

# The New York City Watershed Economic Impact Report

*Determining Impacts and developing options regarding NYC's Land Acquisition Program in Delaware County*

## Draft Interim Report

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## 1.0 Introduction

*“In the long history connecting New York City and the Catskills, the construction of the water supply most directly suggests an imperial relationship, for the reservoirs most clearly represent the ability of the city to control space in the mountains....Not unlike Rip Van Winkle and Brown trout, the reservoirs would become naturalized, accepted by locals as part of the Catskill identity, integral to the landscape. Almost immediately upon completion, the reservoirs would elicit both resentment and pride among Catskill residents, conflicting sentiments that represented the complicated nature of the collaboration that made them.”<sup>1</sup>*

The New York City Water Supply is the largest unfiltered water supply system in the world. Providing 1.3 billion gallons of water a day to City consumers, the system is fed by two watersheds generally referred to as the East of Hudson or Croton Watershed and the West of Hudson or Catskill/Delaware Watershed. Covering over 2,000 square miles of eight counties in upstate New York, the watershed, including its various reservoirs, aqueducts and associated facilities, has provided clean, unfiltered water to millions of people since the 1960’s.

The West of Hudson Watershed lies within Schoharie, Greene, Sullivan, Ulster and Delaware Counties and provides 90 % of the City water supply. This study focuses on that portion of the Catskill/Delaware system found within Delaware County, New York.

The Watershed has a long and complicated history in Delaware County beginning with the establishment of the Pepacton and Cannonsville Reservoirs in the 1950’s and 60’s.

In 1997 the Towns and Villages of Green, Ulster, Sullivan and Delaware Counties, among others, entered into a Memorandum of Agreement (MOA) with New York City (NYC), which allowed NYC to purchase land within the West of Hudson Watershed (consisting of the above-noted Counties and their Townships) region for the purposes of protecting significant portions of NYC’s fresh water supply. In this agreement, NYC can acquire land in fee or Watershed Conservation Easements within the watershed region as a requirement of the initial and subsequent Filtration Avoidance Determinations (FAD) issued by the USEPA since that time.

The most recent Filtration Avoidance Determination or FAD, issued in 2007, requires the City to substantially increase its land acquisition program from the originally proposed \$30 million, five year Land Acquisition Program to an exponentially larger effort budgeted at \$300 million over a ten year period. Following the issuance of the 2007 FAD, the County felt it necessary to conduct an analysis of the \$300 million land acquisition program and its potential impact on local communities and the economy.

Forecasting the local economic impact of future watershed land and easement acquisition programs is the basic objective of this economic impact assessment being commissioned by the Delaware County Board of Supervisors. The study estimates the economic impacts of the land acquisition programs associated with the NYC Watershed through an analysis of economic data for the past five years and the development of a baseline economic model of Delaware County. The baseline model will serve as the primary analysis for generating projections and quantifying any potential impacts of the new land acquisition program. It will also serve as a monitoring tool into the future and assist the County with analysis of impacts beyond the study’s completion.

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<sup>1</sup> Making Mountains, *New York City and the Catskills*, David Stradling, University of Washington Press, 2007 p.142

In addition, the study analyzes and maps the current state of land ownership in Delaware County and forecasts potential development scenarios over the next 10 year period. Using current GIS mapping resources, the Development Scenarios project the nature and scope of the proposed land acquisition programs and their potential impact on the landscape and economy of the County. Based on the scenarios developed, further analysis will be conducted to project future economic impacts.

## 2.0 Situation Overview

Our assessment begins with understanding the current state of watershed land acquisition and conservation easement coverage as well as WAC agricultural easements within Delaware County. County planners have compiled a series of GIS-based mapping resources that illuminate the situation succinctly and assist in demonstrating the rationale behind concerns about future development capacity and issues related to large land ownership, taxation and local sovereignty.

**Figure 2.1** provides an overview of the land acquisition and easement activity in Delaware County as of 2007. The diagram depicts New York State lands, Pre MOA lands and all easement activity (CE, WAC, NYC/WAC) in addition to New York City lands held in fee or under active acquisition for watershed protection. It is particularly useful in giving a more complete picture of the land ownership issue in the County and the full extent of constraints that challenge economic development efforts.

The County has a series of natural barriers in terms of watercourses & wetlands, slopes and other sensitive landscapes that reduce the overall availability of lands otherwise suitable for development. In comparison with other areas with less challenging terrain, Delaware County is at a disadvantage in its ability to locate residential and commercial development sites now and into the future.

**Figure 2.2** represents the extent of Whole Farm Plans currently in place (2007) within the County. Whole Farm Plan information provides an estimate of lands supported through efforts of the Watershed Agricultural Council (WAC). When viewed in tandem with current easement information, it suggests the range of remaining lands that may be pre-disposed to selling easements in the future.

WAC supports watershed protection efforts (funded by the New York City Department of Environmental Protection or NYCDEP) through farm management planning, farm environmental management improvements and an easement program to preserve land for agricultural purposes.

Delaware County Planning and Development has also created a series of mapping resources that provide Township level analysis of the various constraints that remove lands from potential development consideration. This includes watercourses, slopes, unsuitable soils, lands held in fee and easements and land ownership characteristics. **Figure 2.3** outlines such an analysis for the Township of Bovina.

Based on these constraints, only an estimated 22% of the entire land base is available for development consideration. Buildable lands are depicted in white and visually demonstrate the current situation and concern for future growth options. **Figure 2.4** provides analysis for the Township of Stamford which shows a similarly high degree of constraints and limitations.

### 3.0 Summary of Key Informant Interviews

An important activity in our program of work for Phase I was the completion of a series of interviews with key informants possessing experience, expertise or insight regarding the NYC Watershed. Thirty-eight formal interviews were completed and over 20 additional informal interviews were also held during the Consultant's initial visit to the County in July 2008. The formal interviews were completed from August to October 2008 and included both in-person interviews within the County and telephone interviews with other participants.

The purpose of the key informant interviews was to compile a broad cross-section of opinion and perspectives on issues related to the economy as well as any real or perceived impacts of NYC's past and future land acquisition programs. Key informants consisted of local elected representatives, businesspeople, community organizations, representatives of the underserved and State and City officials. Interviewees included a mix of individuals both supportive of and in opposition to the further implementation of the Land Acquisition Program.

Interviewees were asked a series of twenty questions on issues ranging from the nature of their involvement in watershed issues, perceptions of success of the City's various programs and the affects of further acquisitions to their understanding of the current economy in Delaware County, its opportunities and threats and the general business climate. It also posed a series of questions regarding social conditions such as community sustainability, housing and services. The remaining questions sought feedback on land use in the County, property tax issues, the state of the Watershed Partnership and suggestions to address concerns about the Land Acquisition Program.

All interviews were conducted in confidence and only an edited compilation of responses that did not attribute answers to any specific individual were provided to Delaware County. Despite assurances of confidentiality and anonymity, the great majority of Respondents indicated no need or desire to remain anonymous and many offered to have their views shared publicly. Regardless, our approach has not been altered. However, we shall paraphrase some feedback throughout this section of the Interim Report to provide a sense of the perspectives on the land acquisition activities of the City.

#### Overview

The interview process provided the Consultant with a brief window on the communities and people of Delaware County. While no one can gain a complete picture of a community's mindset or psyche through the perspectives of fifty or more individuals, the interviews served to educate the consulting team regarding the issues of greatest interest and contention in terms of the Watershed's presence in Delaware County.

Many common responses were received which assisted in a fairly straightforward assessment of Respondents' concerns, the opportunities they see and the common ground Delaware County shares with New York City and other key partners in the Watershed on some fundamental issues .

Foremost in this regard was the practically universal commitment to both water quality and environmental stewardship of the County's landscape. Even the most ardent opponents of NYC's presence in the community were simultaneously proud of Delaware's role in the water supply system and the pristine environment of much of the County. All Respondents conveyed a justified pride in their community and a strong sense of place within the greater Catskill Region.

## General Comments

All respondents were asked their views on the overall impact of the Watershed's presence, the various programs and land acquisition activities that have transpired since the signing of the MOA in terms of their affect on the County.

While there was some polarization of opinion in terms of whether the impact has been good for communities or detrimental, the great majority of respondents felt the impact has been truly a mixed bag of positive tangible improvements to infrastructure, farming operations and negative impacts in terms of reducing the land base of developable real estate, inflationary land prices, potential future assessment challenges and prohibitive red tape and bureaucracy. Still others viewed the entire relationship as a compromise between the parties involved and the best that could be expected in an environment of strong and sometimes competing interests.

The following illustrates this general trend in respondent feedback:

*"The on-going purchasing of property is affecting the tax base both now and potentially in the future. There is widespread concern that NYC will challenge assessment values as soon as they are permitted by the MOA in future years with the shortfalls in revenue falling back on the local people and businesses paying taxes. The extra \$300 million means more purchasing and more easement acquisition increasing the amount of land that can't be accessed or even traversed. There is too much land being acquired that has nothing to do with water quality. The sporadic nature of the land acquisition further complicates the situation."*

*"It's a 2 sided story really. I've heard all the complaints about the LAP and the process and I can sympathize with that but it's had a positive impact for our company. We're using the watershed's presence as a "selling tool" for our products. The tight regulations permit us to say that the products come from sound environmental practices and this is increasingly appealing to customers looking for "green products" that haven't impacted the environment."*

*"Everything is not bad, in fact, some of it is quite positive. Everyone involved at the County, City and State level is committed to water quality."*

*"After 9/11 lots of downstate people started looking here and they seemed prepared to buy at any price. The overall movement of 2<sup>nd</sup> home ownership towards Delaware from eastern Catskills coupled with the LAP activity has created the Perfect Storm. There is some good stuff too; small communities get help for infrastructure. There is money available for businesses as well for upgrades. The mainstreet and agriculture programs represent substantial investment by NYC."*

The above illustrates the two perspectives on the issue and provides some insight into areas of common ground where some basis for further improvement of the partnership exists. While the concerns regarding land and easement acquisition is widespread, the majority of feedback indicates that the investment in the County by NYC is substantial and real.



## Themes

The following summarizes the general themes that emerged over the course of the interview process.

### *NYC Lands and Property Tax Assessment*

The issue of property tax assessment of New York City lands was a consistent theme across many of the responses. There is widespread concern that the City will embark on a process of challenges once they are in a position to do so under the terms of the MOA. This is generating uncertainty about the future in the minds of some respondents.

### *Housing and Real Estate*

The increase in housing prices and land prices generally was noted by many. Employers noted this in some cases as an obstacle in recruiting employees to the area and others raised the issue as a possible cause of some out migration on the part of younger families. Affordable housing was mentioned as a social issue in many instances and also as a potential threat to economic conditions.

### *Demographics and Out Migration*

Many interviewed felt the population was declining at an increasing rate in recent years and in many cases cited out migration as the reason for a decreasing number of volunteers for local community services, clubs and churches. Concerns about changing demographics were also evident in terms of the growing number of second home buyers in the County and this appears to be a negative issue for some and an opportunity for others.

### *Tourism and other “Green” Opportunities*

Interviewees were asked about potential growth opportunities for the economy. Tourism was the most often cited sector where growth could occur. Many other suggestions revolved around recreational uses such as boating, hiking, hunting and fishing and environmentally-friendly opportunities within the resource base. Telecommuting and eCommerce were also often cited as future growth opportunities.

### *Access to the Land*

The inability to access the lands held by NYC was mentioned time and again by interviewees. Restricted access was cited as an impact on traditional land use, the outdoor economy and a negative outcome of the MOA. The recent issuance of new regulations by NYCDEP was also cited as a positive action on their part and step in the right direction in terms of the relationship.

### *Watershed Regulations*

In terms of general impacts, not surprisingly, watershed regulations were cited in almost all interviews. Many felt the regulations were restrictive and partly responsible for slower development. In other cases, interviewees weren't so much concerned about the rigour of them as they were about their administration and implementation by the City.

### *Uncertainty about the Future*

Many respondents expressed concern about the future in terms of cost of living, availability of housing, employment opportunities and the extend of land controls under the latest FAD.

## 4.0 Environmental Scan

### 4.1 The Rural North East

It is commonly understood that “our” economy has, over the past many years, become a part of a global economy. Between 1960 and 1999, global trade grew at an average annualized rate of over 10 percent. Total two-way trade between the United States and NAFTA partners grew at 111percent between 1993 and 2003. As this global trade has expanded, however, the regional rural economies in the US Northeast have not necessarily kept pace or shared in the economic advances. <sup>2</sup>

“Population for the US Southeast and US Cascadia Regions grew at a rate of more than six times the population growth rate of the US NE CanAm region over the same decade”

The rural Northeast (defined as rural counties, generally just north of Delaware County) overall have seen population declines, job losses, and income losses. Although Delaware County may not technically be part of the “rural northeast” as defined by the CanAm study, the general characteristics of the economy and economic conditions of the counties reflected in this study are illustrative of the regional economy that may influence and be illustrative for Delaware County. Important differences are pointed out as part of this overall study.

The CanAm Study documents factors that inhibit economic expansion in the rural Northeast and recommends actions for the region. The lessons are informative for Delaware County, but important differences in geography and local economic conditions are important to note—as we do in the remainder of this study. Most notable to mention here is the geographic locality in the “sphere” of influence of NY City and the importance of the natural resources in Delaware County.

The larger “rural Northeast” has, in general, seen a decline in manufacturing base. Delaware County, however, has (as detailed later) had stability and even moderate growth in its manufacturing base. Still, in spite of regional growth, there are “several areas where the region is not meeting the necessary conditions to compete globally.” This is of particular relevance to Delaware County and the County’s potential for future development. What the CanAm study suggests is that the mostly rural region to the County’s north lacks global and continental integration. From data and evidence noted in this study, the County has done moderately well while this larger rural region has not. At first blush that may be comforting to area leaders but it may be a warning or lesson to be learned.

The authors’ write that, “None of the adjacent metropolitan areas (including NYC) trade predominantly with the NE CanAm region. This suggests a lack of strong economic ties to the NE CanAm region, and also an opportunity for future development. Such an opportunity for the number of rural counties to the north represents the same opportunity for Delaware County.

The rural NE is also a region that has struggled to transition from a natural-resource based economy. Much has been made and documented of the loss of natural-based industries in the rural northeast. Of

<sup>2</sup> Much of the background for this section borrowed from Northeast CanAm Connections Report, Wilbur Smith Associations, 2007. Reports available at <http://canamconnections.com/bm-doc/task-2-executive-summary.pdf>

significance to Delaware is the loss of forestry and paper industry jobs. This loss is illustrative and perhaps informative because, as detailed in the following sections, natural resource industries are and continue to be an important base and perhaps even an opportunity of the County's economy. That base, however, may be threatened by changing land ownership patterns (as was and is the case in the rural Northeast).

In summary, the rural Northeast, defined as rural counties generally north of Delaware County (north of I-90) including rural counties in Atlantic Canada have not kept pace with economic growth of other regions. There are many arguments for the cause of the relative decline, but of importance to this study is the recognition that Delaware County is on the fringe of this relatively stagnant region. The region may organize to address concerns, notable infrastructure, and consultants have recommended strategies that may be important to Delaware County. Although similar in character, Delaware County, as noted below, has continued to "compete" relative to the rural Northeast.

## 4.2 Upstate New York

Upstate New York, particularly those rural counties outside of the primary interstate or highway corridors mirror conditions throughout the entire Northeast. As noted by the Lake Champlain-Lake George Regional Planning Board in their most recent Comprehensive Economic Development Study, the rural upstate New York region economy is reflective of the rural Northeast. Like the larger region and rural upstate New York, "the Lakes region suffered from a loss of population, industry and opportunity as a result of the national recession in the early 1990's. The region as a whole recovered from the job losses at the beginning of the new millennium. [But] There also continues to be an overall loss of manufacturing employment in the region. "<sup>3</sup>

However, The Southern Tier East Regional Planning Development Board recent Comprehensive Economic Development Study reveals that the immediate region surrounding Delaware County, the Southern Tier, remains stable.<sup>4</sup>

The regional labor force in the Southern Tier East Region grew by 4,100 persons or 1.4 percent from September 2002 to September 2007. This is slightly below the State rate of 1.7 percent, but four points below the national increase of 5.4 percent for the same period. Employment generally declined in the immediate region between 2002 and 2007 but Delaware County remained stable at about 22,000 employed.

Total Nonfarm employment for the State was up .8 percent over the period from September 2006 to September 2007. Decreases in manufacturing were largely offset by increases in retail trade and service sectors. Manufacturing employment continued to decline in New York State and most areas of the region with the exception of Chenango and Cortland counties, which experienced no change, or Delaware County, which actually had a 2.2 percent increase in manufacturing employment over the period. All the region's counties experienced declines or stagnation in this category with the exception of Delaware, which had a 1.9 percent crease.

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<sup>3</sup> 2007-2008 COMPREHENSIVE ECONOMIC DEVELOPMENT STRATEGY (CEDs) UPDATE, Lake Champlain-Lake George Regional Planning Board.

<sup>4</sup> Southern Tier East Region Comprehensive Economic Development Strategy, 2007. Southern Tier East Regional Planning Development Board

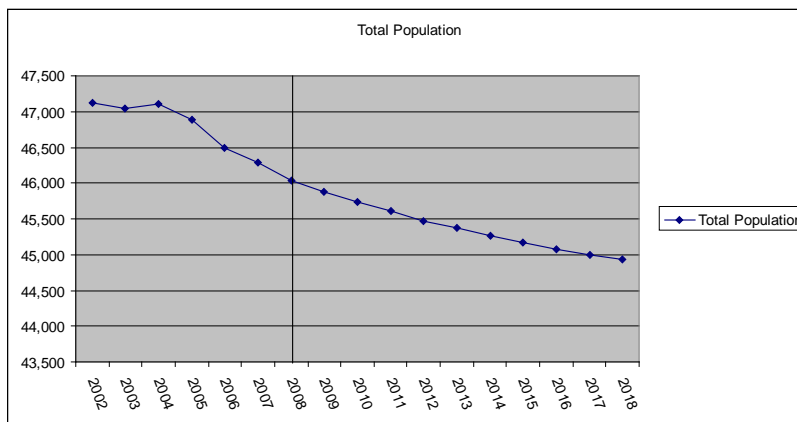
So, Delaware County, generally speaking, finds itself in a relatively stable position relative to the rural Northeast and its immediate region. A closer analysis of the details of Delaware County’s economy, particularly in light of the MOA and FAD, identifies particular sectors that have allowed the County to remain strong in light of the surrounding declining rural economies. Most notable, as documented below, are manufacturing, government and institutional and particular natural-resource based sectors. The latter being a sector that is arguable at risk with the FAD.

### 4.3 Delaware County Demographic Profile

#### Population Overview

Delaware County had approximately 46,300 residents in 2007, but EMSI’s Census-derived estimates show a sharp decline in population beginning in 2005. EMSI projections indicate that this trend will continue for the next ten years.

Figure 4.3.1



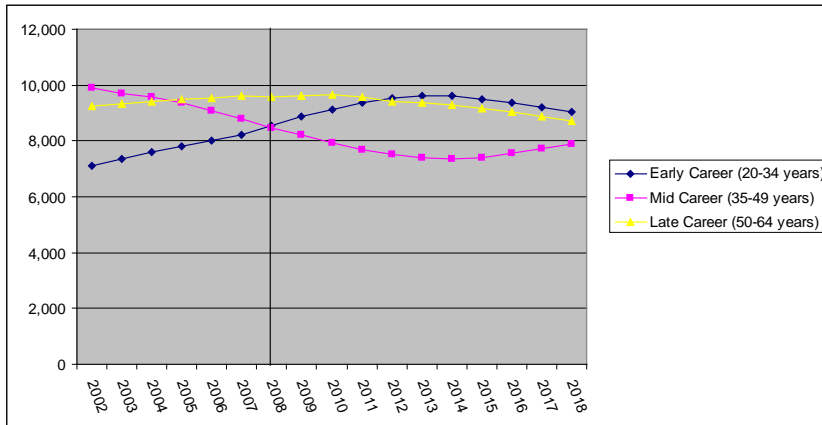
Source: EMSI Demographics

The vast majority (93% in 2008) of Delaware County’s residents are white and non-Hispanic. However, this majority is estimated to have declined by over 1,700 persons (4%) from 2002 to 2008, while minority groups are estimated to have added nearly 600 persons (24%).

Age cohort information is also important for understanding the current and future workforce of the county. EMSI’s cohort model projections from 2002-2018 indicate an explosion of college-age and early-career residents (20-34 years), modest growth in late-career residents (50-64 years), and a decline in mid-career residents (35-49).

Explanations for these trends could include (a) enrolment growth at SUNY-Delhi, (b) out-migration of young adults before they reach mid-career, and (c) in-migration of retirees and semi-retirees which has led to a slight increase in 50-64 year olds despite decline among 35-49 year olds.

Figure 4.3.2



Finally, we briefly cover educational attainment, which serves as an indicator of the region’s ability to attract more knowledge/skill-based industries and raise average earnings. A reduction in the level of educational attainment in the region can indicate a “brain drain” effect that could manifest into decreases in regional earnings and business exits. EMSI’s Census-derived data and model show that postsecondary educational attainment is rising in Delaware County, which is good news. Whereas 27% of residents over age 25 had a college degree in 2002, it was 30% in 2008.

**In- and Out-Migration**

Migration data are useful in determining the economic climate and people’s desire to live in the area. The analysis reveals that Delaware County has neither gained nor lost a significant portion of its population over the past couple of years. However, there was a spike in out-migration in 2006 (latest available data), which may indicate an increase in out-migrants in the coming years. The top migration flows to and from Delaware County involve its four neighboring counties to the north and west (Otsego, Chenango, Broome, Schoharie).

**Table 4.3.3: 2003-2006 Regional Migration**

	2003	2004	2005	2006	Total
In-Migration	1,851	1,832	1,834	1,679	7,196
Out-Migration	1,774	1,699	1,781	1,852	7,106
Net Migration	77	133	53	-173	90
Percent of Population	0.16%	0.28%	0.11%	-0.37%	0.05%

Source: Internal Revenue Service.

**Local Area Personal Income 2006<sup>5</sup>**

The following metrics measure how much labor and non-labor income is entering Delaware County and its most similar bordering counties—Greene and Susquehanna. Categories of non-labor income include Dividends, Interest and Rent payments (DIR) and Transfer payments. DIR payments come from

<sup>5</sup> Bureau of Economic Analysis, Regional Economic Accounts 2006: Local Area BEARFACTS, <http://www.bea.gov/regional/bearfacts/>

investments and transfers include government social benefit payments. Annual Per Capita Personal Income (PCPI) measures the average of all labor and non-labor income. Compared to its neighboring counties, Delaware County receives a higher level of DIRT payments. Delaware County’s PCPI \$27,893 is fairly low for New York State, but compares well to the national average and is probably more reflective of its geographic location within the state.

**Table 4.3.4 - Delaware County DIRT**

	2006 Population	DIR (\$M)	Per-Capita DIR	Transfers	Per-Capita Transfers	Annual PCPI
Delaware County	46,492	\$218,635	\$4,703	\$311,083	\$6,691	\$27,893
Greene County	49,297	\$209,956	\$4,259	\$320,483	\$6,501	\$29,623
Susquehanna County, PA	41,423	\$173,446	\$4,187	\$263,806	\$6,369	\$27,834

*U.S. Bureau of Economic Analysis, Local Area Personal Income.*

### *Housing Units<sup>6</sup>*

Growth in housing units measures both population density and population growth. Table 5.8 measures the number of new units constructed in Delaware county and other nearby counties with a similar sized population. The relatively slow growth of new units in Delaware County again indicates that it is not attracting in-migrants, and secondly that incumbent residents are moving into new homes and apartments at a slightly slower than average rate for the region.

**Table 4.3.5 - Delaware County Housing Unit Comparison**

<sup>6</sup> U.S. Census Bureau, Population Division, Housing Units Estimates. <http://www.census.gov/popest/housing/>

County	2003 Housing Units	2006 Housing Units	Three Year Growth	Percent Growth
Wayne, PA (42127)	31,369	32,575	1,206	3.8%
Greene, NY (36039)	27,004	27,939	935	3.5%
Susquehanna, PA (42115)	22,192	22,499	307	1.4%
Delaware, NY (36025)	29,263	29,531	268	0.9%
Tioga, PA (42117)	20,375	20,641	266	1.3%
Chenango, NY (36017)	24,035	24,166	131	0.5%
Cortland, NY (36023)	20,174	20,282	108	0.5%
Montgomery, NY (36057)	22,526	22,559	33	0.1%

*Median Rent*<sup>7</sup>

Median residential rent is a key indicator of housing affordability. Rent costs for Delaware County are lower than the surrounding non-metropolitan region; the state average and the national average (see Table 4.3.6)

**Table 4.3.6 - Delaware County Median Rent**

	Average Monthly Rent, 1 Bedroom	Average Monthly Rent, 2 Bedrooms	Average Monthly Rent, 3 Bedrooms
Delaware County	\$511	\$614	\$750
Surrounding non-metro averages <sup>8</sup>	\$556	\$675	\$863
New York State	\$671	\$795	\$1,008
Nation	\$517	\$625	\$823

*Regional Unemployment*<sup>9</sup>

Unemployment Rate measures the percent of people who are actively looking for a job that did not find one in the past month or year (see Table 4.3.7). It is therefore a great indicator of the availability of jobs in the region, or lack thereof.

In recent history the unemployment percentage for Delaware County has been between a half and one and a half points lower than the regional and state averages. In other words, residents in Delaware County have an easier time finding employment in the county, compared to the average New Yorker or U.S. resident.

**Table 4.3.7 - Delaware County Unemployment**

Period	August 2008	2007	2006	2005	2004	2003	2002
Delaware County	5.6%	4.7%	4.3%	4.4%	4.5%	4.9%	4.8%
Surrounding non-metro averages <sup>8</sup>	6.4%	4.6%	4.6%	4.8%	5.3%	5.4%	5.2%
New York	5.8%	4.5%	4.5%	4.9%	5.8%	6.4%	6.2%
Nation	6.1%	4.6%	4.6%	5.1%	5.5%	6.0%	5.8%

<sup>7</sup> US Department of Housing and Urban Development, Office of Policy Development and Research, 50<sup>th</sup> Percentile Rent Estimates, <http://www.huduser.org/datasets/50per.html>

<sup>8</sup> Counties in the Surrounding Non-metropolitan region are Chenango, Greene, Otsego, Schoharie, Sullivan, Susquehanna & Wayne.

<sup>9</sup> Local Area Unemployment Statistics, Bureau of Labor Statistics, <http://data.bls.gov/PDO/outside.jsp?survey=la>



**Proprietors<sup>10</sup>**

Proprietors are individuals who own and operate their own businesses. Proprietors are integral to the economic health of a region because they typically create a strong foundation of jobs and reinvest profits and earnings back into the local economy. On the other hand a high proportion of proprietors could indicate that a region does not offer enough viable business opportunities, which forces people to create their own businesses (see Table 4.3.8). Delaware County’s unusually high proprietary employment rates when coupled with lower income rates indicate that the county’s job opportunities may be low. This however could also be the result of the given nature of a rural county that is highly reliant on natural resources and agriculture. This may be the case in Delaware County as both the natural resources and agriculture sectors have a disposition toward proprietorships and lower earnings.

**Table 4.3.8 - Delaware County Proprietor Data**

Period	2002	2003	2004	2005
Delaware County	32.94%	34.11%	34.65%	35.66%
New York	16.06%	16.84%	17.50%	18.13%
Nation	17.64%	18.25%	18.83%	19.37%

**Educational Output**

*High School Graduation Rates<sup>11</sup>*

Table 4.3.9 displays the number of local high school graduates along with some metrics which assist for comparisons. These numbers are significant because a strong local educational system leads to a more intelligent and creative workforce. Delaware County’s graduation rates are on par with the state of New York, and consistently higher than the national average.

**Table 4.3.9 - Delaware County H.S. Graduation Rates**

	High School Graduation Rates	Percent of 15-19 year olds <sup>12</sup>	State % of 15-19 Yr. olds	National % of 15-19 Yr. olds
2003	566	17.1%	16.6%	14.7%
2004	592	15.4%	16.5%	14.7%
2005	610	15.7%	16.4%	14.6%
2006	608	16.0%	16.4%	14.7%

<sup>10</sup> Bureau of Economic Analysis, Local Area Personal Income Reports: <http://www.bea.gov/bea/regional/reis/>

<sup>11</sup> High school graduation data are created by EMSI using the U.S. Department of Education’s National Center for Education Statistics (NCES). To capture graduation rates for private schools EMSI uses a student to teacher ratio along with local private school employment numbers.

<sup>12</sup> This is a relative measure of the graduation percentage of people between the ages of 15-19. A more accurate measure would compare graduation rates to 17-19 year olds, but the population data is too limited for such a measure. There is no ideal percentage for this measure because the entire population is not eligible for graduation, and it may not be evenly distributed among 15-19 year olds.

2007	596	15.9%	16.5%	14.6%
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*Post-secondary Educational Output* <sup>13</sup>

Research has shown that businesses value close proximity with post-secondary institutions that can supply a trained workforce. Tables 4.3.10 and 4.3.11 display postsecondary output of students by degree level and type. The data indicates that regional colleges are training to fill the demand for career and technical occupations, particularly health, construction and business trades. However, there is not a strong output of Bachelor’s level students in any field.

**Table 4.3.10 - Post Secondary Education Awards**

Type of Degree	2006 Completers
Award of at least one but less than two years	66
Associate’s Degrees	430
Bachelor’s Degrees	27
Total	523

**Table 4.3.11 - Post Secondary Award by Program**

Program Field	2006 Completions	Number of Bachelor’s Degrees
Health & Veterinary Services	114	--
Construction Trades	108	--
Business, Management & Marketing	94	17
Mechanics and Repairers	50	--
Computer Information Systems	38	10
Engineering Technology	37	--
Recreation and Leisure	21	--
Agriculture	15	--
Education	5	--
Engineering	1	--

<sup>13</sup> National Center for Educational Statistics, IPEDS database: <http://nces.ed.gov/ipeds/>

## 4.4 Delaware County’s Major Economic Sectors

In this section we provide a general textual summary of the County’s major economic sectors. Additional data-supported details of the primary sectors follow in Sections 5 and 6. As noted in the previous section, in general, Delaware County has maintained its economy relative to other rural areas in the vicinity and rural Northeast.

Delaware County is located in the Catskill Region of New York State. Situated in the northwest corner of the Catskill Mountain Range, the region is predominantly rural in nature and has an historical agricultural base, a significant manufacturing sector and a small business community consisting of approximately 800 enterprises with five or less employees. The following highlights some of the major economic sectors of the County.

### 4.4.1 Small Business

The Delaware economy is characterized by many small enterprises in a wide area of services and products. The Delaware County Chamber of Commerce is active in business affairs and maintains an online business directory of the small business community. The small business sector is not a specific sector unto itself in our analysis but rather is represented across a number of sectors in our analysis, many of which are outlined below.

### 4.4.2 Agriculture

Agriculture has played a foundation role in the local economy and Delaware County was particularly known for its dairy products, at one time being the largest milk producing region in the United States. Agriculture has been in decline and certainly the number of farms operating today represents a fraction of its former size and predominance. New trends are emerging however, with some organics and specialty foods and the diversification of the agricultural sector is considered important to its continued viability in the future. The agriculture sector has received financial support for watershed protection, in particular through the Watershed Agricultural Council and its Whole Farm Plan program and Agricultural Easement Programs.

### 4.4.3 Manufacturing

In terms of overall size and employment numbers, manufacturing remains king in Delaware County as the economy’s largest sector. The sector is characterized by a relatively small number of employers many of which are located outside the Delaware watershed in Sidney Township. However, there are also several large facilities located throughout the watershed including a Kraft plant in Walton and a pharmaceutical manufacturer in Hobart.

Delaware manufacturing has remains relatively stable however recent flooding has increased concerns about the sector’s concentrated nature and the potential disruption to the economy in the event one or more encountering difficulties in the future.

### 4.4.4 Government & Institutional

The government and institutional sector is the second largest component of the Delaware County and is comprised of County and Town administrations, SUNY Delhi, a number of hospitals, various State Agencies as well as the New York City Department of Environmental Protection.

#### 4.4.5 Bluestone

Bluestone is a geologic deposit that has been used in stair steps, window and door fixtures, countertops, and tabletops, and flagstone, which is used for walkways and patios. Although generally referred to as Pennsylvania Bluestone, the same mineral and deposits run through New York and into the Catskill region. Bluestone is much sought after and a relatively new permitting process by the NY DEC has, according to DEC officials, helped revive the Bluestone mining sector. As reported in May, the industry is an important part of the Delaware County economy.<sup>14</sup> This sector is growing rapidly. According to the NYTimes, a number of mines have been opened in the last six years, and many old ones have been reactivated. Bluestone, which had shrunk to little more than memories — is now a \$100 million-a-year industry, located mostly in economically depressed Delaware and Broome Counties in the Catskills.<sup>15</sup>

According to the New York State Bluestone Association the market value of bluestone is approximately \$40 million a year. In 2005 Delaware and Broome Counties had the most Bluestone mines in New York. Roughly 60% of the bluestone mines are between 1 and 5 acres in size. In 2005, four of the largest eight mines in the state were in Delaware County.<sup>16</sup>

#### 4.4.6 Forestry

The forestry sector is one of the oldest economic activities in the County and is characterized by a number of small, private logging contractors and some secondary wood product manufacturing. The prospects for the sector have tightened as global timber prices fall and the forestry sector re-adjusts to these pressures. While forestry is heavily dependent on the availability of a resource supply and the existence of a restrictive operating environment serves to dampen activity, the sector can expect to access future resources on NYC lands as the City moves to implement a comprehensive forest management plan for their holdings in the watershed. How difficult and timely the process of opening these lands for forestry activity remains to be seen and will influence growth in the future.

#### 4.4.7 Natural Gas

Natural Gas represents a potential economic development resource for Delaware County and the surrounding region. The Southern Tier Economic Development Board recently reported on this potential. The Marcellus Shale is a large regional geologic formation stretching from the immediate Delaware County region south through West Virginia. This formation of shale has a significant potential for natural gas extraction. The Board's technical report notes that "Although some experts are very optimistic on the long-term production rates of these wells, it is too early to determine their productive life or long-term yield. The presence of an enormous volume of potentially recoverable gas in the eastern United States has a great economic significance. This will be some of the closest natural gas to the high population areas of New Jersey, New York and New England. This transportation advantage will give Marcellus gas a distinct advantage in the marketplace."<sup>17</sup> Recent reports in Pennsylvania go further to suggest how this sector may generate significant job and income growth in that state.

Researchers at SUNY and elsewhere suggest that the Marcellus shale contains 168 trillion cubic feet of natural gas in place and optimistically suggests that the amounts could be as high as 516 trillion cubic feet.<sup>18</sup> According to the same source, U.S. currently produces roughly 30 trillion cubic feet of gas a year

<sup>14</sup> <http://catskillmountainkeeper.blogspot.com/2008/05/bluestone-boom-opens-quarries-to-new.html>

<sup>15</sup> <http://www.nytimes.com/2008/05/13/nyregion/13quarry.html#>

<sup>16</sup> [http://www.dec.ny.gov/docs/materials\\_minerals\\_pdf/05anrpt3.pdf](http://www.dec.ny.gov/docs/materials_minerals_pdf/05anrpt3.pdf)

<sup>17</sup> Southern Tier East Technical Paper # 08-07 (Revised September 11, 2008)

<sup>18</sup> <http://live.psu.edu/story/28116>

and the scientists believe that it may be feasible to recover 50 trillion cubic feet of gas from the Marcellus a year.

There is much debate and policy discussion regarding the tapping of the Marcellus formation gas. Permitting and policy decisions are under critical review from the gas and environmental lobby. It is beyond the scope and role for this study to advocate policy but what is clear is that there is a potential natural resource with significant economic and environmental concerns under Delaware County.

“In a letter from the New York City Department of Environmental Protection to state officials, obtained by ProPublica, Commissioner Emily Lloyd said she was not satisfied with state assurances that the environment would be protected from drilling in the Marcellus Shale....The letter doesn’t offer specifics on how drilling might taint the city’s water or explain the basis for a one-mile buffer, but it made clear that as guardians of New York City’s water, city officials view drilling as a serious threat.

‘If you are ranking areas of concern that need extremely careful protection (the New York watershed) would have to be at the top of anybody’s list,’ said (Walter) Mugden, director of the division of planning and protection at the Environmental Protection Agency, region two. “More than half the state depends on that watershed on a daily basis.”<sup>19</sup>

Despite the City’s concerns, interest is high in local communities regarding the potential for future development, possibly spurred on by the current high prices for energy being experienced throughout the North American economy and the desire to see new economic activity.

“The face off pits New York City’s interests against the broader economic needs of the state, so finding a solution may not be easy, said Eric Goldstein, an attorney with the Natural Resources Defense Council. Gas leases are selling for up to \$3,000 an acre in parts of the state with stagnant economies.”<sup>20</sup>

## 4.5 Comparative Regions

As part of our analysis, a number of other geographic regions were reviewed in comparison to Delaware County’s current economic situation. The following provides a brief overview of each and the rationale for their inclusion in the analysis.

### 4.5.1 Catskill Region

The Catskill Region for the purposes of our review is comprised of Delaware, Greene, Sullivan and Ulster Counties. While a portion of the watershed is found in Schoharie County, it is included in the Central-Leatherstocking Region for our purposes. For the purposes of our analysis we have also removed Delaware County from inclusion as it would have the effect of assessing its economic performance against itself and skew the economic picture for the remaining counties in the Region. The Region is included for the obvious reason of being Delaware’s neighbours within the watershed and for the fact that these areas are also subjected to the same watershed regulation and controls found within the County.

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<sup>19</sup> Times Union, “New York City Demands Ban”, Abraham Lustgarten, ProPublica, August 6, 2008, p.1

<sup>20</sup> Ibid, p.1

#### 4.5.2 Adirondack Region

The Adirondack Region is located in the northern reaches of New York State and is comprised of Clinton, Franklin, Essex, Warren, Hamilton, Fulton, Herkimer and Lewis Counties. The Region is home to Adirondack State Park, the largest in the lower 48 states of the U.S.

The Adirondack communities are in transition and share a history of external control of land resources with Delaware County and other watershed communities. The Region has faced a range of social problems including declining population, economic stagnation and deterioration of municipal and education services and has been impacted by extensive land acquisition by the Park Agency that governs the Adirondack State Park. Local Counties are currently undertaking an Adirondack Park Regional Assessment Project to study the current health and sustainability of local municipal governments and the local communities in general. The Study is expected to be completed prior to year end and will be available for assessment and comparison by the Consultant prior to the completion of the Final Report.

#### 4.5.3 Central-Leatherstocking Region

The Central-Leatherstocking Region, as its name implies, is located in central New York State just west of Albany and the Capital Region and immediately north of the Catskills. The region consists of Broome, Madison, Chenango, Oneida, Otsego, Montgomery and Schoharie Counties. The Region abuts Delaware County along its northern boundary and has a limited area designated within the watershed within Schoharie County. The Region is useful for comparison purposes as it is found within the same broader Regional and upstate economy as Delaware County but has not been subjected to the land use regulation, development constraints and land acquisition and easement activity found within the Watershed communities.

#### 4.5.4 Jersey Pineland Barrens

The New Jersey Pinelands is a large tract of Pineland Barrens located in central New Jersey. The Pinelands cover all or portions of Atlantic, Burlington, Camden, Cape Mary, Cumberland, Gloucester and Ocean Counties. Significant portions of the Pinelands have been designated for protection as outlined in **Fig. 4.5.4.3** and the New Jersey Pinelands Commission has created a *Long-term Economic Monitoring Program* to assess impacts and report annually to the Commission on the economic well-being of local communities. The Delaware County Baseline Economic Model outlined in Section 5 contains similar basic indicators and some further comparison of the regions, and the Monitoring Program specifically, will be addressed in the Final Report of this study.

## 4.6 West of Hudson Watershed Partners & Stakeholders

The New York City Watershed covers nearly 2,000 square miles across eight counties of the State and affects the daily lives of both upstate and downstate residents. It is a vital piece of infrastructure for the well-being of NYC for obvious reasons and is heavily regulated by Federal, State and City entities.

The partners and stakeholders include the following:

- United States Environmental Protection Agency
- State of New York
  - New York State Department of Health
  - New York State Department of Environmental Conservation
  - New York State Department of State
  - Watershed Protection and Partnership Council
  - New York State Environmental Facilities Corporation
- City of New York
  - New York City Department of Environmental Protection
- Coalition of Watershed Towns
- Catskill Watershed Corporation
- Delaware County
- Other Watershed Counties, Towns and Villages
- Environmental and Conservation Stakeholders
  - Catskill Center for Conservation and Development
  - Hudson Riverkeeper Fund, Inc.
  - New York Public Interest Research Group, Inc.
  - The Open Space Institute, Inc.
  - Trust for Public Land

A brief description of each organization and its role in the watershed will be provided as an Appendix to the Final Report.

### 4.7 The Watershed’s Regulatory Environment

The NYC Watershed is subjected to a range of regulatory controls, Agreements and Programs that govern activities in the watershed intended to protect water quality and have been put in place since the 1997 MOA to permit the City to operate the water supply without filtration. The majority of rules have been established primarily for this purpose and have subjected the communities and the landscape to a greater degree of controls and constraints on land use than found in other jurisdictions.

#### 4.7.1 1997 Memorandum of Agreement

The 1997 Memorandum of Agreement or MOA is the foundation Agreement which forms the basis of the overall NYC Watershed partnership that exists between the many Towns and Counties of the East and West of Hudson Watershed, Federal, State and City Agencies and Environmental, Open Space and Conservation interests that are party to the Agreement.

The MOA is the mechanism that permits the City to implement its required water quality measures such as the land acquisition program and provides mitigation measures to communities in the form of

funding for economic development, improvements to sewage treatment infrastructure and septic systems upgrades.

The MOA also enabled the introduction of the watershed rules and regulations focused on waste water creation and water runoff.

#### **4.7.2 2006 NYC Long Term Watershed Protection Program**

The 2006 Long Term Water protection Program was the revised program submitted to the United States Environmental Protection Agency for the extension of the 2002-2007 filtration waiver for the Catskill/Delaware systems and expected to form the basis of the next Filtration Avoidance Determination for the years 2007-2012.

It includes NYCDEP's environmental infrastructure programs covering septic systems, new sewage treatment, community waste water management, WWTP upgrades and stormwater programs as well as its protection and remediation programs covering land acquisition, management, watershed agricultural and forestry programs.

The Program also contains programs for regulation enforcement.

#### **4.7.3 NYC Water Supply Rules & Regulations**

The Water Supply Rules & Regulations include the specific criteria and standards for the wastewater treatment of individual homes and small businesses within the Watershed. It specifies the physical characteristics of septic systems in terms of size and capacity required, distances from watercourses, separation from wells and in general requires a higher level of engineering than treatment systems required elsewhere in the State.

In addition to being considered fairly onerous in terms of their level of detail, the process of application approval is slow and considered difficult. There is some opinion within the watershed that suggests the administration of these rules and regulations are in fact more difficult than the regulations themselves.

#### **4.7.4 2008 DEP Regulations – Recreational Use of Lands and Waters**

Lands owned by NYCDEP have been subjected to restrictions on use and access through that Department's Rules for the Recreational Use of Water Supply Lands and Water. Permits are required for individuals wishing to use NYC lands for recreational purposes and NYCDEP has recently issued amendments to their Rules in an effort to ease some of the irritants and to open land and reservoir access to a greater extent than has been the case since the MOA's signing.

It is premature to determine whether these amendments represent an improvement in the process however, the previous situation tended to deter widespread use of these lands for outdoor uses by the cumbersome nature and rigidity of the process. All individuals traversing NYC lands require a permit for access. Boaters are required to adhere to a process of inspection; cleaning and storage not found elsewhere and have therefore had a dampening effect on interest in these lands for such purposes.

#### **4.7.5 New York State Environmental Quality Review Act (SEQRA)**



The State Environmental Quality Review Act is the New York State statute governing environmental review of projects, programs and activities carried out by any state, regional or local government agency. This includes activities required within the FAD such as land acquisition activities. Under the Act's Section 617.1 regarding authority, intent and purpose the following clauses speak to the Act's purpose and intention:

*(b) In adopting SEQR, it was the Legislature's intention that all agencies conduct their affairs with an awareness that they are stewards of the air, water, land, and living resources, and that they have an obligation to protect the environment for the use and enjoyment of this and all future generations.*

*(c) The basic purpose of SEQR is to incorporate the consideration of environmental factors into the existing planning, review and decision-making processes of state, regional and local government agencies at the earliest possible time. To accomplish this goal, SEQR requires that all agencies determine whether the actions they directly undertake, fund or approve may have a significant impact, prepare or request an environmental impact statement.*

*(d) It was the intention of the Legislature that the protection and enhancement of the environment, human and community resources should be **given appropriate weight with social and economic considerations in determining public policy**, and that those factors be **considered together** in reaching decisions on proposed activities. Accordingly, it is the intention of this Part that a suitable **balance** of social, economic and environmental factors be incorporated into the planning and decision-making processes of state, regional and local agencies. **It is not the intention of SEQR that environmental factors be the sole consideration in decision-making.**<sup>21</sup>*

The "Environment" is defined within the Act in Section 617.2 (l) as follows:

*(l) Environment means the physical conditions that will be affected by a proposed action, including land, air, water, minerals, flora, fauna, noise, resources of agricultural, archaeological, historic or aesthetic significance, **existing patterns of population concentration, distribution or growth, existing community or neighbourhood character, and human health.***<sup>22</sup>

While the SEQRA is State legislation, it plays an important role in watershed affairs and is the Act by which all significant developments are subjected to review. The definitions outlined above are worth

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<sup>21</sup> NYSDEC General Regulations 617: State Environmental Quality Review, (Statutory Authority: Environmental Conservation Law Sections 3-0301(1)(B), 3-0301(2)(M) and 8-0113, Adopted: September 20, 1995; Effective: January 1, 1996, Amended June 26, 2000; Effective: July 12, 2000, Section 617.1, subsections (b), (c), & (d).

<sup>22</sup> Ibid, Section 617.2, subsection (l).

assessing in terms of how they have been applied in the past and how they may or could be applied in the future.

There is a body of opinion that suggests the definitions have not been fully interpreted from the perspective of the stated range of defined impact that include issues such as population changes, community character and economic well-being.

The Act represents a fairly onerous process for the review of projects and land uses such as forestry, mining and in fact, development within the watershed of any kind, however it may also represent an avenue by which the County may challenge future acquisition activity by way of intervening and comment at the scoping stage of the Act's review process.

## 5.0 Economic Analysis & Baseline Model

The goals of this economic analysis are as follows:

- a) Catalogue the current economic status of the Delaware County watershed region,
- b) Determine how the industrial base of Delaware County has changed in recent years, following the MOA, and
- c) Model several potential future scenarios for the region. The past and future effects of the MOA could include growth, decline, or elimination of specific industries or occupations. It is apparent from other economic analyses that natural resources based industries are more exposed to both the adverse and positive effects of environmental policies such as the MOA.

## 5.1 Methodology Overview

### 5.1.1 EMSI Data and the Strategic Advantage Tool

The Strategic Advantage (SA) is EMSI's own proprietary workforce and economic analysis tool. It contains comprehensive and timely data for industries, occupations, and postsecondary programs. SA data is integrated through multiple crosswalks, linking industry data to occupations, occupations to college programs and so on. In addition to showing the current state of regional economies, the SA tool also provides ten-year projections, so that regional stakeholders can prepare for future trends. The data contained in EMSI's SA comes from nearly 90 state and federal data sources, which are harmonized and condensed to roughly twenty final data matrices. Hundreds of professionals in workforce development, economic development, higher education, and private industry use SA regularly to perform regional economic analysis.

Before delving into the results, it will be helpful to provide a glossary of the common terms that will be used throughout the analysis. These are the terms and concepts that are most frequently used:

**NAICS Codes & Descriptions:** The standard numerical code and name of industries. These codes are used in all state and federal industry data collection.

**SOC Code & Title:** The standard numerical code and occupation title used in state and federal data collection.

**Jobs:** Total number of full- and part-time jobs in the industry or occupation.

**Change:** Change in total jobs over the given timeframe.

**Percent Change:** Total change divided by start year jobs.

**Industry EPW (Earnings Per Worker):** Total industry earnings (earnings of all businesses in the industry) in the most recent published data year (2007) divided by the number of jobs in the industry. Earnings include benefits and all other forms of compensation. This is *not* equivalent to the industry's "average worker wages." For worker wages, see occupational earnings.

**Occupational EPW:** The median hourly earnings of all regional workers in the occupation.

**Location Quotients, (LQ):** The relative concentration of the industry in the region, or in other words, a measure of the region's specialization in the industry. LQ is defined as the percent share (in terms of jobs) of an industry in the regional economy divided by the percent share of the same industry in the national economy. High-LQ industries tend to be export-oriented; that is; they are specialties of the

region which bring money into the regional economy rather than circulating money that is already present.

The primary data pieces EMSI’s consultants relied on for the Delaware County analysis are the industry and occupation data matrices. In order to capture its complete picture of industry employment, EMSI combines covered employment data from Quarterly Census of Employment and Wages (QCEW) produced by the Department of Labor with total employment data in Regional Economic Information System (REIS) published by the Bureau of Economic Analysis, augmented by County/ZIP Business Patterns (CBP) and Nonemployer Statistics (NES), both published by the U.S. Census Bureau. This methodology creates a more comprehensive picture of the economy than using QCEW (“payroll” employment) alone. Because of this, and the fact that all data sources count both full- and part-time jobs, EMSI job totals are higher than those found in any single source.

Industry Projections are used throughout this report to provide an estimate of the future economic activity of Delaware County. To conduct these projections EMSI begins with our own proprietary data as a baseline, and projects industries at as specific a level as possible for the most precise geographic area that is available. To do this EMSI relies on each state’s own Department of Labor sub-state industry projections. After the New York state labor data projections are applied to our data EMSI makes a few more adjustments in areas where the state’s data is weak, such as proprietor heavy industries.

The state of New York publishes its industry projections for several sub-state regions. Delaware County is included in the nine county Southern Tier region, which stretches from Steuben County in the west to Delaware and Otsego County in the east. Since projections are calculated for this region as a whole, there may be sectors where the data reflects the activity of the Southern Tier region more than it does Delaware County. Sectors such as these will be highlighted.

In other situations, the projections may seem unrealistic due to time-lag. Each state Department of Labor releases new projections every two years, but the baseline year for these projections is usually a few years behind the current point in time. Therefore, the sectors that have experienced recent turmoil such as Real Estate and Finance will not appear to line up with our current understanding of the labor market. In these situations, one again, the sectors will be highlighted by EMSI.

EMSI has developed a detailed mathematical process to create its “Complete Employment” dataset, which includes proprietors or those not covered by unemployment insurance. The extensive work that EMSI puts into these processes are especially apparent in areas like Delaware County, where proprietors are a much larger percentage of the workforce than the national average.

For this reason, analysts who are accustomed to working with QCEW-derived data may at first think that EMSI Complete Employment numbers appear inflated. However, they are grounded in the analysis and modeling of reliable, federal data sources (Bureau of Economic Analysis / REIS and Census / NES), and moreover they are essential to many types of analysis, especially in rural areas.

Here are some examples of the importance of using non-covered data in Delaware County:

- 36% of the county’s total jobs are proprietors (in 2006), which are all non-covered. Compare this to about 20% for the U.S.
- Agriculture: Only about 300 covered jobs reported for 2006; EMSI estimates over 1,400 total covered and non-covered.
- Mining: Only 90 covered jobs reported; EMSI estimates nearly 1,100 total.
- Construction: Only about 850 covered jobs reported; EMSI estimates about 2,500 total.

EMSI also uses its industry data to produce occupation data. EMSI's main occupational data source is Occupational Employment Statistics (OES) from the Bureau of Labor Statistics. EMSI basically combines its local industry data, the National Employment Matrix, and regional jobs-by-occupation numbers from OES to do this. Occupational earnings are derived from OES figures, the National Compensation Survey, and the American Community Survey from the Census Bureau, with some local adjustments based on EMSI's own industry earnings numbers.

To EMSI's knowledge, its labor market data is the most comprehensive available and employs the most sophisticated processes possible to achieve a blend of accuracy, detail, and total coverage. However, the process does involve estimation and modeling, and the potential for error increases for smaller geographic areas and more detailed industry/occupation categories.

### 5.1.2 Input-Output Model

An input/output (I/O) model is a mathematical tool that produces economic impact assessments based on regional "multiplier effects," which are derived by estimating regional inter-industry purchasing relationships. EMSI also uses its I/O model for economic base analysis.

To create its I/O model, EMSI starts with a national input-output or "A matrix" that is comprised of the industry "Use" and "Make" matrices provided by the federal Bureau of Economic Analysis. EMSI uses both the benchmark (2002) and annual (2006) versions of these tables. They are disaggregated to more detailed industry categories and combined with the national TGO (Total Gross Output), regional jobs and sales data (which constitutes regional TGO), the land area of the subject region, regional DIRT (Dividends, Interest, Rent and Transfers) data, and regional in/out commuter patterns. We then calculate regional requirements, imports, and exports. This gives us an idea of what goods and services are purchased in the region.

This information is useful because the less import dependence a region has, the more money remains within the region and, subsequently, the more beneficial the ripple effects of adding jobs in various industries. Once we have this information, we employ matrix algebra to calculate the regional multiplier. When a user enters new jobs into the tool, the I/O model converts those jobs into sales using regional sales-per-worker ratios. The sales vector is then multiplied by the regional multiplier matrix, or "B matrix." The resulting vector is then converted back to jobs or earnings and displayed in EMSI's SA tool.

### 5.1.3 Fiscal Impact Model

The fiscal impact model analyzes the impact of higher housing values and projects a future assessment of housing values within a given region. After future assessment is determined, an average levy rate is used for the region, thus allowing a current view of tax collection and a future view of tax collection. These two views are compared to analyze shifts in housing.

### 5.1.4 Assumptions

This report uses assumptions derived from the Delaware County officials and their affiliated experts. It is possible that some individuals could feel either more or less strongly about these assumptions, but as a third-party consulting agency EMSI sought to produce as objective and data-based an analysis as possible. In our analysis the following items were assumed.

1. It is understood that New York City, New York State, or affiliated land trusts would like to control greater than 50% of the Delaware County watershed in the short term future.
2. Based on past experience it can be assumed that New York City will pursue acquisition of the more valuable and developable land in the region through fee or easement.
3. The New York State Department of Environmental Protection will not allow the watershed to be polluted by developments such as natural gas drilling, or blue stone quarrying, both of which represent major economic opportunities for the region.
4. The current holding of roughly 8.2% of the land in the watershed has already driven property values and property taxes upward, and it can be assumed that this trend will continue.
5. Tax rates and property values have increased rapidly over the MOA period, and will continue to with the acquisition of more land by New York City. This will drive at least some of the residents away from the region.

There are some additional possibilities that were addressed in the analysis but direct causality could not be attributed to the LAP. There are legislative issues and market forces at work in Delaware County above and beyond the watershed agreement and these will impact the future of the region as well. The following possibilities have been considered but should be interpreted as direct consequences of the LAP:

6. The advancement of natural gas drilling could be completely restricted, eliminating a major potential boon to the local economy.
7. Recreational opportunities could become more abundant based on land acquisition.
8. Fee and easement holdings could constrict the vitality of the timber industry in the county.
9. Land available for housing and small business development is severely limited in some areas which is an inconvenience for residents and could lead to further out migration or at least the stagnation of new business development.
10. It is likely that at the expiration of the property valuation moratorium in twenty years NYC will challenge the assessed values of the land under the precedent that the land is vacant and the values are inflated. If successful, this would lower the tax burden for NYC and increase the burden for Delaware County residents.

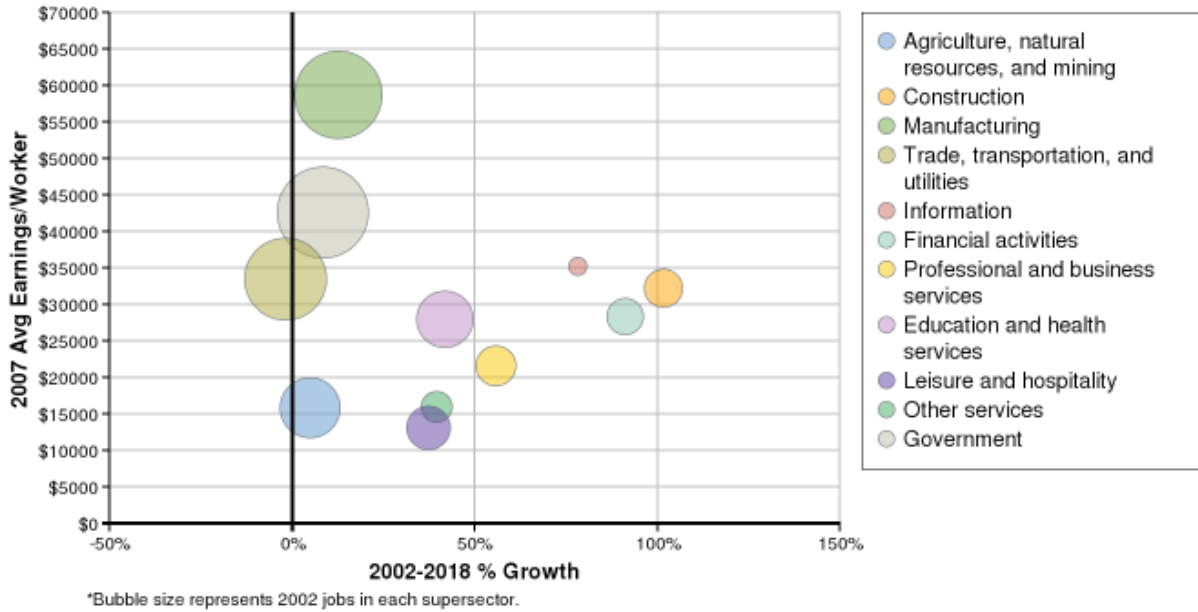
In summary, this analysis intends to first report the facts of what has happened to the Delaware County economy since the beginning of the Watershed MOA *without overly assuming direct linkages between changes and the MOA* (this will establish a “baseline” for the county’s economy), and then report the two possible scenarios for the region in the future: continued acquisition versus status quo.

### 5.2 Delaware County Economic Baseline

Summary

The goal of this section is to provide an overview of the Delaware County economy’s recent past, as well as projected trends based on the recent past. This provides the baseline against which we will compare likely future scenarios.

Figure 5.1, Mainstay Industries Hold Steady; Rise of Service-Based Economy



The chart above encapsulates the recent past, and projected near future, of the Delaware county economy.

- On the left are the largest “mainstay” industries that drive or support most of the economy: manufacturing; government (including public education); trade, transportation, and utilities; and agriculture / natural resources.
- To the right is a scattering of sectors that are smaller but “emerging”—that is, showing higher growth than the mainstays. These are almost entirely service-sector industries.

Particular observations:

- The county’s service sector has generally lower earnings than the mainstays. This fact should be of concern, particularly in the face of rising property values and cost-of-living.
- Stellar growth projected for construction and financial activities (which include real estate) may be blunted by the recent downturn in housing and the financial sector, which will not be fully reflected in the data until next year (2009).<sup>23</sup>

<sup>23</sup> EMSI’s construction projection does not estimate incremental growth in water and sewer system construction, which reached its peak in 2006. After this point the projection line for this industry is nearly zero.

***Abundance of Proprietor Jobs; But They Have Low Incomes***

Nearly one-third of the county’s jobs are accounted for by proprietors (self-employed, non-payroll), compared to only 20% nationally. This is mainly due to the large presence of agriculture and natural resource industries in the county, which tend to have more proprietors than other sectors. However, these jobs tend to be lower-paying and/or mostly part-time, with a per-proprietor income of only \$12,300 in 2006.

***Who Will Fill Tomorrow’s Jobs in Delaware County?***

Demographic trends and models project a decline of about 1,100 persons in the county’s population from 2008-18. At the same time, job projections lead us to expect over 4,000 new jobs over the same time period. This projected workforce gap is likely to be exacerbated by rising property values and cost of living.

On the other hand, it should be understood that the employment projections capture jobs, not workers. Many of the 4000 new jobs could be second jobs, or part time jobs, given that the data tracks self-employment and proprietorships.

**5.3 Asset Map: Delaware County SWOT Overview**

Asset mapping is a critical step in organizing the resources that a community can leverage to support integrated workforce and economic development initiatives. This asset map will provide leaders and decision makers with an inventory of key resources that can be incorporated into a development effort. An asset map can be used to discover strengths, weaknesses, opportunities, and threats (SWOT) to economic stability, and might also be called an area profile or dashboard.



The following simple asset map summarizes several key indicators. Note that economic indicators fare well given recent trends, while population indicators are less certain.

Asset	Description	Status	Meaning
Population Growth	Annualized growth (2002-07) in residents based on Census estimates and EMSI model	About -0.4%	County population is in slight decline
Net Migration	Number of people moving into the county minus the number moving out of the county per year.	Stable and slightly positive in recent past; plunged to -173 in 2006	2006 may mark beginning of population outflow from the county; need to discover causes
Educational Attainment	Percent of 25+ year olds having college degree	Est. 30% and growing in 2008 vs. 34% in US	County lags US in college degree attainment, will need to address this to remain competitive
Job Creation	Annualized growth rate of jobs (payroll and proprietors, farm and non-farm), 2002-07	1.6% - slightly above NY; matches US	Job growth has been solid in the county.
Unemployment	% of labor force not employed	5.6% in Aug. 2008; lower than NY and US	The county tends to weather bad labor markets better than average.
Mainstay industries	Manufacturing, Government, Natural Resources	Stable with moderate 2002-18 growth projected	Core economy is stable
Emerging Industries	Services; Tourism/Arts/Recreation	Small but fast-growing, also tend to be lower-paying	Emerging industries will create new jobs but also new challenges
Housing Costs	% change in median rent for 2-bedroom apt.; 2003 vs. 2007	14% in county vs. 11% in NY and 15% in US.	Housing costs in the county are rising faster than in the state, but approximately match the US rate.

### 5.4 Economic Base Model

Economic base analysis informs stakeholders about what groups of industries are most fundamental to the region’s economic vitality. This analysis measures how much money is being brought into the local economy from outside the region and which industry sectors are ultimately responsible for this inflow.

These industries generally export products and services to non-regional purchasers and are called “basic,” while industries that circulate existing monies but do not bring a significant portion from outside are called “non-basic.” Growth or decline in basic industries has larger implications for a given region because basic industry changes are usually coupled with large ripple effects across the economy. The model used to calculate this data determines how much of each industry’s jobs and earnings rely on export of goods or services. It then uses multiplier effects and regional input/output model to attribute jobs and earnings from other industries to the original “basic” industry.

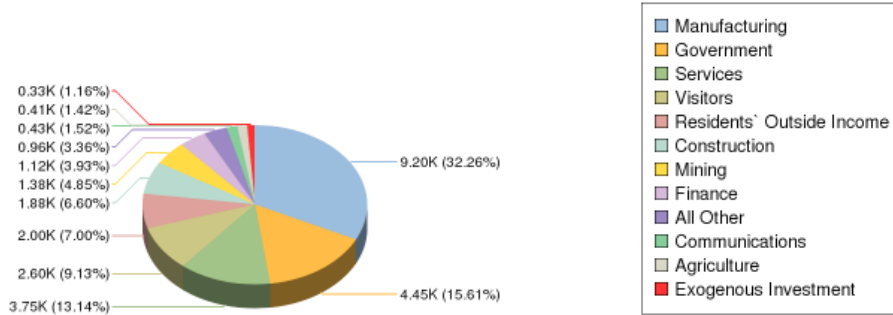
The top sectors contributing the economic base in Delaware County are *Manufacturing, Government, Services, Visitors, and Residents Outside Income*.

- The highlight of this analysis is that manufacturing ultimately contributes to 32% of the regional jobs and 40% of the regional earnings (See Figure 5.22 and its corresponding table). The manufacturing sector is thus critical to Delaware County because it is ultimately responsible for nearly one-third of the regional employment. Moreover, compensation in the manufacturing sector is significantly higher than the average compensation in the region, resulting in a higher percentage of total regional earnings.
- The second most significant economic base sector is Government, which typically scores high for any region, but Delaware County has an extra boost due to the existence of SUNY-Delhi.
- Resident’s Outside Income is also a strong contributor to the economic base. This sector includes various sources of income from outside the region, which residents in turn spend in the regional economy. Examples of outside income include outside earnings (e.g., income of residents who commute to an employer outside the region), capital or property income (investment dividends, royalties, rents), and transfer payments (unemployment benefits, welfare, Social Security payments, etc.) Another possible source earnings in this sector is the income of seasonal residents and second home owners who, for taxation reasons, claim their primary residence as Delaware County. There are many possible explanations for the size of this sector but more analysis is required to determine the explanation.

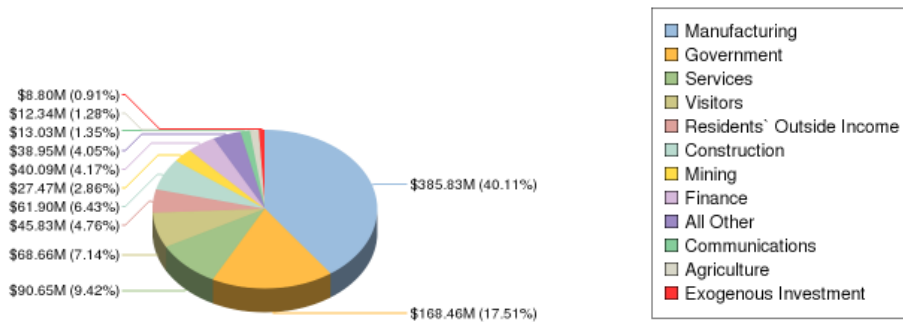
The Services and Visitors sectors represent regional jobs and income ultimately dependent on sales of services to non-county customers as well as the spending of visitors. Together, these account for some 22% of county jobs, but only 16% of county earnings due to the tendency for these sectors to create lower-wage jobs.

### Figure 5.2 - Delaware County Economic Base (Jobs and Earnings)

*Jobs*



Earnings



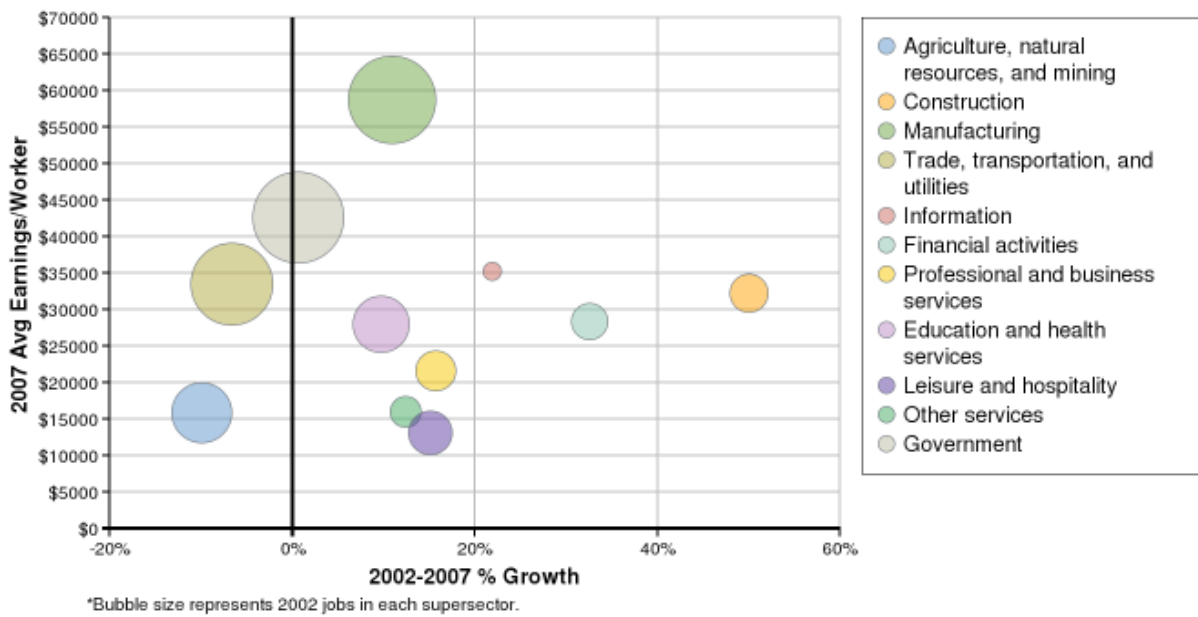
Sector	Jobs	Earnings (x1000)	Jobs %	Earnings %
Manufacturing	9,198	\$385,833	32%	40%
Government	4,451	\$168,460	16%	18%
Services	3,748	\$90,653	13%	9%
Visitors	2,604	\$68,665	9%	7%
Residents' Outside Income	1,995	\$45,826	7%	5%
Construction	1,881	\$61,904	7%	6%
Mining	1,384	\$27,469	5%	3%
Finance	1,120	\$40,094	4%	4%
All Other	959	\$38,951	3%	4%
Communications	433	\$13,026	2%	1%
Agriculture	406	\$12,342	1%	1%

Exogenous Investment	330	\$8,799	1%	1%
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5.4.1 Industry Overview, 2002-2007

Industry data at an aggregate level display the diversification of the regional economy. The following chart provides possibly the highest-level overview possible of the county’s major sectors. The job decline in major areas of trade/transport/utilities and agriculture / natural resources is of particular concern.

Figure 5.3, Industry Overview 2002-2007



The following table uses slightly more detailed sectors. The data indicates that Delaware County’s largest industry sectors are *Government, Manufacturing, Retail, Healthcare & Social Assistance, Agriculture, and Construction*. The county’s economy also has above-average dependence on *Mining, Agriculture, Manufacturing, and Arts/Entertainment/Recreation* (as measured by the “location quotient” LQ, a measure of the relative size of one sector compared to the national economy. An LQ above 1.0 indicates that sector is relatively larger in the local economy than that of the nation as a whole whereas below 1.0 indicates a relatively smaller sector compared to the nation).

Table 5.4, Industry Sector Baseline

Sector	2002 Jobs	2007 Jobs	Change	% Change	EPW <sup>24</sup> (x1000)	2007 LQ <sup>25</sup>	State 2007	State % Change	State EPW (x1000)
Government	4,607	4,639	32	1%	\$42.7	1.23	1,458,726	1%	\$67.6
Manufacturing	4,369	4,847	478	11%	\$58.8	2.11	579,241	-14%	\$83.5
Retail trade	3,078	2,740	-338	-11%	\$27.6	0.91	1,057,029	6%	\$32.6
Health care and social assistance	2,340	2,538	198	8%	\$29.7	0.89	1,474,422	10%	\$46.6
Agriculture, forestry, fishing and hunting	1,577	1,355	-222	-14%	\$14.9	2.23	66,514	-10%	\$16.9
Construction	1,524	2,285	761	50%	\$32.3	1.24	528,910	18%	\$55.9
Accommodation and food services	1,222	1,288	66	5%	\$14.9	0.67	611,523	10%	\$24.7
Mining	1,190	1,138	-52	-4%	\$17.0	7.55	10,315	19%	\$93.1
Other services, except public administration	1,118	1,256	138	12%	\$16.0	0.85	523,715	8%	\$29.3
Professional and technical services	912	988	76	8%	\$29.3	0.51	903,705	15%	\$87.4
Finance and insurance	791	743	-48	-6%	\$41.7	0.55	738,003	7%	\$194.1
Real estate and rental and leasing	630	1,141	511	81%	\$19.7	0.93	473,076	31%	\$45.6
Arts, entertainment, and recreation	580	787	207	36%	\$10.1	1.36	303,667	15%	\$33.7
Administrative and waste services	506	696	190	38%	\$14.2	0.40	548,665	7%	\$38.7
Transportation and warehousing	476	563	87	18%	\$36.0	0.53	404,117	6%	\$50.7
Wholesale trade	468	418	-50	-11%	\$47.9	0.40	393,942	3%	\$81.2
Information	332	404	72	22%	\$35.3	0.70	306,688	-6%	\$97.3

<sup>24</sup> EPW = earnings per worker; total labor compensation paid divided by total jobs.

<sup>25</sup> LQ = Location quotient, a measure of the sector’s relative size compared to the US economy. For average sized sectors = 1.0.

Educational services	309	369	60	19%	\$16.6	0.60	411,134	15%	\$42.9
Management of companies and enterprises	194	180	-14	-7%	\$8.2	0.58	136,610	7%	\$155.0
Utilities	109	134	25	23%	\$98.0	1.46	39,943	-7%	\$144.0
	<b>26,332</b>	<b>28,510</b>	<b>2,178</b>	<b>8%</b>	<b>\$33,744</b>		<b>10,969,944</b>	<b>7%</b>	<b>\$65,117</b>

Source: EMSI Complete Employment, Fall 2008.

Some of the largest types of manufacturing in the county are:

- Printing
- Pharmaceuticals and medicines
- Dairy products, non-frozen
- Telephone apparatus

The sizeable mining sector is primarily dependent on bluestone quarrying, which will be discussed later in the scenarios section.

Note: Industry earnings per worker reflect total industry earnings divided by total workers. They do not necessarily reflect an average earnings per worker. See EMSI Data and Strategic Advantage Tool (Section 5.1.1).

#### 5.4.2 Occupation Overview, 2002-2007

Occupation sectors, like industry sectors, are the highest level analysis of occupational data. Occupation data places occupations that share similar skills into the same categories and is therefore useful in understanding the workforce strengths and weaknesses.

- Key occupational sectors by total jobs are *office and administrative*, *management*, and *sales* (all of which are common to many industries), as well as *production* occupations (predominately manufacturing jobs).
- The county’s workforce mix, as measured by LQ, is skewed toward *farming/forestry*, *management*, *construction/extraction*, and *production* occupations—not surprising considering the industry mix.
- Occupations with the strongest growth include *architecture/engineering*, *arts/entertainment-related*, and *construction/extraction*.

**Table 5.5, Occupation Overview 2002-2007**

## NYC Watershed Economic Impact Study – Interim Report

Description	2002 Jobs	2007 Jobs	% Change	New & Rep. Jobs <sup>26</sup>	2007 LQ <sup>27</sup>	2007 Median Hrly Earn	State 2007	State % Change	2007 State Median EPW
Office and administrative support	3,280	3,232	(1%)	325	0.79	\$11.85	1,751,803	2%	\$15.44
Management	3,193	3,366	5%	502	1.58	\$14.08	745,245	11%	\$34.46
Sales and related	2,690	3,069	14%	769	0.83	\$10.26	1,367,035	13%	\$15.92
Production	2,372	2,584	9%	587	1.49	\$14.74	454,204	(10%)	\$14.36
Education, training, and library	2,017	2,092	4%	284	1.37	\$19.78	753,334	6%	\$28.94
Construction and extraction	1,817	2,312	27%	705	1.50	\$12.11	447,015	15%	\$20.90
Transportation and material moving	1,772	1,674	(6%)	96	0.96	\$12.23	551,282	4%	\$15.13
Food preparation and serving related	1,166	1,184	2%	230	0.63	\$7.90	607,363	9%	\$9.75
Building and grounds cleaning and maintenance	1,030	1,169	13%	241	1.05	\$8.53	395,806	6%	\$11.38
Installation, maintenance, and repair	938	934	(0%)	75	0.92	\$16.78	355,840	2%	\$19.23
Personal care and service	889	1,012	14%	248	1.04	\$7.97	441,068	15%	\$10.59
Arts, design, entertainment, sports, and media	824	1,057	28%	360	1.38	\$9.51	433,925	16%	\$18.41
Healthcare practitioners and technical	754	840	11%	168	0.68	\$19.17	525,901	9%	\$33.47
Business and financial operations	654	738	13%	150	0.54	\$15.53	580,655	11%	\$28.07
Community and social services	525	543	3%	66	1.38	\$13.02	220,691	6%	\$17.16
Protective service	510	547	7%	111	1.07	\$17.64	265,220	2%	\$20.12
Healthcare support	479	522	9%	71	0.81	\$9.31	351,003	13%	\$12.45
Farming, fishing, and forestry	463	405	(13%)	(5)	2.02	\$8.35	23,951	(10%)	\$11.39

<sup>26</sup> The sum of new and replacement jobs. Replacement jobs are estimated using national percentages by occupation.

<sup>27</sup> LQ = Location quotient, the measure of the occupation group's relative size in the region's workforce compared to the US workforce. US average = 1.0.

Life, physical, and social science	316	348	10%	71	1.26	\$20.78	126,985	7%	\$26.75
Architecture and engineering	231	434	88%	253	0.97	\$24.98	126,604	4%	\$31.59
Computer and mathematical science	198	233	18%	62	0.39	\$20.53	243,622	7%	\$33.74
Legal	125	139	11%	27	0.62	\$25.40	143,124	9%	\$44.17
Military	89	73	(18%)	(7)	0.22	\$8.16	58,266	1%	\$13.85
<b>TOTAL</b>	<b>26,332</b>	<b>28,510</b>	<b>8%</b>	<b>5,392</b>		<b>\$13.25</b>	<b>10,969,944</b>	<b>7%</b>	<b>\$20.13</b>

Source: EMSI Complete Employment, Fall 2008.

### 5.4.3 Focus on Natural Resources and Tourism-Related Clusters

In this section, we focus on natural resources and tourism-related industries, since they are of particular relevance for the watershed land acquisition issues under consideration in this report. The bottom line is that natural resources (NR) related industries show declining employment in the county (a common US trend), while tourism, arts, and recreation industries show growing employment.

We use the following clusters to define Natural Resources, Agriculture, and others.

Natural Resources Related			
Agriculture	Timber	Mining & Extraction	Conservation & Water
Crop and animal production	Logging	Dimension stone mining and quarrying	Water and sewer system construction
Support activities for animal production	Support activities for forestry	Construction sand and gravel mining	Environment and conservation organizations
Farm and garden equip. merchant wholesalers	Sawmills	Drilling oil and gas wells	
	Softwood veneer and plywood manufacturing	Cut stone and stone product manufacturing	
	Truss manufacturing		
	Reconstituted wood product manufacturing		
	Cut stock, resawing lumber, and planing		
	Other millwork, including flooring		
	Prefabricated wood building manufacturing		
	Miscellaneous wood product manufacturing		
	Wood kitchen cabinet and countertop mfg.		
	Nonupholstered wood household furniture mfg.		



Custom architectural woodwork  
and millwork

Lumber and wood merchant  
wholesalers

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**Tourism, Arts, & Recreation**

Theater companies and dinner theaters

Promoters without facilities

Independent artists, writers, and performers

Museums

Golf courses and country clubs

Skiing facilities

Fitness and recreational sports centers

Bowling centers

All other amusement and recreation industries

Hotels and motels, except casino hotels

Bed-and-breakfast inns

All other traveler accommodation

RV parks and campgrounds

Recreational and vacation camps

The following graph shows broad employment decline among natural resources related clusters, although mining is on the rebound from an anomalous drop from 2003-04. Tourism, arts, and recreation, however, have posted solid job growth.

**Figure 5.6, 2002-2007 Employment Trends, Natural Resources and Tourism**

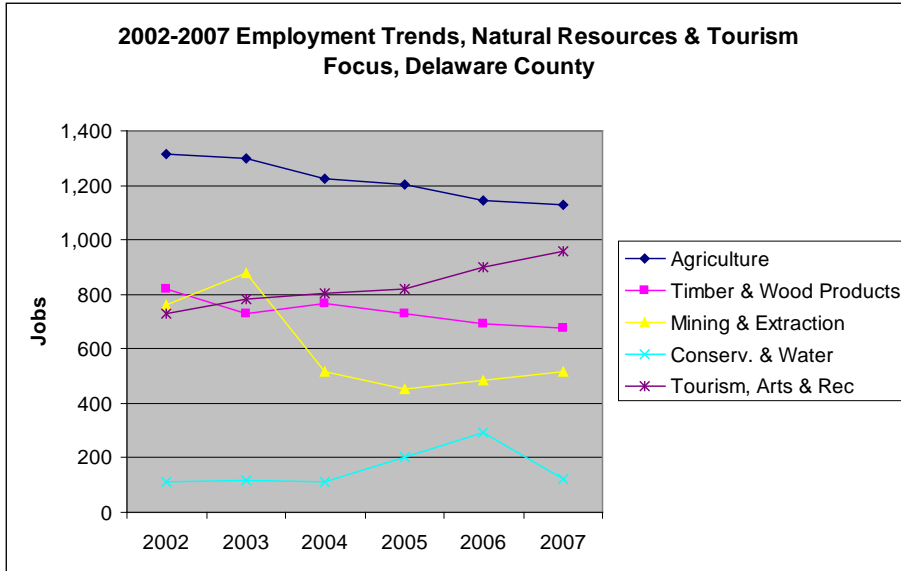
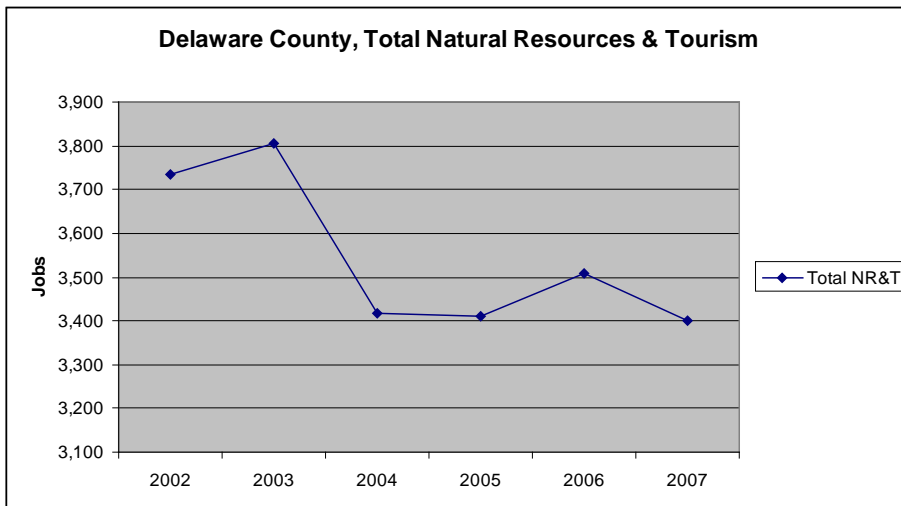


Figure 5.7, Total Employment, Natural Resources and Tourism 2002-2007



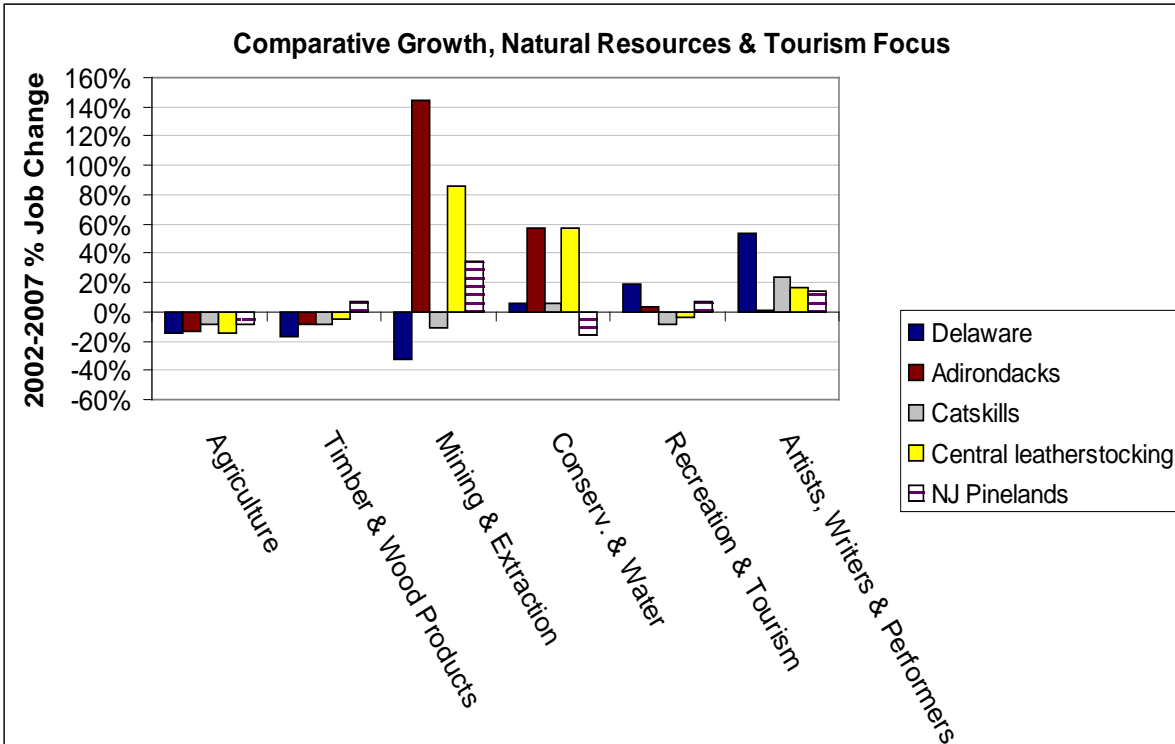
### 5.5 Regional Comparisons

Comparing trends in Delaware County with the surrounding regions has enabled EMSI draw some conclusions about which employment changes can be attributed to LAP and which ones are due to common regional changes. Firstly, the notable trends will be described and then analysis regarding whether the changes stem from LAP will be provided. These are the trends that EMSI observed in each of the five focus clusters:

- All regions have experienced decline in **Agricultural** employment, ranging from 9% - 15%.

- Delaware County’s employment decline in **Timber and Wood Products** is far sharper than the comparison region. Delaware County lost 17% of its employment, compared to an average loss of 3% for the remaining regions.
- **Mining and Extraction** is a smaller sector and the small sample size can cause the percent changes to be deceiving. The changes worth mention are that Delaware County lost 32% of its employment and the remaining regions all added jobs.
- The **Water and Conservation Sector** is wildly aberrant in every region. Overall, there was a 6% growth in Delaware County.
- All regions except for Delaware County experienced moderate growth or decline in the **Tourism and Recreation industry**. Delaware County was particularly successful with a 19% growth, compared with between 6% growth and -8% decline for the other regions.
- The **Artists, Writers and Performers** sector is outperforming all others in Delaware County. The region experienced a very unusual 54% growth over a five year period, which is equal to 176 new workers. The Catskills region also experienced a similar but smaller upswing with 24% growth.

Figure 5.8, Comparative Growth, Natural Resources and Tourism Focus



More important than the changes themselves, is whether or not these changes can be attributed to the LAP. The following analysis seeks to address this question for each focus cluster.

- Thus far, the LAP has not caused the **Agriculture** sector in Delaware County to decline beyond an expected level for the region.
- The decline in **Timber and Wood Products** is probably not caused by LAP. If LAP were responsible, we could expect that there would first be a drop in logging employment and its subsidiary

industries second. But Logging is stable in Delaware County and the primary loss is in *Reconstituted Wood Manufacturing*. Therefore, the loss of jobs in this cluster is likely due to other causes.

- There was a major drop in **Non-metallic Mineral Mining** between 2003-2005. This may or may be due to LAP regulations.
- Conclusions are very hard to draw from the **Water and Conservation Sector** data. There are several reasons for this. The two industries *Water and Sewer System Construction* and *Environment and Conservation Organizations* do not always shared allied fates. Whether they are connected in each of the comparison regions would require more study. Water and sewer system construction is by its nature cyclical, employment rises and falls regularly based on the completion of projects. Conservation organizations on the other hand are tending to grow across the county and in this region, but the industry encompasses many types of natural conservation organizations only a portion of which are concerned with water quality. It is also hard to say whether the environmental groups concerned with the Delaware County watershed would even be located in the region. It seems equally likely that they would be based out of New York City where many of the advocates reside. Due to these issues the data indicates very little about the impact of the Delaware County LAP.
- The growth of **Tourism and Recreation** in Delaware County is due to strong growth in industries such as Theatres and Hotels, which are declining all other regions besides the Adirondacks. This indicates that the LAP may be having a positive effect on tourist activity, as the increasing becomes identified as a natural conservation district.
- The unusually high growth of **Artists, Authors and Writers** is an indication that an increasing number of artisans and independent artists are moving into Delaware County. On one hand, this will likely result in increasing tourism traffic, but on the other hand it will certainly result in a cultural and social change within Delaware County. Additionally, earnings in this industry are far below living wage at roughly \$10k/ year, so in most cases these workers need other employment to supplement their income.

## 5.6 Economic Baseline Projections: 2008-2018

### 5.6.1 Summary

The goal of this section is to provide 10-year projections for the Delaware county economy based on recent past trends. These projections are considered a “baseline” scenario (the likely scenario given no significant increase in land acquisitions by NYC). This scenario can later be compared to outcomes of different land acquisition scenarios.

The projection period in many ways mirrors the recent past (2002-07). However, there are a few important differences, one being the projected recovery of the mining sector following an anomalous drop in employment from 2003-04.

### 5.6.2 Projection Methodology

EMSI projections begin with historical EMSI industry data. We calculate and weight 15-year, 10-year, and 5-year trends to derive an initial trend line for the next 10 years. These initial trends are then adjusted to take into account sub-state, state, and national projections produced by state and federal agencies.

EMSI begins with our own proprietary data as a baseline, and projects industries at as specific a level as possible for the most precise geographic area that is available. To do this EMSI relies on each state's own Department of Labor sub-state industry projections. After the New York state labor data projections are applied to our data EMSI makes a few more adjustments in areas where the state's data is weak, such as proprietor heavy industries. The state of New York publishes its industry projections for several sub-state regions. Delaware County is included in the nine-county Southern Tier region, which stretches from Steuben County in the west to Delaware and Otsego County in the east. Since projections are calculated for this region as a whole, there may be sectors where the data reflects the activity of the Southern Tier region more than it does Delaware County individually. Sectors such as these will be highlighted. In other situations, the projections may seem unrealistic due to time-lag. Each state Department of Labor releases new projections every two years, but the baseline year for these projections is usually a few years behind the current point in time. Therefore, the sectors that have experienced recent turmoil such as Real Estate and Finance will not appear to line up with our current understanding of the labor market. In these situations, one again, the sectors will be highlighted by EMSI. None of the resource and tourism clusters that are analyzed later in the analysis have not been heavily affected by these projection issues.

Beyond two years out from the base year, the projections are dampened. Whether the trend of employment is growing or declining, the trend is projected to not continue at a slower rate after this point. EMSI adjusts each to have an asymptotic slope moving toward an annual growth rate of zero, which is done by reducing the rate from year 1 to year 2 by 90%, and for year 2 to year 3 by 90%, and so on. This formula is applied for every year thereafter.

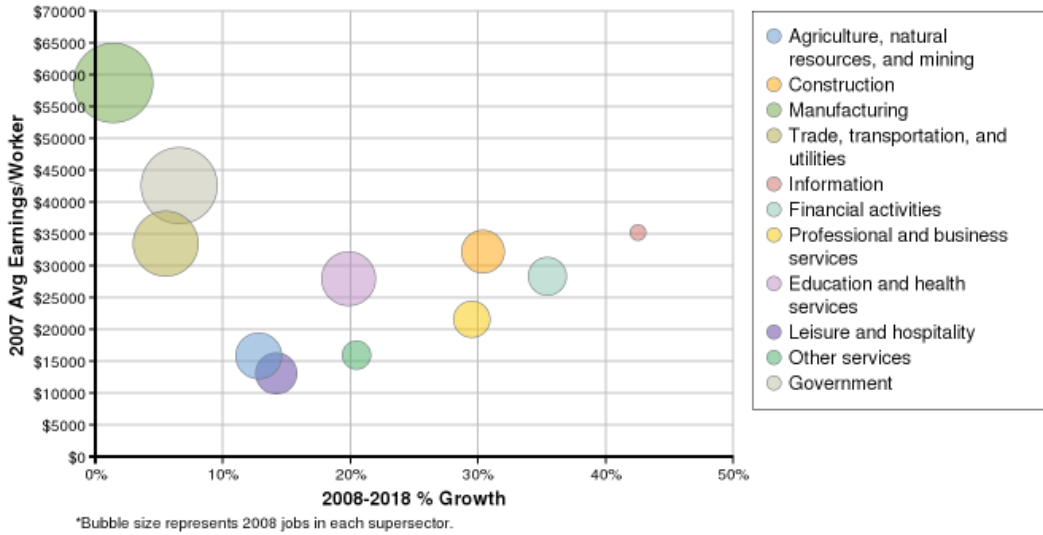
Once industry projections are calculated, occupation projections are developed using a staffing patterns matrix developed by the Department of Labor's Occupational Employment Statistics (OES) and the National Occupational Matrix from the BLS. The most recent matrix describes 2007 staffing patterns by industry.

### 5.6.3 Industries, 2008-2018

Growth is projected to be modest to strong across all sectors in the next 10 years, with the service sectors showing higher percentage growth than the "mainstay" sectors.

**Figure 5.9, Industry Growth 2008-2018**

## NYC Watershed Economic Impact Study – Interim Report



The following table provides more detailed data on more specific sectors.

Sector	2008 Jobs	2018 Jobs	% Change	2008 LQ	State 2008	State 2018	State % Change
Manufacturing	4,849	4,915	1%	2.10	562,957	532,078	-5%
Government	4,688	4,995	7%	1.20	1,472,353	1,476,482	0%
Health care and social assistance	2,730	3,226	18%	0.91	1,502,634	1,729,176	15%
Retail trade	2,719	2,768	2%	0.88	1,048,865	1,113,057	6%
Construction	2,357	3,072	30%	1.30	520,497	592,582	14%
Agriculture, forestry, fishing and hunting	1,343	1,236	-8%	2.17	65,532	63,549	-3%
Accommodation and food services	1,337	1,380	3%	0.66	623,864	691,365	11%
Other services, except public administration	1,294	1,558	20%	0.84	531,718	564,138	6%
Mining	1,229	1,666	36%	7.53	10,802	12,651	17%
Real estate and rental and leasing <sup>28</sup>	1,214	1,757	45%	0.98	469,723	591,450	26%
Professional and technical services	1,032	1,229	19%	0.51	914,210	1,058,466	16%
Arts, entertainment, and recreation	830	1,093	32%	1.37	307,225	373,317	22%

<sup>28</sup> These are areas where projection time-lag is an issue. These industries will probably not see this sort of growth, unless the market quickly returns to where it was before the financial crisis.

Finance and insurance <sup>29</sup>	793	961	21%	0.57	732,038	817,280	12%
Administrative and waste services	724	1,045	44%	0.41	532,811	648,462	22%
Transportation and warehousing	556	627	13%	0.51	405,291	430,475	6%
Wholesale trade	428	448	5%	0.39	390,185	394,349	1%
Information	415	591	42%	0.71	308,424	337,867	10%
Educational services	402	527	31%	0.62	421,918	470,684	12%
Management of companies and enterprises <sup>29</sup>	182	234	29%	0.57	133,016	141,300	6%
Utilities	140	213	52%	1.48	39,945	40,616	2%
	<b>29,262</b>	<b>33,542</b>	<b>15%</b>		<b>10,994,008</b>	<b>12,079,342</b>	<b>10%</b>

#### 5.6.4 Occupations, 2008-2018

Figure 5.10 Occupation Growth 2008-2018

Sector	2008 Jobs	2018 Jobs	% Change	2008 LQ	New & Rep. Jobs	State 2008	State 2018	State % Change
Management	3,463	4,077	18%	1.59	1,271	744,055	837,256	13%
Office and administrative support	3,273	3,477	6%	0.78	950	1,743,353	1,796,151	3%
Sales and related	3,144	3,717	18%	0.83	1,353	1,358,488	1,545,110	14%
Production	2,630	2,722	3%	1.50	841	443,213	435,628	-2%
Construction and extraction <sup>28</sup>	2,389	3,044	27%	1.56	1,075	441,190	497,943	13%
Education, training, and library	2,135	2,359	10%	1.34	643	766,127	812,339	6%
Transportation and material moving <sup>28</sup>	1,670	1,773	6%	0.94	491	547,893	567,964	4%
Food preparation and serving related	1,227	1,252	2%	0.63	450	619,340	679,839	10%
Building and grounds cleaning and maintenance	1,215	1,524	25%	1.06	512	395,630	448,582	13%
Arts, design, entertainment, sports, and media	1,092	1,379	26%	1.38	540	436,724	512,598	17%
Personal care and service	1,057	1,240	17%	1.04	434	451,087	510,031	13%

<sup>29</sup> This projection is likely more reflective of the Southern Tier region than of Delaware County individually.

## NYC Watershed Economic Impact Study – Interim Report

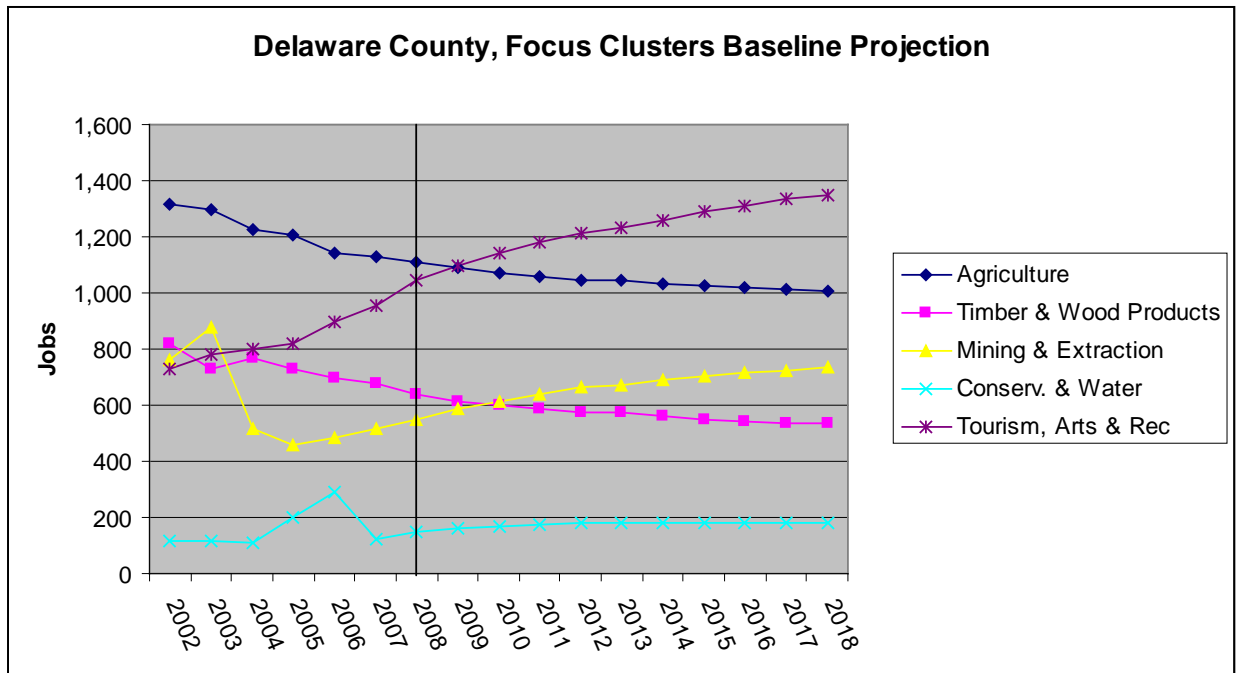
Installation, maintenance, and repair	919	985	7%	0.89	225	352,341	381,802	8%
Healthcare practitioners and technical	892	1,055	18%	0.69	327	533,420	593,246	11%
Business and financial operations	776	982	27%	0.55	338	581,808	682,140	17%
Community and social services	584	700	20%	1.42	212	226,191	252,451	12%
Protective service	563	662	18%	1.06	246	266,866	290,142	9%
Healthcare support	557	671	20%	0.82	169	357,647	428,367	20%
Architecture and engineering	447	529	18%	0.97	182	127,326	139,703	10%
Farming, fishing, and forestry	404	392	-3%	1.97	94	23,674	24,705	4%
Life, physical, and social science	363	442	22%	1.25	158	128,354	143,873	12%
Computer and mathematical science	245	329	34%	0.39	138	247,930	287,112	16%
Legal	142	159	12%	0.62	43	143,597	156,838	9%
Military	75	72	-4%	0.22	14	57,752	55,521	-4%
	<b>29,262</b>	<b>33,542</b>	<b>15%</b>		<b>10,707</b>	<b>10,994,008</b>	<b>12,079,342</b>	<b>10%</b>



5.6.5 Focus on Natural Resources and Tourism-Related Clusters

While Agriculture and Timber clusters are expected to continue to lose jobs, long-term and recent trends indicate that Mining employment will continue to recover from the 2003-04 anomaly. Meanwhile, Tourism, Arts, and Recreation industries are expected to continue their strong growth.

Figure 5.11, Focus Clusters 2002-2018



## 6.0 Economic Development Scenarios and Impact Analysis

In this section, we use our economic baseline for the county, some assumptions about the effects of LAP, and an input/output model to simulate one possible scenario should LAP continue at the expected pace toward its goal of 50% watershed land acquisition.

### 6.1 Development Barriers

The County has significant natural and regulatory barriers to development as touched on previously in the Report however it is helpful to summarize these factors in advance of presenting the following potential future development scenarios for discussion and debate. **Figure 6.1.1** demonstrates the impact of these barriers on the availability of developable lands in the Township of Hamden. The uncoloured portion of Town lands in the figure graphically depicts the tightening environment for future growth and illustrates the County’s cause for concern.

The major physical, regulatory and ownership barriers include:

- Slopes greater than 15%
- Flood plains
- Wetlands and watercourses
- Unsuitable soils
- Watercourse buffer zones
- Existing agricultural or conservations easements
- NYC and NYS owned lands

It is the existence of these additional constraints that suggest the need for future planning to identify possible areas for future growth. **Figure 6.1.2** profiles the situation currently existing for the Township of Delhi in this regard. Finally, one of the more severe examples of land use constraints within the County can be found in the Township of Middletown where only approximately 20% of the land base remains for any potential development use. **Figure 6.1.3** depicts the current situation after the above barriers are considered and highlights the impact of the combination of natural and man-made land use constraints that will influence development in the future.

### 6.2 Future Development Scenarios

#### 6.2.1 Scenario A: Full Land Acquisition Program Implementation

The assumed cause of Scenario A is the acquisition of 50% or more of the Delaware County Watershed region by New York City’s Land-Acquisition Program, (LAP) over the next ten years and resultant “lock up” of this land from private development. As of 2008, the current level of land acquisition in fee and easement stands at roughly 41,300 acres within the Delaware County watershed. The total acquisition of land at the end of the program is expected to reach roughly 250,000 acres (about half of the total watershed region in Delaware County). This is about 600% larger than the current acquisition amount. Of the currently acquired land about half (19,800 acres) can be considered developable land (see maps

in chapter 10)<sup>30</sup>. This analysis was conducted assuming that relatively the same ratio of developable land will be acquired over the proceeding years. The Scenario A analysis will present the socio-economic impacts of this incident upon the region holistically and upon the leading industry sectors in particular.

### 6.2.2 Scenario B: Non- Implementation of Land-Acquisition Program

Scenario B outlines the possible socio-economic consequences if NYC's LAP were not enacted. In this scenario EMSI's typical projection method is utilized, which assumes that the county's economy will continue down the path that it is currently on. EMSI's labor market projections assume some degree of continuity with the recent past, but it does not factor in unexpected events such as the continued acquisition of Delaware County's land by outside forces. This scenario should be read as a possible description of Delaware County's future but it by no means intends to predict all of positive and negative changes that could occur.

### 6.3 Key Sectors

The continued progress of the land acquisition program (LAP) in Delaware County would affect each of the key industry sectors in unique ways. The direct job losses that EMSI calculated for these industries are based upon the consultants' knowledge of economic supply-lines and the Delaware County region. In cases where the industries have already seen some harmful impacts over the past ten years the same impact is assumed for the future but to a greater degree. In other cases, it is assumed that no impact has resulted yet due to the program's relatively infancy and small scale thus far. Estimated impacts can be assumed for these industries based on the stated LAP regulations and acquisition of natural resources that the industry relies on. Additionally, impacts on the industries that stand to benefit from LAP will be analyzed. The industries and that were examined are as follows:

- Manufacturing
- Tourism and Recreation
- Agriculture
- Timber and Wood Products
- Bluestone Quarrying
- Natural Gas

Additionally, several other important socio-economic factors were assessed including:

- Small Businesses
- Property Values

### *Model Descriptions*

Three specific approaches will be used to analyze the current and potential impacts. The first approach will utilize time series analysis to determine data projections. These projections will be used for all analyzed industries, in addition to assessed land values. The projections will set the baseline for the

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<sup>30</sup> The criteria for developable land are fee or easement property that is located on less than a 15% slope and 100 feet or more away from a water source.

impact analyses. The second approach will utilize input-output modeling to measure the direct, indirect and induced effects of industry changes through the local economy. The third approach will be to simply identify the increase tax burden to county land owners given the projected increase in land value assessments and an average property tax rate.

### 6.3.1 Small Business

Given the level of proprietors in the county, there is a reasonable expectation that changes in the industry structure, resulting from LAP have and will result in changes in the population and socio-economic characteristics of Delaware County. On one hand, specific proprietor businesses, especially those involved in natural resources may be adversely affected by LAP. On the other hand, increases in other areas of the economy such as tourism and high-tech manufacturing may result in increases in small businesses associated with various services (i.e. attorneys, dentists, small retail, real-estate agents, etc.). Given the complexity of the gains and losses associated with LAP, analyzing impacts to small businesses as an entire group would be uninformative. As a result, specific analysis of industries (both large and small) will provide more insight into the specific impacts, or potential future impacts of LAP. Discussion of small businesses (more specifically proprietors) within these industry groups will be done when possible.

### 6.3.2 Manufacturing

Delaware County has roughly 40 identifiable manufacturing industries, of which only 25 have an estimated employment of 10 or more workers. At the top of the employment rankings are:

- commercial lithographic printing (NAICS 323110)
- pharmaceutical preparation manufacturing (NAICS 325412)
- fluid milk manufacturing (NAICS 311511)
- electronic connector manufacturing (NAICS 334417)
- telephone apparatus manufacturing (NAICS 334210)
- industrial process variable instruments (NAICS 334513)
- stationary and related product manufacturing (NAICS 322233)
- bottled water manufacturing (NAICS 312112)
- reconstituted wood product manufacturing (NAICS 321219)
- power-driven hand tool manufacturing (NAICS 333991).

From these industries, three specific industries could be adversely affected by LAP, specifically fluid milk manufacturing, bottled water manufacturing and reconstituted wood product manufacturing.<sup>31</sup> Thus far, the total number of job changes in these industries has been 44 jobs. The projected job change over the next decade in these industries under the current LAP implementation is a loss of 101 jobs, primarily in bottled water manufacturing.<sup>32</sup> If for example there were a fully implemented LAP, a conservative expectation would be an overall additional 20% decrease in these industries in excess of the projected employment changes, given that access to land and resources would be severely inhibited. In the case of reconstituted wood product manufacturing, the industry would be further impacted by an inability to

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<sup>31</sup> Bottled water manufacturing and reconstituted wood product manufacturing were projected to decline by over 160 jobs in the next decade

<sup>32</sup> Fluid milk production is projected to increase by 63 jobs, however under a full LAP implementation, this increase is not expected.

access timber or increased costs to access timber. To model this, two scenarios are designed. The first scenario takes into account the impact of the current projected industries. Arguably, even the partial LAP implementation has had an effect on these industries as is, however, the degree is currently unknown. The second scenario takes into account a 20% decline over the next 10 years (an average yearly decline of 2%) as the LAP implementation grows. Tables 6.1 and 6.2 display the respective impacts.

**Table 6.1 Estimated Manufacturing Impact without LAP**

Impact Scenario	
Jobs Change	-12
Direct Jobs Change	-101
Indirect/Induced Jobs Change	89
Earnings Change (in thousands)	-\$2,214
Jobs Multiplier	0.12
Earnings Multiplier	0.82

**Table 6.2 - Estimated Manufacturing Impact with LAP**

Impact Scenario	
Total Jobs Change	-617
Direct Jobs Change	-268
Indirect/Induced Jobs Change	-349
Earnings Change (in thousands)	-\$20,707
Jobs Multiplier	2.3
Earnings Multiplier	1.63

The large difference noted in this LAP vs. non-LAP stems from the extensive capital input requirements of fluid milk manufacturing, causing large multiplier effects. Under non-LAP, fluid milk manufacturing is projected to grow by roughly 63 jobs, while the other industries continue on their normal decline. However, under LAP the projected growth disappears and so do the multiplier effects. The end result is a net additional loss of 605 jobs under LAP.

### 6.3.3 Tourism and Recreation

As identified in earlier sections, Delaware County has a significant backbone of industries that are both directly and indirectly related to tourism and recreation. Within the aforementioned industries exists six industries that can be linked to outdoor recreation. These industries are in Table 6.3.

**Table 6.3 - Outdoor Recreation Industries**

NAICS	Title
713910	Golf courses and country clubs
713920	Skiing facilities
713990	All other amusement and recreation industries
721110	Hotels and motels, except casino hotels
721191	Bed-and-breakfast inns
721214	Recreational and vacation camps

Given the nature of the activities surrounding these industries and the increasing availability of land for public use under the LAP, an increase in employment is expected as the LAP approaches full implementation and New York City has acquired half of the Delaware County’s watershed region. Given the same criteria in the previous analysis a conservatively estimated 20% increase in employment, in excess of the current projections, is expected over the next 10 years. Currently the 10 year projection is an increase of 107 jobs. Under a full LAP implementation, this number would be expected to increase to 190 jobs. The impact results of these scenarios are listed in Tables 6.4 and 6.5. Within these sectors, bed-and-breakfast inns are generally dominated by small business proprietors, as well as recreational and vacation camps and golf courses. The corresponding growth in these sectors can be designated as small business growth.

**Table 6.4 - Estimated Rec. / Tourism Impact without LAP**

Impact Scenario	
Jobs Change	140
Direct Jobs Change	107
Indirect/Induced Jobs Change	33
Earnings Change (in thousands)	2,838
Jobs Multiplier	1.31
Earnings Multiplier	1.4

**Table 6.5 - Estimated Rec. /Tourism Impact with LAP**

Impact Scenario	
Jobs Change	253
Direct Jobs Change	190

Indirect/Induced Jobs Change	63
Earnings Change (in thousands)	5,403
Jobs Multiplier	1.33
Earnings Multiplier	1.4

As can be seen, the impact difference, or opportunity cost between LAP and non-LAP is roughly 113 jobs in the recreation and tourism industry.

### 6.3.3.1 Natural Resources

Give the specific character of natural resource industries and their relationship towards specific land use actions, a more detailed view of scenario outcomes is completed for Agriculture, Forestry, Stone Quarrying (specifically Bluestone) and potential for Natural Gas exploitation.

### 6.3.3.2 Agriculture

As indicated in previous sections, agriculture is in decline. This could be partially attributed to LAP, even in its early stages. As part of the program, land owners have the option of converting their farmland into a conservation easement property. As a result, a certain amount of agriculture land is preserved under LAP. However, in the growth competitive environment of agriculture and under the fee side of LAP, agriculture employment is shown to be in decline. This could possibly stem from farm consolidation (i.e. family farms being purchased by corporate farms which require fewer workers) or this could stem from the shutdown of agriculture in certain areas acquired as fee purchases. Regardless of the causality, one outcome remains likely: As LAP moves forward, the available land for agriculture in the watershed region will diminish. The end result is a reduction in agriculture output and employment in Delaware County. Currently, the 10 year projected reduction in agriculture employment is 110 jobs. With a full LAP enacted this reduction is expected to reach 321 jobs. Under the previous assumptions, two scenarios for this industry were evaluated. The results are listed in Tables 6.6 and 6.7. Furthermore, one can assume that the large portion of the reduction in employment is the consolidation or reduction of family farms or small business/proprietor farmers.

Table 6.6 - Estimated Agriculture Impact without LAP

Impact Scenario	
Jobs Change	-139
Direct Jobs Change	-110

Indirect/Induced Jobs Change	-29
Earnings Change (in thousands)	-2,120
Jobs Multiplier	1.27
Earnings Multiplier	1.47

**Table 6.7 - Estimated Agriculture Impact with LAP**

Impact Scenario	
Jobs Change	-406
Direct Jobs Change	-321
Indirect/Induced Jobs Change	-85
Earnings Change (in thousands)	-5,317
Jobs Multiplier	1.26
Earnings Multiplier	1.58

The difference between LAP and non-LAP is an increased loss of 267 jobs.

### 6.3.3.3 Forestry

Forestry and especially timber harvesting has experienced unique resiliency in the wake of the early LAP stages. The current 10 year projected change within the industry, if the LAP were to cease, is a reduction of only about 9 jobs. However, given that timber harvesting activities tend to be counterproductive to New York City’s filtration avoidance determination (FAD), the harvesting of timber is expected to decrease over time as the LAP move ahead. Using a 20% additional decrease over the next ten years, the logging industry’s projected employment decline would be roughly 45 jobs (a 25% decline in the industry). The impacts of these scenarios are listed in Tables 6.8 and 6.9. In addition, this industry is largely proprietor driven, indicating small business logging operations. A 20% reduction in logging would most likely occur to small operations.

**Table 6.8 - Estimated Forestry Impact without LAP**

Impact Scenario	
Jobs Change	-20
Direct Jobs Change	-9
Indirect/Induced Jobs Change	-11



Earnings Change (in thousands)	-708
Jobs Multiplier	2.22
Earnings Multiplier	1.82

**Table 6.9 - Estimated Forestry Impact with LAP**

Impact Scenario	
Jobs Change	-100
Direct Jobs Change	-45
Indirect/Induced Jobs Change	-55
Earnings Change (in thousands)	-3,541
Jobs Multiplier	2.22
Jobs Change	-100

The increased loss of LAP vs. non-LAP jobs is around 80 jobs.

#### 6.3.3.4 Mining (Bluestone)

From the analysis of the mining sector in the previous chapter, the industry that characterizes bluestone quarrying (dimension stone mining and quarrying) is projected to increase by 135 jobs over the next decade. Like timber harvesting, bluestone mining tends to be counterproductive to FAD. As a result, if LAP moves ahead and more land is acquired, the rate of growth in the quarrying industry would be expected to significant slow. At a 20% reduction, the projected growth in bluestone quarrying would only be 34 jobs. The impacts of the scenarios and estimated job loss from a fully implemented LAP are listed in Tables 6.10 and 6.11. As with logging, the majority of employment in the industry appears proprietor driven, meaning the reduction in bluestone quarrying would have more negative implications toward small business development

**Table 6.10 - Estimated Mining Impact without LAP**

Impact Scenario	
Jobs Change	200
Direct Jobs Change	135
Indirect/Induced Jobs Change	65

Earnings Change (in thousands)	4,799
Jobs Multiplier	1.48
Earnings Multiplier	1.53

**Table 6.11 - Estimated Mining Impact with LAP**

Impact Scenario	
Jobs Change	50
Direct Jobs Change	34
Indirect/Induced Jobs Change	16
Earnings Change (in thousands)	1,204
Jobs Multiplier	1.48
Earnings Multiplier	1.53

The reduced gain of LAP vs. non-LAP jobs is about 150 jobs.

### 6.3.3.5 Natural Gas

As described earlier in this report, the region is presented with the opportunity to possibly extract several trillions of cubic feet of natural gas, bringing in an estimated \$10 billion in revenue to the state of New York alone.<sup>33</sup> Since the actual amount of extractable natural gas in the watershed region is still unknown, the total value is open to interpretation. The current estimate of natural gas in the Marcellus Shale is around 500 trillion cubic feet, of which 50 trillion cubic feet is potentially recoverable.

In light of this information and the increased interest of prospectors and natural gas companies, land containing recoverable natural gas is highly sought. Current information on prices paid for leasing and royalties differs based on two specific things: the ability of the landowner to negotiate and the amount of natural gas extracted from the land.

One hypothetical scenario would be a \$500/acre lease with a 12.5% royalty on the millions of cubic feet extracted. If a resident were to own the entire production unit (somewhere around 640 +/- acres) and the production yield were around 1 million cubic feet per day, the royalty amounts could exceed \$410,000 per year.<sup>34</sup>

If you take into account that Delaware County has roughly 184 square miles and 191 square miles of water (a total area size of 932,400 acres) and only a quarter of the land is used to extract natural gas,

<sup>33</sup> This estimation is based on ????

<sup>34</sup> This amount is based on a wellhead gas price of \$9 per thousand cubic feet and an estimate of the typical wellhead output for one unit, which varies between 0.5 and 2.0 million cubic feet per day in the Marcellus.

there is a potential for around 180 production units in the county, which could generate over \$73 million per year in royalty revenue alone and potentially billions over the next several decades.

However, in August, 2008 New York City sought a ban on natural gas drilling near the Catskills reservoirs due to fear of contaminating the city's drinking water. NYC is asking for a one mile wide perimeter around the reservoirs and connecting tributaries that would effectively remove well over half of Delaware County from possible drilling. Though a specific impact has yet to be estimated, the estimated loss from such a ban could potentially amount to billions of dollars.

## 6.4 Tax Assessment

### 6.4.1 Projected Tax Collection (No Assessment Challenge)

Another impact resulting from LAP, as identified in the introduction to this chapter is the increasing real estate and land values. Simple economics of supply and demand characterize this change. In sum, as New York City increases its demand and acquisition of watershed land, the price of the land rises. Furthermore, as New York City acquires more land through fee purchasing, less land is available for purchase overall and the supply diminishes, resulting in further price increases. Figure 6.12 displays the historical property assessment values in the county, in addition to a ten year and assessment projection. As can clearly be seen, the assessed property values have increase exponentially in the last 9 years from roughly \$2.7 billion to \$5.25 billion. The corresponding development within the county does not reflect these gains. Resultantly, property tax revenue has also increased within the county. Using a levy rate of 1.925%, the collectable property taxes have almost doubled from \$53 million to \$101 million. Additionally, the future property assessed values are projected to top \$8.3 billion by 2018, resulting in tax collections of over \$160 million (see Figure 6.13).

Figure 6.12 - Property Assessment Values (Historical and Future Trend)

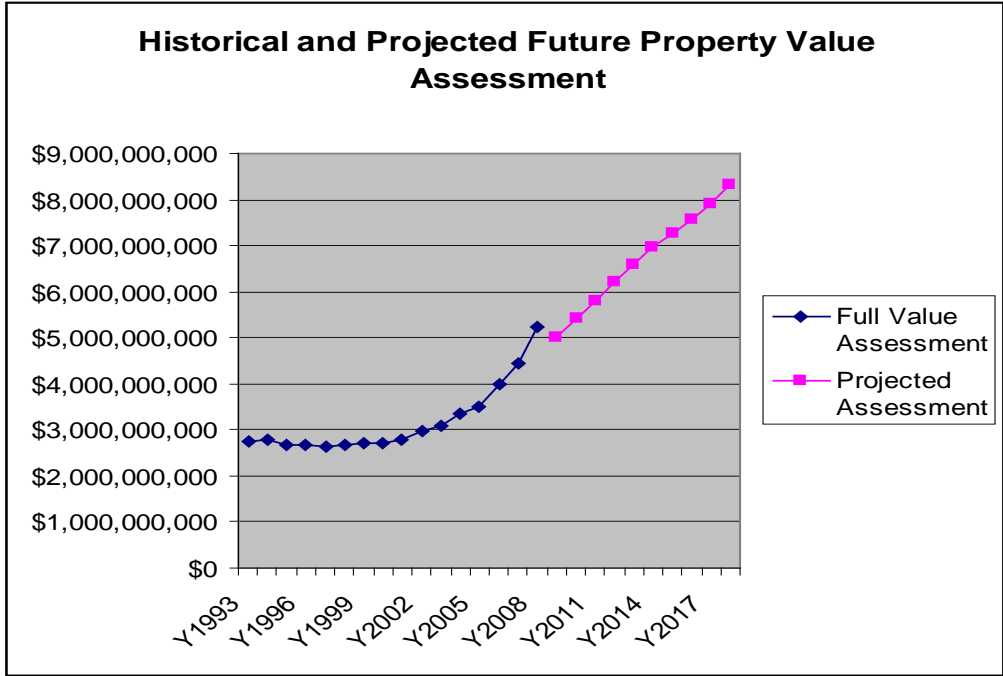
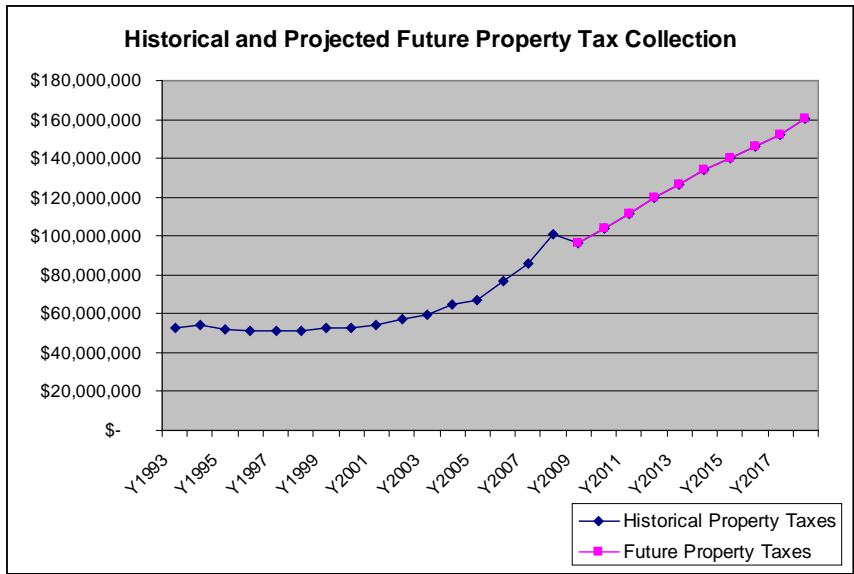


Figure 6.13 - Historical and Potential Future Property Tax Collection



Three issues are apparent from this information. First, Delaware County is positioned to collect a significant amount of revenue over the next decade. Second, New York City can expect to pay a significant amount of taxes if LAP continues over the next decade. Third, Delaware County residents can expect to pay almost a three-fold increase on their property taxes since 2000. The third issue has a few additional implications that could ultimately adversely affect Delaware County. First, as property taxes increase, especially on a geographic location that is rural with lower median household earnings, the costs of living rise making the county less desirable to live in for many families. Second, as property

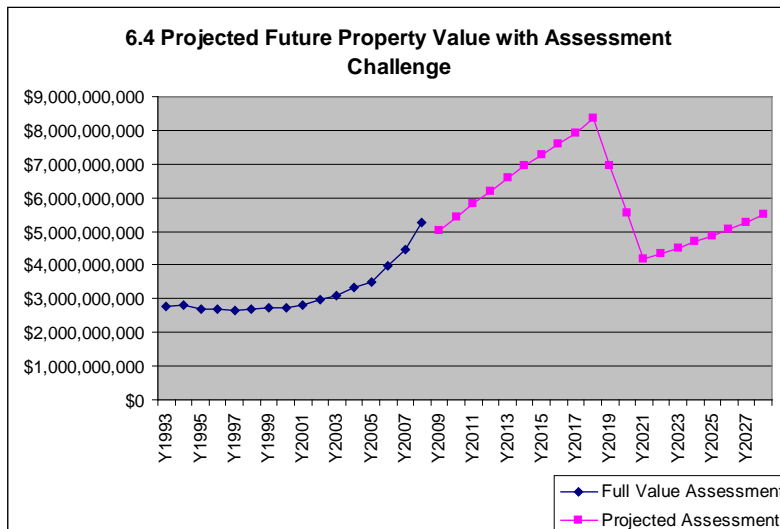
values rise, there is an additional incentive for property owners to sell their land and homes to prospective buyers and exit the marketplace. In both instances, the end result is a net out-migration from the county. This out-migration could have unforeseen impacts on future growth and development of the county, given that there would be less of a workforce pool available for industry growth, expansion and/or relocation.

**6.4.2 Projected Tax Collection (Assessment Challenge)**

Prior to the LAP, the assessed land values for Delaware County were relatively flat, as shown from 1993 to 2002. Once New York City began to heavily seek purchasing land in the watershed region, a corresponding rapid increase in land values resulted. As part of the MOA, a 20 year moratorium was enacted that prevented NYC from challenging the property value assessments. As part of the assumptions provided by Delaware County, there is a reasonable expectation that NYC will challenge these land assessment values, under the precedent that the land is vacant and should be assessed as vacant property. If successful in their challenge, NYC will be subject of less property taxes, which will severely diminish the county’s ability to increase it tax revenue and partially shift the tax burden onto resident property owners.

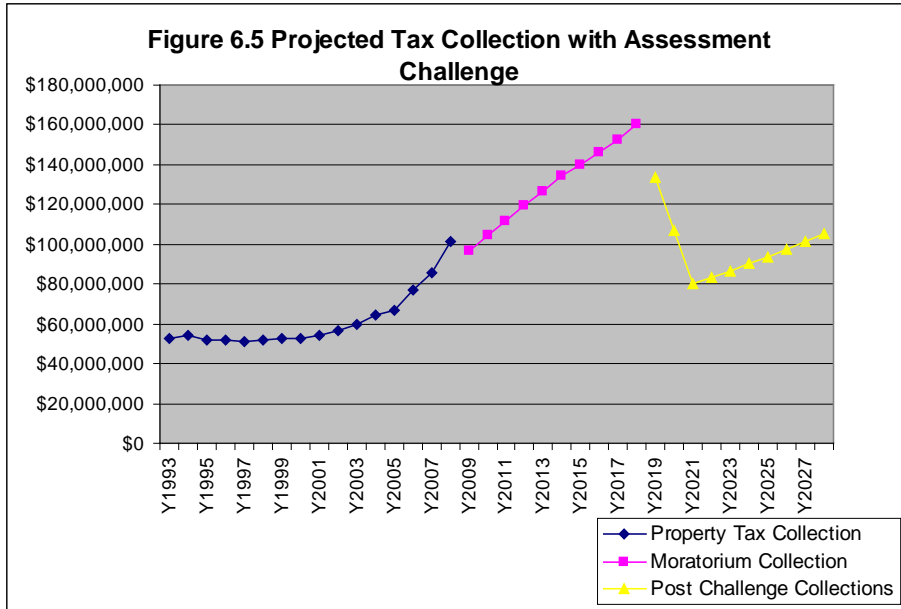
Using the assumption of assessment challenges, a reasonable expectation for future assessed values would be a decrease in land value by roughly 50%. Allowing three years for the assessed values to drop 50% and accounting for an inflation rate of 4%, the projected reduction in tax assessment by 2028 is about \$4 billion. Figure 6.14 displays the projected assessment changes if the values are challenged by NYC.

**Figure 6.14 – Tax Assessment Value Projections if Challenged**



When translated into tax revenue, the amount of revenue collected in the latter ten years (2019-2028) experiences a tax revenue decrease of 40% amounting to roughly \$520 million, which can be deduced from Figure 6.15

**Figure 6.15 – Estimated Property Tax Collection with Assessment Challenge**



### 6.5 Socio-Economic Implications

As seen in the direct and ripple effects (indirect and induced effects) from industry contraction and expansion, the consequences of a long term net out-migration due to the in-affordability to live within Delaware County, could potentially be very significant. As New York City, expands its land share holdings within the watershed, there would be increased pressure for lower income residents to relocate. In this case, the remainder of the residents will be faced with fewer business opportunities and the probability of in-commuting will increase. This would likely result in earnings leakages from Delaware County into neighboring areas where living is more affordable, reducing the level of ripple effects from spending.

Furthermore, as seen in the land assessment horizon, when challenged, the value of NYC land holdings will likely decrease. However, the remaining habited property within the county will still remain subject to higher land value assessments. In sum, this will effectively shift a significant portion of the property tax burden away from NYC and onto Delaware County land and property owners.

### 7.0 Summary and Conclusions

Given the historical information, an evident shift in the industrial and occupational structure of Delaware County is underway. Currently the overall net change has shown growth of industries and occupations related to health care, high technology, retail, mining, fluid milk production, tourism and recreation. On the other hand, there have been sharp declines in several industry sectors related to

agriculture and wood products. The differences between the complete and covered employment historical data, also paint a different viewpoint and highlight portions of the economy that are heavily driven by proprietors not covered by unemployment insurance. These proprietors, which average about one-third of Delaware County’s employment, signify a potential weakness and increased exposure of small businesses to the economic climate.

When looking toward the future, without accounting for LAP, there is projected continued increases in the aforementioned growing sectors as well as continued decreases in the declining industry and occupation sectors. However, when the added element of future land acquisition is brought into the equation, the potential for business, employment and earnings losses significantly increase in key manufacturing, agriculture, forestry and mining sectors. The total accumulated loss across the measured manufacturing, tourism and natural resource sectors is projected to be around 927 jobs.<sup>35</sup> Furthermore, the probability for the extraction of natural gas extraction severely diminished as LAP moves forward and New York City lobbies for a ban on drilling. If or when this loss occurs, the direct and indirect effects that ripple through the Delaware economy expose the county to a bleak outlook.

Lastly, the increase in demand and consequential decrease in supply of available land has created inflated property values in the county. The values put strain on existing residents that occupy the lower income brackets and serve as the backbone of the county’s workforce. If the strain becomes too cumbersome to this group of residents, the resulting net out-migration could severely impact the county’s economy as well.

## 8.0 Information Sources

(2 pages)

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<sup>35</sup> This is a summation of the net gains and losses of the measured industries.

## 9.0 Maps

This chapter seeks to identify and characterize the current and future fee and easement land acquisition within the Delaware County watershed region. The methodology to determine the most sought after parcels for fee and easement acquisition is based on two main assumptions provided by the Delaware County leadership. These assumptions include 1) Given the choice, New York City (NYC) will buy the most developable land rather than the most sensitive land; and 2) Long-term goal for acquisition is to control greater than 50% of the land in the watershed.

With these assumptions in place, the selection criteria for parcels follow the developable land criteria, specifically: a) land whose slope is less than 15%; b) land that is not located within 100 feet of a watercourse or wetland. Secondly, a greater than 50% control of the watershed would suggest that NYC will seek to acquire large parcels that meet the above developable land criteria before they seek other acquisitions. One final further assumption is that NYC will seek out the acquisition of parcels based on their internal prioritization schedule. The prioritization areas within the Delaware County watershed were provided by the Delaware County Planning Office.

Using the above described criteria, over 102,000 acres of land were identified across 11 townships. The acreage and corresponding townships are identified in Table 9.1. In addition to the total township acreage, the number of acres below a 15% slope were also identified and calculated. The total number of developable acres within 11 townships amounts to roughly 64,000 acres.

**Table 9.1 – Projected Land Acquisition Acreage**

<b>Townships</b>	<b>Projected Total Acq. (acres)</b>	<b>&lt;15% Slope of Acq. (acres)</b>
Andes	12,933	7,926
Bovina	10,652	7,206
Colchester	1,046	511
Delhi	13,669	9,217
Hamden	12,174	8,074
Kortright	5,080	3,760
Middletown	10,585	6,302
Roxbury	9,083	5,444
Stamford	8,742	5,424
Tompkins	4,718	2,250
Walton	13,528	8,269
<b>Total</b>	<b>102,210</b>	<b>64,383</b>

The above results indicate that large parcels in several townships within the watershed would be targeted by NYC for acquisition, especially Delhi, Walton, Andes, Hamden and Bovina. The following figures illustrate the locations of these parcels and their characteristics.