older, built-out city. The only large tracts of developable land exist along the Hudson River waterfront, and in fact there is a large mixed-use development proposed. This high-density development will bring a hotel, condos and rental units, and retail uses to the waterfront. The proposal also includes a waterfront park and other public amenities. Other development proposals include a multi-family residential property located adjacent to a capped landfill within the city. Recent industrial development includes a power generating plant that uses natural gas.	The City of Rensselaer has adopted the following ordinances and regulations to protect new and existing development from the effects of natural hazards, including flooding and erosion. The full text of each of these can be found online at <a href="http://www.ecode360.com/?custId=RE1014">http://www.ecode360.com/?custId=RE1014</a> . <ul style="list-style-type: none"> <li>- Stormwater Management ordinance (Chapter 145 in its entirety)</li> <li>- Buffering of streams and wetlands (179-26)</li> <li>- Stormwater Control ordinance (179-74)</li> </ul>
Sand Lake, Town of	Development trends in our municipality are residential in nature and primarily low to moderate density. Our draft zoning ordinance and proposed hamlet water district may increase the density of residential development. Commercial development may become more attractive if and when a water district is constructed. Minimum lot size for new residential development is currently one acre w/a minimum of one hundred fifty feet of road frontage. As stated above our community is rural in nature. Therefore, residential development is occurring for the most part in undeveloped woodlands and open fields. There is a proposal to construct retirement housing on land that was previously used for farming (i.e. corn field for cow feed).	In regard to floodplain management ordinances we adopted L.L. No. 2-1989 February 9, 1989. This L.L. is contained in Chapter 122 Flood Damage Prevention. This L.L. is enforced by our Deputy Commissioner/Floodplain Administrator. We have copies of the FIRM and floodway maps. We do monitor development in the flood hazard zones. Buildings must be raised above the base flood elevation. The BFE to be determined by a NYS licensed surveyor or flood proofed as per design by a NYS licensed Architect or Engineer. We have no steep slope ordinances. No wildfire hazard ordinance. Our NYS Design Criteria/Specifications are enforced by our Building Dept. Ground Snow Loads 40 Seismic: Category A Wind Speed: (3 sec. gust) @ 90mph.
Schaghticoke, Town of	The Town of Schaghticoke has four hamlets and a village within its boundaries. The remaining land is primarily agricultural. We have not experienced large development plans, typically parcels are subdivided with a house lot and the remaining property undeveloped. A small percentage is developed proposing all land in area as building lots. The best assumption from the above suggestions would be... single family residential development is occurring in what is now agricultural land...	The Town of Schaghticoke implemented a Steep Slope Overlay District. Specific information can be found on page 74 in the Zoning Law.
Schaghticoke, Village of	There are no significant land areas available within the Village available for development that would have any impact.	Regulation and enforcement are Town and County areas of jurisdiction.

**SECTION 3d - RISK ASSESSMENT: LAND USES AND DEVELOPMENT TRENDS**

Schodack, Town of	Single family residential development is under construction on large undeveloped land in our RA (Residential Agricultural Zone). At this time we have there projects underway with 65 homes, out of the three only one was farmland the others were woodland. We have one retirement housing being constructed with a total of 166 units with 46 in place 1A & 1B for 2011 occupation.	The Town of Schodack Planning Board Engineer Review all new development in subdivisions within the town Local ordinances.
Stephentown, Town of	Single family homes on large parcels w/very long and steep driveways that divert water to town or county highways. Many new residences in agricultural land areas. Most new single family homes are being built as 2nd homes to become retirement building new homes.	All regulations that are in effect are checked by the Code Enforcement offices and inspected at time of construction or remodeling.
Troy, City of	<i>Questionnaire response not submitted</i>	<i>Questionnaire response not submitted</i>
Valley Falls, Village of	We have no development at this time and very little land that can be developed.	We have no regulations in place. There are not buildings in the floodplain other than a burned out brick mill. No landslide hazards. No buildings other than 2 story homes.

## **SECTION 3d - RISK ASSESSMENT: LAND USES AND DEVELOPMENT TRENDS**

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### **Potential for Future Development in Delineated Hazard Areas**

While future development patterns are subject to many regulatory and market-driven factors, it is possible to prepare general estimates of the relative potential for future development to occur in hazard areas by analyzing vacant parcels and their relation to the various hazard areas. As discussed in detail in the Risk Assessment, the planning area is susceptible to certain hazards uniformly. However, the nature of other hazards is such that only delineable portions of the study area are at risk. Using GIS, land use mapping provided by the County was evaluated to estimate the number of vacant and potentially developable parcels in each municipality. Vacant and potentially developable parcels have been assumed to be inclusive of currently unused agricultural lands, forested lands that are not in State ownership or otherwise protected, and barren lands. It was assumed that all of these land uses would be potentially developable in the immediate future, at least to some extent. In this way the analysis is quite conservative, since it does not include currently productive agricultural land, any part of which in the County may face development pressure at some point further in the future.

Next, “vacant” parcels were combined with geographically delineated hazard area boundaries to tally the acreage of vacant, potentially developable parcels within each municipality and further, the relative percentage of this acreage lying within each of the geographically delineated hazard areas.

According to the analysis, it is estimated that there are 120,814 acres of vacant, potentially developable land in the County’s 22 jurisdictions – about 23 percent of the County’s total land area. On a municipal level, this ranges from a minimum of 27 acres in Castleton to a maximum of 13,574 acres in Grafton. In the Rensselaer County communities, there are 5,739 acres of vacant land in the 100 and 500 year floodplain hazard areas; 110,167 acres of vacant land in wildfire hazard areas; 21,136 acres of vacant land in the earthquake zone 35-75; 21,136 acres in soil types D & E; 27,905 acres of vacant land in the high susceptibility and high/moderate incidence landslide hazard area; and 1,324 acres of vacant land in the dam inundation hazard area.

Table 3d.5 lists the estimated acreage of potentially developable vacant parcels in each municipality, and quantifies the acres of vacant land as a percentage of the total acreage of each municipality. It further indicates the percentage of each municipality’s vacant land area that lies within geographically delineated hazard zones. Ideally, municipalities would strive to minimize future development in hazard areas, or to impose certain development restrictions which would offer some form of protection from hazard events.

SECTION 3d - RISK ASSESSMENT: LAND USES AND DEVELOPMENT TRENDS

**Table 3d.5**  
**Summary of Vacant Land in Delineated Hazard Areas**

Municipality	Total Acres Vacant Land	Vacant Land as % of Municipality's Total Acreage	% of Municipality's Vacant Land in Flood Hazard Areas (100 and 500 year floodplains)	% of Municipality's Vacant Land in Wildfire Hazard Areas	% of Municipality's Vacant Land in Earthquake Hazard Area (SA 35 – 75)	% of Municipality's Vacant Land in Earthquake Hazard Zone (Soils D&E)	% of Municipality's Vacant Land in Landslide Hazard Area (High Susceptibility and High/Moderate Incidence)	% of Municipality's Vacant Land in Dam Inundation Hazard
Berlin, Town of	8,927	24%	1%	97%	3%	3%	39%	0%
Brunswick, Town of	7,360	27%	8%	88%	16%	16%	10%	6%
Castleton-on-Hudson, Vill. of	27	6%	6%	93%	100%	100%	100%	0%
East Greenbush, Town of	5,396	38%	17%	80%	49%	49%	77%	0%
East Nassau, Village of	1,171	40%	4%	99%	14%	14%	0%	0%
Grafton, Town of	13,574	47%	2%	100%	<1%	< 1%	0%	1%
Hoosick, Town of	7,641	20%	2%	86%	7%	7%	1%	0%
Hoosick Falls, Village of	182	22%	8%	88%	19%	19%	0%	0%
Nassau, Town of	9,123	37%	2%	96%	8%	8%	0%	0%
Nassau, Village of	108	27%	18%	95%	85%	85%	0%	0%
North Greenbush, Town of	3,223	29%	5%	82%	34%	34%	53%	0%
Petersburgh, Town of	10,558	40%	2%	98%	3%	3%	34%	0%
Pittstown, Town of	6,691	17%	1%	88%	11%	11%	0%	1%
Poestenkill, Town of	8,258	41%	4%	97%	7%	7%	0%	1%
Rensselaer, City of	480	28%	33%	56%	100%	100%	100%	0%
Sand Lake, Town of	7,432	33%	6%	96%	11%	11%	0%	0%
Schaghticoke, Town of	5,947	19%	5%	86%	49%	49%	79%	8%
Schaghticoke, Village of	111	25%	29%	95%	42%	42%	76%	46%
Schodack, Town of	11,834	32%	12%	82%	51%	51%	50%	0%
Stephentown, Town of	11,635	32%	1%	96%	15%	15%	17%	0%
Troy, City of	1,075	19%	17%	57%	66%	66%	97%	11%
Valley Falls, Village of	61	23%	3%	90%	<1%	<1%	0%	18%

## **SECTION 3d - RISK ASSESSMENT: LAND USES AND DEVELOPMENT TRENDS**

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### **Future Development Trends in Hazard Areas – Study Area Overview**

Rensselaer County is striving to achieve new development in a manner that is sustainable and adds to the character, desirability, and quality of its rural areas while minimizing the potential to negatively impact current communities and their transportation systems, infrastructure, open space and parks, and quality of life. It is likely that, in the future, Rensselaer County will continue to balance the pressures of supporting its agricultural communities while fostering the development of new industries. County Planning has indicated that they expect to see future development trends characterized by infill development in the western portion of the County, more development of low-density housing in the woodlands of the central-eastern section, and proposed higher density development in regions around the cities with some loss of existing farmland.

Rensselaer County is cognizant of the risks that it faces due to the impacts of natural hazards. Many municipalities have programs in place today which address certain natural hazards – whether it is a comprehensive or master plan, floodplain management ordinance, or erosion hazard area construction limitations.

Together, Rensselaer County's 22 municipalities have a total of 120,814 acres of vacant, potentially developable land – about 23 percent of the County's total land area. Thirteen natural hazards were identified earlier in this plan as having a significant impact on the planning area and have been analyzed in detail in this plan. The paragraphs below analyze the likelihood for future development in each of the identified hazards areas to incorporate hazard-resistant design. Overall, while new development is expected to result in an increasing number of structures present in Rensselaer County municipalities, codes and standards in place today will require that they be designed to provide a certain degree of protection from the hazards to which the County and its municipalities are susceptible.

### **Future Development Trends – Extreme Temperatures Hazard Area**

The extreme temperature hazard area covers the whole of Rensselaer County and is essentially uniform for all jurisdictions, therefore future development trends for the extreme temperature hazard area would be the same as those county-wide. If current demographic trends continue, the proportion of the population whose health can be particularly vulnerable to extremes in temperature is likely to increase somewhat in the foreseeable future.

### **Future Development Trends – Extreme Wind and Tornado Hazard Area**

The extreme wind hazard area encompasses the whole of Rensselaer County and is essentially uniform from one jurisdiction to the next. Therefore, future development trends for the wind hazard area would be the same as those county-wide. This would include future development trends for the tornado hazard area, as a tornado is simply one example of a specific type of high wind event. While an increased number of new structures could be exposed in the future, all municipalities must adhere to the New York State Building Code in addition to any local changes that they may have made, so that they will be constructed with a certain degree of protection from the most frequent high wind events.

## **SECTION 3d - RISK ASSESSMENT: LAND USES AND DEVELOPMENT TRENDS**

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### **Future Development Trend – Lightning Hazard Area**

The lightning hazard area encompasses the whole of Rensselaer County and is essentially uniform from one jurisdiction to the next. Therefore, future development trends for the lightning hazard area would be the same as those county-wide. While an increased number of new structures could be exposed in the future, all municipalities must adhere to the New York State Building Code in addition to any local changes that they may have made, so that they will be constructed with a certain degree of protection from the most frequent lightning events.

### **Future Development Trends – Winter Storm Hazard Area**

The risk of significant snow and ice storms encompasses the entire County and is uniform from one jurisdiction to the next. Therefore, future development trends for the winter storm hazard area would be the same county-wide. It is anticipated that while an increasing number of new structures will be present in the County, they will be constructed at least in accordance with currently adopted building codes which include basic measures to minimize damages caused by winter storms, particularly with regard to snow loading and the protection of utilities.

### **Future Development Trends – Dam Failure Hazard Area**

The New York State Department of Environmental Conservation Dam Safety Program maintains an inventory of dams in the State and conducts safety inspections of dams, completes technical reviews of proposed dam construction or modification, monitors remedial work for dam safety compliance, and is involved in emergency preparedness activities. At the time of writing, research of readily available data sources did not reveal any dams proposed or under construction in Rensselaer County in addition to those listed by the US Army Corps of Engineers National Inventory of Dams, or the Stanford University National Performance of Dams Program.

### **Future Development Trends – Drought Hazard Area**

The drought hazard area encompasses the entire County and is essentially uniform from one jurisdiction to the next, although the local impact depends on the prevalence of agricultural land in individual municipalities. While the individual jurisdictions would prefer to focus on the preservation of farmland and other open space, possible pressures on agricultural land in Rensselaer County to be zoned for residential and other development, may reduce the economic effects of drought on agriculture, while the impact on potable water supplies may increase.

### **Future Development Trends – Flood Hazard Area**

Individuals and larger developers often look toward land along rivers, streams, canals, bays, and lakes for development because of the passive and active recreational opportunities that they offer. In turn, flood hazard areas are often areas where development pressures are high due to the recreational and aesthetic value of these lands, particularly in communities where the amount of undeveloped land is small and the density of development is high. Various County plans explicitly recommend the creation of additional recreational, entertainment and retail uses along various waterfront areas. Specifically, the aim is to foster the economic success of the County's waterfront

## **SECTION 3d - RISK ASSESSMENT: LAND USES AND DEVELOPMENT TRENDS**

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communities by promoting increased water-related and water-dependent activities, fostering cooperative planning and promotional activities between waterfront communities, accommodating water-dependent uses with landside impacts, developing waterfront linkages, creating special waterfront zoning techniques for adoption by local municipalities, and assisting in the coordination and implementation of local waterfront revitalization plans.

Development within mapped flood hazard areas is currently regulated for communities participating in FEMA's National Flood Insurance Program (NFIP). All municipalities in the County participate in FEMA's National Flood Insurance Program (based on FEMA's Community Status Book Report (of May 28, 2010), and thereby must have in place a floodplain management ordinance to regulate activities in the floodplain, as well as a designated floodplain manager/NFIP Coordinator to enforce the relevant ordinances. This will work to protect new development and substantial improvements in the County's floodplains. While it is likely that an increased number of assets could be susceptible to flooding, it is assumed that new structures will be built to codes that will offer a certain degree of protection from the most frequent events.

### **Future Development Trends – Ice Jam Hazard Area**

While there exists no formal mapping of ice jam hazard areas, due to the unpredictable and localized nature of the hazard, the ice jam hazard is similar to the flood hazard in that ice jams may cause rivers and streams to overflow their banks. If a structure is near the banks of the rivers or streams, it may also be subject to structural damage from the impact of ice striking the structure. The jurisdictions' flood hazard ordinances are assumed to currently deal with the flooding aspect of the ice jam hazard, and future damages due to this hazard will depend on development within the floodplain and adherence to the relevant building codes. While an increased number of assets could be susceptible, it is assumed that they will be built to codes that will offer a certain degree of protection from the most frequent events.

### **Future Development Trends – Earthquake Hazard Area**

For the whole of Rensselaer County, only 21% of the area is located in the 35 – 75% Spectral Acceleration Risk. All communities have adopted the New York State Building Code in addition to any local changes that they may have made. While an increased number of assets could be susceptible, it is assumed that they will be built to codes that will offer a certain degree of protection from the most frequent events.

### **Future Development Trends – Landslide Hazard Area**

Certain areas within Rensselaer County have been specifically identified as experiencing a high landslide incidence or susceptibility. According to the USGS, the western and eastern portions of Rensselaer County (roughly 25% of the County's total land area) are most vulnerable, being classified as highly susceptible to landslide events. Landslide events are a fairly common occurrence in Rensselaer County. Future development in landslide hazard areas is expected to mirror those trends observed County-wide. All communities have adopted the New York State Building Code in addition to any local changes that they may have made. While an increased number of assets could be susceptible, it is assumed that they will be built to codes (such as those

## **SECTION 3d - RISK ASSESSMENT: LAND USES AND DEVELOPMENT TRENDS**

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regulating development in areas with steep slopes) that will offer a certain degree of protection from the most frequent events.

### **Future Development Trends – Wildfires**

92% of the currently vacant parcels in Rensselaer County are located in delineated wildfire hazard areas - a total of 110,767 acres of potentially developable land. The severity of the hazard is greatest in areas of high fuel loading and steep slopes. Areas that are typically considered to be safe from wildfires include highly urbanized, developed areas that are not contiguous with vast areas of wild lands. Areas typically considered to be prone to wildfires include large tracts of wild lands containing heavier fuels with high continuity such as those forested areas in many parts of the study region. Pressure to develop some forested areas and open land adjacent to forested areas, especially for residential use, will generally result in increases to the wildland-urban interface and the value of improved property within these areas in most jurisdictions, and hence an increased risk of future property damage and public danger due to wildfires.