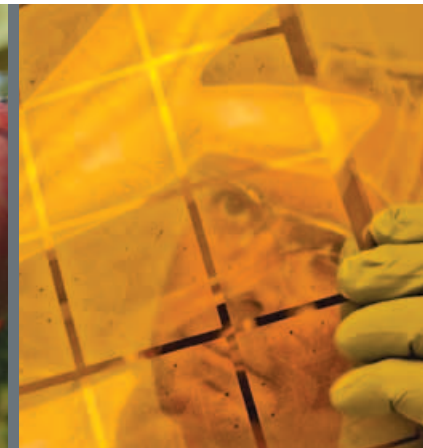


SOUTHERN TIER



THE SOUTHERN TIER'S APPROACH TO ECONOMIC GROWTH

Catalytic, Collaborative, Comprehensive, Competitive

SOUTHERN TIER

Delivered to the U.S. Navy in June 2011, the 100th fully missionized MH-60R helicopter departs from Lockheed Martin, Owego. The systems integrator for the aircraft, Lockheed Martin integrated the helicopter's digital cockpit, multi-mode radar, acoustic sonar suite, long-range infrared camera and other advanced sensors to detect, identify, track and engage surface and subsurface targets.



Regional Economic Development Council of the Southern Tier

STRATEGIC ECONOMIC DEVELOPMENT PLAN: 2011–2016*"Catalytic, Collaborative, Comprehensive, Competitive"*

Table of Contents

Section I. Introduction and Executive Summary

A. Introduction	9
B. Philosophy and Approach	9
C. Summary of Existing Conditions and Economic Opportunities	10
D. Vision	18
E. Economic Development Strategy and Components	18
F. How Strategies Will Transform the Region's Economy	25
G. Implementation Agenda	28
H. Performance Measurement	34

Section II. Existing Conditions and Strategic Opportunities**PART 1. Regional Assessment of Existing Conditions and Economic Opportunities**

A. Southern Tier Overview	39
B. Demographic and Socioeconomic Trends	45
C. Education	48
D. Health	49
E. Housing	51
F. Labor	52
G. Infrastructure	57
H. Natural Resources	61

Table of Contents

PART 2. Southern Tier's Principal Growth Sectors and Clusters

A. Industry Growth Trends	64
B. Industry Custer Analysis	65

Section III. Vision Statement

A. Regional Economic Development Vision for the Southern Tier	73
B. Strategies	73
C. Critical Issues to be Addressed and Opportunities to be Seized	74
D. Public and Stakeholder Engagement Process	97

Section IV. Economic Development Strategy and Components

A. Process Used to Determine Strategies	105
B. Criteria Used to Select Priority Projects	105
C. Strategies, Projects and Initiatives	105

Section V. Implementation Agenda

PART 1. Implementation Schedule	139
PART 2. Organizational Structure to Ensure Plan Implementation and Ongoing Public Participation	144

Section VI. Performance Measurement

Appendices

Appendix A. Work Plan Group Members	155
Appendix B. List of Organizations Contacted and Reports and Plans Secured	158
Appendix C. Summary of Public Engagement	161
Appendix D. Statewide Economic Development Issues	172
Appendix E. Recent Business Announcements	175
Appendix F. List of Potential Shovel Ready Sites	177
Appendix G. Additional Detail, Regional Assessment of Existing Conditions and Economic Opportunities	179

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November 14, 2011

Kenneth Adams
President and Chief Executive Officer
Empire State Development Corporation
633 3rd Avenue, 37th Floor
New York, New York 10017

Dear Mr. Adams:

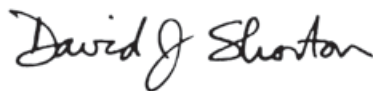
We are pleased to present the Regional Economic Development Council of the Southern Tier Economic Development Plan. This is a thoughtful and comprehensive blueprint for economic growth, involving community leaders focusing on five significant themes that will bring jobs to the Southern Tier. Our Council is confident that the execution of this plan will recharge the Southern Tier into a competitive economic region. We expect the implementation process will continue to serve as a unifying force in the region, one that brings together agencies, academic institutions and the private sector at all levels, with a shared vision for economic growth.

This plan presents an analysis of the region's core strengths and opportunities to leverage its assets. The document identifies tactics to deal effectively with the barriers we face to bring about real change with measurable results. The planning process represented the deliberative involvement of businesses, stakeholder groups, and the residents of our region. The resulting strategies highlighted in this plan are designed to increase employment, facilitate the growth and expansion of industry and business, improve the quality of life of all residents, grow the tax base, further promote and develop the region, and position the Southern Tier as a great place to live, work, and increase economic growth.

With this plan, the leadership of our region will be empowered to employ strategies for attracting business, enhancing agriculture and health care, expanding the industrial base, and rebuilding our infrastructure by the active involvement of industry and government working with our colleges and universities.

The plan to combine our eight counties to collectively forward economic development has created a cohesive and competitive regional force. With your support we look forward to implementing this dynamic blueprint.

Best regards,



David Skorton, President of Cornell University
Co-chair, Regional Economic Development Council
of the Southern Tier



Tom Tranter, President of Corning Enterprises
Co-chair, Regional Economic Development Council
of the Southern Tier

SECTION I. INTRODUCTION AND EXECUTIVE SUMMARY

“Our Council is confident that the execution of this plan will recharge the Southern Tier into a competitive economic region. We expect the implementation process will continue to serve as a unifying force in the region, one that brings together agencies, academic institutions, and the private sector at all levels, with a shared vision for economic growth.”

— David Skorton, President, Cornell University

— Tom Tranter, President, Corning Enterprises

Co-chairs, Regional Economic Development Council of the
Southern Tier

SOUTHERN TIER

The Southern Tier region is distinguished by innovative partnerships between academic centers and its manufacturing base. Cornell and Binghamton Universities offer nationally recognized programs of study and faculty, research and development centers, new technologies and business incubators. Global corporations offer the opportunity to productize next generation technologies, especially in energy and transportation.



SECTION I. INTRODUCTION AND EXECUTIVE SUMMARY

A. Introduction

On August 4, 2011, at Binghamton University, the Southern Tier Regional Economic Development Council was established. Thirty two individuals representing the region's colleges and universities, businesses and industry, economic development agencies, government, education, health care and services sectors joined together with the ambitious goal of forging a plan, that over five transformative years, would guide the region to renewed economic prosperity.

The planning process brought together stakeholders, community leaders, economic development practitioners, innovators at the forefront of their fields, and for the first time, brought scholars and researchers from the region's distinguished universities into a collaborative exchange. That exchange catalyzed productive discussion and, through the leadership of the Council by late October, culminated in a focused, comprehensive economic development plan designed to restore the Southern Tier to a competitive market position.

This strategic plan demonstrates an overall economic development strategy that addresses challenges, leverages opportunities and is focused on return on investment with measurable results.

B. Philosophy and Approach

The Regional Council's approach to the planning process was based on the assumption that its strategic plan would be "Catalytic, Collaborative, Comprehensive and Competitive."

To reach this objective the Council set forth a vision, and then undertook an intense process designed to maximize citizen involvement and those resources that have the potential to be economic drivers in the information-gathering process, while assuring an accurate and comprehensive identification and analysis of issues and opportunities from across the Southern Tier and its economic sectors.

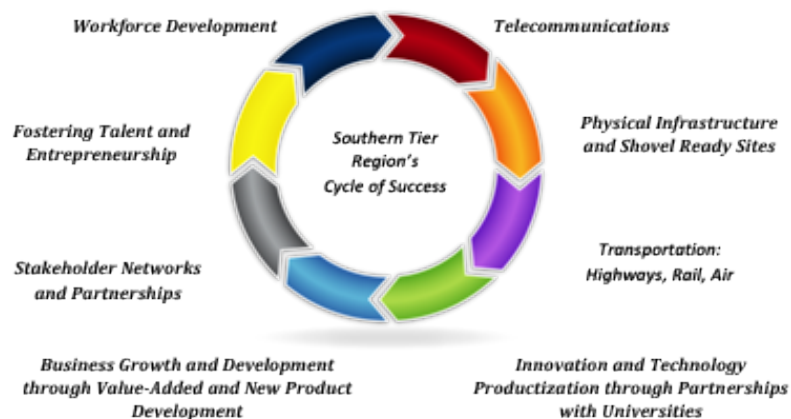
The Council reached out to every critical constituency group, acknowledging realities and differences, encouraging lively and frank discussions, and finally, achieving consensus-building from within. The Regional Council actively engaged these stakeholders and the general public in meaningful dialog through eight work plan groups, online surveys, open comment section of its public website, six public forums, and public sessions held during each Council meeting. Experts in their fields, academic leaders and scientists, business decision-makers and strategic planners were brought in to make certain the Council's plan would maximize the potential and bring about real, measurable results that would be in the form of job creation and improved quality of life. This process helped the Council set its priorities, and craft proactive, practical strategies that will capitalize on the Southern Tier's unique strengths and assets while addressing its most compelling issues. The Council has found the process effective and plans to execute its plan through on-going collaboration.

As the Council considered the region's assets and critical issues early in the planning process, it was agreed that the Council would set forth its position on natural gas extraction as it relates to its strategic plan. The Council adopted the following statement and it was shared at the work plan group meetings and community forums, in public planning sessions and with stakeholder groups:

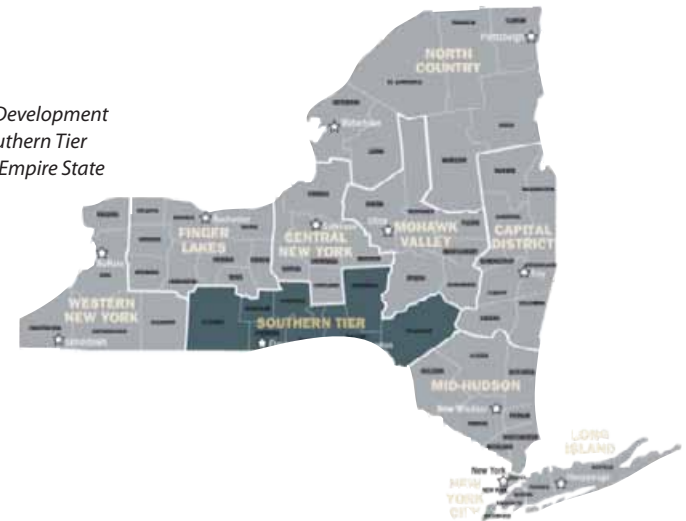
“High-volume hydraulic fracturing for natural gas is an issue being studied very closely by the US EPA and currently under regulatory review by the NYS Department of Environmental Conservation. The outcomes of these proceedings will have profound impact on the Southern Tier economy and most of upstate New York. This Regional Economic Council will pay close attention to the developments at the state and federal governments. Until there is a regulatory structure in place, we would not want to prejudge the experts and our Regional Council is not requesting state resources at this time.”

SUCCESS FACTORS

The Council adopted the philosophy that the foundation of its strategic economic development plan would rest on the following key elements working in harmony in order for the region to successfully compete in a global marketplace while creating jobs at home.



New York State's Ten Economic Development Regions with Location of the Southern Tier Region. Source, New York State, Empire State Development Corporation



C. Summary of Existing Conditions and Economic Opportunities

Southern Tier Overview. The Southern Tier region of New York state comprises eight counties with a total land mass of 6,260.2 square miles, adjoining the border of Pennsylvania's Northern Tier. Counties within the region are Broome, Chemung, Chenango, Delaware, Schuyler, Steuben, Tioga and Tompkins, with a total 2010 population of 657,909, residing within population centers in the Binghamton, Elmira-Corning and Ithaca areas, as well as the many towns and villages surrounding them. The region is known for the contributions of its global and national corporations, the quality and reputation of its nationally-recognized universities, the character and charm of its downtown areas, its vast natural resources, its many tourism and cultural destinations, as well as its natural beauty.

KEY FINDINGS

Early in the planning, the Council undertook a process to identify challenges, barriers, and economic development opportunities. Following an initial assessment of these factors, the Council sought the input of stakeholders and experts in their fields to gain a more in-depth analysis and determine those opportunities that are realistic and transformational. Following are the highlights of those key barriers and economic development opportunities.

BARRIERS TO ECONOMIC DEVELOPMENT

Opportunities abound and invite collaboration among communities, businesses and academic institutions throughout the Southern Tier. To take advantage of the economic opportunities, six major barriers must be addressed. (1) Communities that have vibrant community centers, attractive neighborhoods, and adequate and desirable housing stock are major elements in attracting and retaining talent. The flooding resulting from Hurricane Irene and Tropical Storm Lee of 2011, that damaged or destroyed nearly 1,500 businesses and some 11,000 homes, has compounded this issue. (2) Preparing the infrastructure for economic growth requires broadband, highway and rail networks each be brought to an optimal level of connectivity, free of barriers related to age, disrepair, latency, access and cost as a first step. The availability of shovel ready sites is necessary to be competitive, to respond to opportunities for business development, and to leverage private investment (3) The workforce must be prepared to support emerging growth industries. (4) The region must attract and retain an educated workforce that has the specialized talent and desire to be part of the resurgence of the Southern Tier's economy. (5) An aging population with increasing health care needs requires a cost-efficient, outcomes-based continuum of care. (6) Increasing population with chronic diseases impacts the quality of the workforce and increases the cost of doing business for employers.

The region's downtowns, main streets and neighborhoods are aging, challenged by devastation caused by Hurricane Irene and Tropical Storm Lee and are in urgent need of revitalization that will support economic growth.

Downtowns and Main Streets. The downtowns and rural main streets of the Southern Tier have unique and historically significant buildings; however, a large stock of buildings will require significant rehabilitation to make them viable for both commercial and residential tenants. The flood of 2011 compounded this challenge, impacting businesses and threatening the long-term viability of many downtowns. Flooding was primarily concentrated in the east-central portion of the region including Broome, Tioga, Chenango, Delaware and eastern Chemung counties. Nearly 1,500 businesses were damaged or destroyed, and in combination with residential damage, the total damage value is in excess of \$560 million. The cost of damage is expected to rise as assessment continues. In the recent past, developers had little incentive to undertake major rehabilitation of the region's downtown areas, given unfavorable economic conditions. Economic stagnation and flood devastation have created a larger gap in financing strategies. The result: even more limited ability to develop quality commercial space for business development, entrepreneurial enterprises, and creation of upper story housing options.

OPPORTUNITY: Revitalizing the Southern Tier region's downtowns, main streets and neighborhoods will provide opportunities for smart and sustainable community development and growth, increased tax bases, retention of businesses and ancillary economic benefits. This movement plays an important role in attracting and retaining talent, retaining businesses and recapturing the value of neighborhoods.

Neighborhoods. Vibrant neighborhoods are a key element in an economic development strategy. Even before the flood of 2011, a larger proportion of total housing units were older and had higher vacancy rates in the Southern Tier as compared with the state and the nation. Early impact estimates suggest that some 11,000 residences were damaged as a result of Hurricane Irene and Tropical Storm Lee. Consequently, whole neighborhoods have been destroyed or severely damaged in affected communities and vacancy rates have risen dramatically. Until major restoration and repairs are complete, housing and revitalizing neighborhoods will remain a major Southern Tier challenge.

OPPORTUNITY: If economic development initiatives succeed in creating substantial new job growth, particularly in the natural gas sector, housing shortages may occur. Further, if neighborhoods and surrounding downtown areas lack characteristics that attract new residents, they will fall behind and become a barrier to the goal of universal economic growth across the Southern Tier's eight counties. Widespread revitalization of homes will be a critical success factor in attracting and retaining the talent necessary to fully achieve the Council's economic development vision. In addition, housing revitalization will provide the opportunity to retrofit aging structures and convert those heating with fossil fuels over to next generation energy sources.

The region lacks the basic infrastructure necessary to support economic growth.

Broadband. While broadband access is developing in the Southern Tier, geographic pockets exist where high-speed internet, wireless and wireline coverage lag behind the state average. This is particularly true in the region's most rural communities, where economic development is most sluggish. The primary challenge in developing ubiquitous broadband access is securing the funding to expand infrastructure into the most rural regions, and assuring that the cost of access remains affordable to emerging businesses and residents.

OPPORTUNITY: Twenty-first century growth is unquestionably dependent on the flow of digital information over uninterrupted high-bandwidth channels. Having state-of-the-art connectivity will mean uninterrupted broadband service that meets the demand of universities and major business users, fills a critical gap in business recruitment and retention efforts, promotes entrepreneurial activities and allows health care providers to expand services in the most rural areas of the region.

Interstate Highway System. Perhaps the most advanced infrastructure in the region, the completion of the fully connected network of interstate highways in the Southern Tier is critical to several industry sectors including energy, agriculture, tourism and manufacturing. The interstate network includes I-81, I-88, I-86, NYS Route 17 and, scheduled for completion in 2012, I-99. Chemung County officials attribute creation of 3,400 new jobs to just one segment of the I-86 upgrade, which suggests that completion of the entire interstate network will be a significant driver of economic growth.

Shovel Ready Sites. There are only three shovel ready sites currently available in the entire Southern Tier region, which is a significant barrier to economic development. The lack of shovel ready sites places the Southern Tier at a competitive disadvantage with similar communities in the Northeast, especially Pennsylvania. At least 16 sites throughout the region have been identified as potential shovel ready sites, but together the infrastructure investment exceeds \$40 million.

OPPORTUNITY: Prospective businesses are attracted by the ability to rapidly develop a facility at a shovel ready site. Having shovel ready sites would enable the Southern Tier to be more competitive, expeditiously respond to opportunities, reduce costs for business development and more effectively leverage public and private investment.

Rail. The Southern Tier is the only region in the state without intercity or commuter passenger rail service, and there is a particular deficit in short line freight rail throughout the region. The NYS DOT's 2009 Statewide Rail

Plan, along with its 2008 Rail Needs Survey, identifies tens of millions in investments needed for short line freight operations in the Southern Tier.

OPPORTUNITY: There is need to retain and reestablish service where necessary to leverage private investment in business development and expansion, particularly with shovel ready sites and in the agriculture and manufacturing sectors.

Overall, the region's workforce is undereducated and unprepared to meet the needs of industry clusters with the greatest workforce needs and opportunities for growth, notably health care, energy and transportation.

Education. Some 64% of Southern Tier residents attained no more than a high school diploma. 83% of the current unemployed report their highest level of educational attainment as a high school diploma or less. The region needs training programs mapped to the needs of Southern Tier sectors with the most growth opportunity, to refine and specialize the skill sets of the existing workforce.

OPPORTUNITY: Southern Tier universities, colleges, community colleges and training resources are thoroughly aligned, offering hundreds of degree and non-degree programs to prepare the workforce of the future, and are prepared to add programs as needed. In collaboration with employers, educators have the opportunity to engage in responsive planning and curriculum development to meet emerging educational needs that support the fastest growing economic sectors, reaching out to new students and those who need to retrain.

Labor. The Southern Tier workforce is shrinking, aging and generally undereducated, unprepared for occupations of the future and more vulnerable to business cycles. (1) The region has the highest proportion of

jobs in private education and government sectors in the state, in spite of its manufacturing strength. (2) The Southern Tier's average annual wage is not competitive and is 33% below the state average.

OPPORTUNITY: These conditions suggest a compelling opportunity to develop aggressive workforce training programs specific to the needs of emerging growth industries, and multi-sector innovation that will translate to competitive compensation for the Southern Tier workforce.

The Southern Tier region must position itself to successfully attract and retain talent necessary to be competitive in a global market.

According to the Buffalo Branch of the Federal Reserve Bank of New York, "upstate New York, along with twelve other states, experienced a net outflow of college-educated workers between 1995 and 2000. Upstate New York's net loss was 4.1%, the second worst in the nation if the region were a state" (August 2007). At just 9.3% of the total college-educated population, the rate of college educated residents moving into upstate New York during the five years after graduation is lower than the rate in any state in the country.

OPPORTUNITY: The Southern Tier needs to rebalance the age distribution of its population and stem the out-migration of young, educated talent. The region has the natural resources, nationally recognized universities and businesses, thought leaders and a strategy in place to execute actions that will transform the Southern Tier economy and attract and retain the younger, well-educated talent critical in creation of a vibrant self-sustaining workforce.

The population of the Southern Tier has been in decline for the past two decades and the aged population is expected to grow to 35% by 2030, resulting in a burdensome cost structure for provision of care to the elderly.

Demographic and Socioeconomic Trends. The Southern Tier population is aging rapidly, and is driving expanding demand for health care services and long-term care in the region. The 65+ age cohort will grow 35% by 2030, while the 25–44 cohort declines. The present median annual cost of long term care in the region’s population centers can exceed \$100,000, and the rate of population 65+ is expected to soar in the next 20 years. The present long-term care delivery system is unprepared to shoulder the burden of cost and care. In addition, the health care industry is already experiencing shortages tied to aging, especially in primary care medicine, health care faculty and many allied clinical and support occupations.

OPPORTUNITY: There is opportunity to re-engineer the long-term care delivery system and re-purpose underused properties in the region to house innovative, new senior care communities that would provide a continuum of care allowing for aging in place, while taking advantage of the region’s rich culture and overall high quality of life.

The Southern Tier is experiencing marked increases in overweight, obesity and chronic disease, especially diabetes. The burden of associated costs threatens economic growth throughout the region.

Health. The rate of overweight and obesity among much of the Southern Tier population exceeds 60% and, with rapid aging, is driving increasing rates of chronic disease, especially diabetes. Excellus estimates 11.3% of the Southern Tier population has been diagnosed with diabetes, generating an annual treatment cost of \$297.4 million. Health systems manage disease using internal rather than regionally integrated electronic medical record applications, limiting their ability to develop and implement regional best practices that produce better outcomes at lower cost. The region is experiencing shortages of primary and specialty care providers, and clinical and support staff, especially in occupations serving unhealthy segments of the population. There is a shortage of workforce training programs and faculty to prepare aspiring health care professionals for future careers.

OPPORTUNITY: (1) There is the opportunity to leverage the research expertise at Cornell and Binghamton Universities that would allow the region’s health care providers at all points to collaborate in an effort to integrate their independent electronic medical records. A centralized, regional platform will enable sharing of data, outcomes and experience to identify and adopt best practices for measurable reductions in the burden of chronic disease and cost. (2) In the face of present and impending shortages, there is also opportunity to assure an adequate supply of well-prepared health care clinicians, support staff and health care educators through continuous collaboration between the health care and all of the academic institutions in the region.

OPPORTUNITIES FOR GROWTH

The Council and its Work Plan Groups conducted intensive analysis of current conditions in the Southern Tier region and concluded that the region has many strengths and opportunities that can be leveraged to make the Southern Tier more competitive and successful. (1) Overall, the region’s principal growth sectors and industry clusters have the potential to drive the economy and leverage its core strengths. (2) There is opportunity

for meaningful and productive partnerships to leverage innovation and strengthen the region's advanced manufacturing, especially in the transportation and energy industry sectors. (3) The region has abundant land, agricultural experience and a history of innovation in agriculture. (4) The region has quality health care providers committed to delivering the best outcomes at the lowest cost. (5) Within the region, there is demonstrated commitment to energy efficiency and development of diverse energy sources. And, (6) The region's communities have the potential to restore the charm and character that are critical to retaining businesses, recruiting talent and providing a high quality of life.

The region's principal growth sectors and industry clusters have the potential to drive the economy and leverage its core strengths.

The Southern Tier at present is experiencing most of its growth in the health care, government and services sectors. There has been on-going collaboration between manufacturing and global corporate leaders that is quietly productizing next generation products across the information technology, transportation and energy sectors. While advancement of specialization often produces aggressive, independent competition, the corporation leaders of the Southern Tier have already demonstrated a commitment to collaborate on emerging fronts, as evidenced in their partnerships with each other and the universities of the region. At the same time, Cornell University has made significant strides in new product and technology development that have the potential to significantly enhance the agriculture sector, another important industry driver.

OPPORTUNITY: The region currently includes the strongest manufacturing base in the state's ten regions and the associated cluster businesses, with the expertise and partnerships in place to integrate these independent projects through university centers and new multidisciplinary consortia, which will coordinate, catalyze and support collaborative growth in

emerging economic sectors, particularly in energy, transportation and advanced manufacturing. For example, there is significant potential for the rapid product development in the quickly growing global market for advanced energy products through an organized and intensely driven university-industry partnership focused on emerging growth areas ranging from battery and energy storage and energy efficiency to renewable energy, flexible electronics, and hydrogen and fuel cells. At the same time, there have been significant technological developments at Cornell University that have the power to enhance the agriculture industry, which already is considered one of the highest quality agriculture region's in the state.

Meaningful and productive partnerships can be expanded to leverage innovation and strengthen the region's advanced manufacturing, transportation and energy sectors.

The Southern Tier region is distinguished by its internationally recognized universities and global corporations. Thought leaders and researchers from across this spectrum have already applied their core expertise in the conception, development, testing and in many cases, successfully productizing next generation new technology for new and emerging markets.

OPPORTUNITY: Well-established and successful corporations with large national and international markets have had successful partnerships with the region's universities but are now motivated to partner with the Cornell University and Binghamton University to rapidly adopt emerging technologies to enhance operation and bring about productization, particularly in the areas of advanced manufacturing, energy, and transportation. As examples in the energy sector alone, Lockheed Martin, commercialized a distributed-generation biomass CHP solution; Corning Incorporated applied its expertise in flexible transparent electronics to

solar photovoltaics and LEDs; BAE Systems developed battery and fuel cell systems for hybrid buses; and Raymond Corporation and Plug Power are building hydrogen fuel cell powered forklifts. Binghamton University is a global leader in high-accuracy roll-to-roll electronics manufacturing and in electrical energy storage and Cornell University is gaining recognition for advanced materials development for fuel cells, and more recently, for batteries and super-capacitors.

The Southern Tier has an abundance of land, agriculture experience and a history of innovation in agriculture.

The Southern Tier is rich in natural resources and agricultural expertise. The region's abundant land, water, quality soil and agricultural entrepreneurship have historically enabled thriving agri-businesses and agricultural scientific innovation. Collaboration with Cornell University's College of Agriculture and Life Sciences with its nationally recognized research and technology, effective relationships with farm cooperatives and marketing associations, and Cornell Cooperative Extension has catalyzed a culture of innovation in the region's agricultural community.

OPPORTUNITY: The Southern Tier has the opportunity to grow and diversify the agricultural industry in a variety of ways ranging from implementation of new technology to extension of the growing season, promotion of regional products, and creation of value-added products to support applications in the renewable energy industry, agri-businesses other regional industries. In addition, there are numerous resources available to support this initiative, including Cornell's College of Agriculture and Life Sciences and its relationships and extension programs. And finally, the national movement to consume locally made products and fresh foods is providing a new and powerful driver for growing our value-added regional agricultural sector. Agriculture holds great promise as an

emerging growth sector given the region's amount and quality of available land, capacity to respond to demand for biomass in support of renewable energy at both the small and large scale, opportunities to apply technology to improve crops and operations, and ability to respond to the consumer market.

The region's quality health care providers are committed to delivering the best possible outcomes at the lowest cost.

Each of the region's five integrated health care systems have adopted electronic medical records systems to enhance case management, quality improvement and cost-efficient health care delivery, especially for the elderly and patients diagnosed with chronic disease. To assure an ample supply of health care professionals and thus maintain and improve access and quality, each also operates an organized recruitment program to help attract and retain qualified physicians and health care professionals.

OPPORTUNITY: The research and technology expertise in the field of informatics at Binghamton and Cornell Universities will be essential in development of a shared information technology platform that enables the region's health care systems to exchange patient information and collaborate more fully. Potential benefits include improved efficiency in diagnosis and treatment, reduction in costs, and more timely, effective treatment for patients. Such a system has the potential to become a model for other regions in New York State. Active recruitment and collaboration with regional educational institutions will help insure that well-prepared professionals are on staff to utilize these new technologies.

The Southern Tier region has demonstrated commitment to energy efficiency and development of diverse energy sources.

The Southern Tier region is rich in the natural resources and proven talent required to power leadership in renewable and energy efficiency. Binghamton University and Cornell University operate recognized research programs in solar and biomass respectively. Private sector corporate leaders are deeply involved in energy technology research and manufacturing, from Corning Incorporated and Endicott Interconnect Technologies to New England Wood Pellet, LLC, in Deposit, the largest wood pellet manufacturer in the Northeast. Some of the state's most forward-thinking energy curricula are in place now at Corning Community College and Broome Community College. Plentiful natural resources unique to our area, marginal agricultural land and natural gas deposits, can be responsibly tapped to renew our region's economic competitiveness and vitality.

OPPORTUNITY: (1) The Southern Tier region is positioned to make strategic investments that will lead to a much-needed transition from a volatile economy that is over-reliant on global energy supplies, production of nonrenewable fossil fuels and burdened by high energy prices and inefficient buildings, to a resilient economy strengthened by natural gas resources and regional production of diverse, renewable energy sources and technologies. The resulting low energy costs and energy-efficient structures will leave the Southern Tier with more financial resources to reinvest in growth. (2) Cornell Cooperative Extension of Tompkins County's consumer-based educational and marketing strategies promoting energy efficiency have driven exceptional market demand and job creation, and can serve as the model for replication region-wide. (3) Continue industry-university partnerships to productize innovative and next generation renewable energy products aligned with national energy conservation initiatives involving solar, wind, geothermal and biomass energy sources. (4) Grow

manufacturing businesses and suppliers of energy efficiency products, and increase jobs for workers involved in residential, small scale and larger scale commercial retrofits. (5) Enhance partnerships among agri-businesses and agricultural science leaders who have joined in a biomass energy initiative to repurpose underutilized farmland and tap the region's timber resources to develop raw materials for a region-wide retrofit of fossil-fuel dependent structures.

The Southern Tier can revitalize its communities and restore the charm and character that are critical in retaining businesses, recruiting talent and providing a high quality of life.

Attractive, well-equipped housing and commercial space, vibrant neighborhoods and robust municipal cores are among the characteristics that attract and retain new viable businesses, and a well-educated and engaged workforce. In the Southern Tier in general, housing stock is aging, vacancy rates are high, available commercial space is in need of repair and upgrade, and many historic downtown areas and main streets have fallen into disrepair. The flood of 2011 added to those challenges in the eastern and central regions of the Southern Tier, damaging more than 11,000 residences and 1,500 businesses.

OPPORTUNITY: There is substantial demand for downtown and neighborhood revitalization initiatives throughout region that would help meet growing demand for commercial development, downtown upper story housing and quality neighborhoods, while stimulating the local economy. There is also substantial need for rebuilding local businesses and residential areas damaged or destroyed by recent flooding. There are many developers prepared to move forward with significant financial investment if they can secure the needed gap financing required to make projects become reality.

D. Vision

The Regional Economic Development Council of the Southern Tier has adopted a vision that capitalizes on its assets, is forward-looking and provides guidance and direction for a strategic action plan that is “catalytic, collaborative, comprehensive and competitive.”

Building on a strong foundation of existing businesses and higher education institutions the Southern Tier region uses a collaborative approach to leverage its globally competitive advantages to attract talent and investment for the development of industry clusters. Our focus will be on increasing the size and prosperity of the region’s workforce through new business creation based on high-technology discoveries and other entrepreneurship activities, while ensuring healthy communities and protecting the natural beauty and resources of the region.

E. Economic Development Strategy and Components

Five strategies were developed to achieve the Council’s vision. They are “catalytic, collaborative, comprehensive and competitive.”

They are intended to support Governor Cuomo’s NY Works plan. Specifically:

- Improving New York’s Business Climate
- Forge a New Economic Development Paradigm

- Targeting Incentives to Get New Yorkers Back to Work and to Attract, Retain and Expand Jobs
- Make Higher Education a Jobs Generator
- Training a Workforce for the 21st Century
- Address the Needs of Small Business
- Restoring New York to Infrastructure Leadership

The Southern Tier’s strategies are based on the best use of the region’s assets and the ability to capitalize on opportunities and address critical issues impeding growth. The projects and actions supporting each of the five strategies are designed to lead to an improved business climate, support sustainable economic growth, increased community vitality and quality of life, continued workforce development, improved infrastructure, and other factors needed to resolve critical issues impeding growth and to advance critical economic development opportunities.

Strategy 1. The Southern Tier...New York’s Leader in Energy Efficiency and Renewable Energy Technology

Action Item. Southern Tier Renewable Energy and Efficiency Initiative: Residential and Small Scale Commercial Retrofit

Action Item. Southern Tier Renewable Energy and Efficiency Initiative: Large Scale Institutional and Commercial Projects

Action Item. Energy Development Alliance for New York—EDANY

Action Item. Energy Workforce Development Initiative

Strategy 2. Southern Tier Transportation Alliance... Building Next Generation Transportation Technology and Manufacturing

Action Item. Next Generation Transportation Development Initiative

Action Item. Southern Tier Transportation Industry Cluster

Strategy 3. Health Care 2020 . . . Integrating Health Care Providers, Higher Education and Cutting-Edge Technology

Action Item. Regional Health Information Exchange and Electronic Medical Record System

Action Item. Expand Rural Health Care

Action Item. Senior Living Communities

Action Item. Health Care Workforce Development

Strategy 4. Revitalize the Rural Farm- and Forest-Based Economy of the Southern Tier

Action Item. Rural Initiative Venture Fund

Strategy 5. Strengthen the Southern Tier's Economic Development Backbone

Action Item. Southern Tier Community Revitalization Project

Action Item. Regional Broadband Communications Project

Action Item. Shovel Ready Site Development Project

In the event the Southern Tier is selected as one of the four regions to receive a portion of the \$200 million being made available in the competition, the Council identified the following projects—the only ones eligible for funding in 2011–12—in priority order of importance.

1. Southern Tier Community Revitalization Project (Strategy 5)
2. Rural Initiative Venture Fund (Strategy 4)
3. Next Generation Transportation Development Initiative (Strategy 2)
4. Energy Development Alliance for New York—EDANY (Strategy 1)
5. Regional Broadband Communications Project (Strategy 5)
6. Shovel Ready Site Development Project (Strategy 5)

7. Regional Healthcare Information Exchange and Electronic Medical Records System (Strategy 3)

8. Southern Tier Renewable Energy and Energy Efficiency Program: Large Scale Institutional and Commercial Projects (Strategy 1)

9. Senior Living Communities (Strategy 3)

In future years funding eligibility may change.

Following is a brief description of each project, the investment required and the return on that investment. A detailed description of each project, together with the projected impact and measureable results, is included in Section IV of this plan.

STRATEGY 1—The Southern Tier . . . New York's Leader in Energy Efficiency and Renewable Energy Technology

This initiative includes a package of strategic actions to optimize use of the region's abundant natural resources, research and technology transfer, academic and business innovation and training programs to build a thriving energy sector for the benefit of residents, institutions, businesses and major industrial centers.

Action Item 1A. Southern Tier Renewable Energy and Efficiency Initiative: Residential and Small Scale Commercial Retrofit.

This initiative is a large-scale, region-wide program promoting energy efficiency in residential and small scale commercial buildings. The program will provide education and information to residential and building owners through a range of channels and catalyze rapid expansion of the residential and commercial energy efficiency and renewable energy industries, including solar and biomass technologies. Property owners will be motivated to access to Green Jobs/Green NY and On-Bill Financing to assist in energy retrofits for residences and small commercial structures. In combination, these financing options have the potential to generate over \$1 billion in private capital to be invested in the region for residential

energy efficiency. Further, the region's three community colleges will have developed credit and non-credit programs and will have trained a specialized energy workforce, in collaboration with workforce development boards throughout the region, BOCES, trade union training efforts in the region, and private sector input.

Investment: \$4 million over 3 years

ROI: Within five years will: (1) create more than 4,000 new energy-related jobs in the region and hundreds of jobs for biomass chippers and transporters, plumbers and electricians for commercial buildings, stove and pellet retailers, and in manufacturing of stoves, pellets, and retrofit materials; (2) achieve growth in biomass and solar-related construction and manufacturing businesses that includes growth in at least 75 existing energy efficiency contractors and pellet stove retail businesses and creation of 100 new ancillary businesses; (3) generate \$30 million in new sales for regionally produced biomass fuel for heating and \$100 million in new timber revenue; (4) save a potential \$120 million per year in energy savings for households and small-scale businesses; and (5) return formerly marginal agricultural land to productive use for dedicated crops supporting biomass

Action Item 1B. Southern Tier Renewable Energy and Efficiency

Initiative: Large Scale Institutional and Commercial Projects. This initiative will establish a \$1 million revolving loan fund to help institutions and large businesses secure financing required for up front project development costs associated with large scale institutional and commercial energy efficiency retrofit projects. The loan fund will consist of \$500,000 for commercial energy efficiency upgrades and \$500,000 for commercial renewable energy. This project involves aggregating large-scale energy efficiency retrofit projects with a focus on airports, school systems, college and university campuses, hospitals, and local government buildings, as well as commercial and industrial buildings. Having the fund will assure that institutions and commercial enterprise with large scale retrofit projects have access to capital required, and can complete larger projects without impact on their own financial viability.

Investment: \$1 million

ROI: Within five years will: (1) leverage \$200 million in private capital; (2) achieve growth in biomass and solar related construction businesses; (3) double the number of jobs for loggers, biomass chippers and transporters, plumbers and electricians for commercial buildings, energy retrofit installers, stove and pellet retailers, and manufacturers of stoves, pellets, and retrofit materials by year three; (4) double the exports of energy-related products sold outside New York State; and (5) increase private investment by partner companies in energy productization activities, reaching three times the level of NYS funding by year five

Action Item 1C. Energy Development Alliance for New York—EDANY.

The Alliance is an industry/university partnership involving Cornell University, Binghamton University and key industry leaders in the region to focus on executing specific projects in the energy sector. EDANY will bridge the gap between research and development and product development, plus add the missing component: support for demonstration and deployment projects for more mature energy technologies. The initiative will follow a "market pull" strategy to quickly and efficiently productize energy technologies from industry and from academia. In parallel, EDANY will help coordinate development of workforce needs for current and future opportunities in this sector. Examples of likely projects include: (1) development of energy storage systems for electric medium duty commercial vehicles (e.g., buses, trains, etc.), distributed energy storage (e.g., community energy storage and industrial parks), and to allow renewable integration (wind, solar, biomass); (2) demonstration of hydrogen refueling technology and deployment of filling stations for forklifts, automobiles and fleet vehicles; (3) development of flexible thin film solar modules for small devices such as cell phones and laptops; and (4) coordination of expertise, analytical equipment access, and/or personnel to the proposed New York BEST (NY-BEST) battery testing and prototyping center.

Investment: \$6 million

ROI: Within five years will: (1) generate private investment in energy productization at three times the NYS investment; (2) increase intellectual property captured, licensed or commercialized within EDANY energy technologies by 500%; (3) increase jobs associated with efficient, smarter energy products and services by 150–200%, and new jobs created by startup and existing companies by 200%; and (4) increase export of energy products outside of New York State by 200%

Action Item 1D. Energy Workforce Development Initiative. This initiative will develop a highly qualified and vibrant workforce prepared to respond to the opportunities resulting from the emergence of the energy industry in the Southern Tier. These include wind farm construction and maintenance; weatherization of homes, businesses, and public buildings for maximum efficiency; retrofitting of residential and commercial facilities for efficiency improvements and installation of biomass heating systems; expansion of research and manufacturing of existing and new solar energy technology products; and maximization of energy efficiency use in buildings through improved weatherization and application of electricity-saving technologies, and natural gas extraction and operations. The region's three community colleges will provide multiple modes of instruction, including traditional classroom, hybrid, industry-supported laboratory settings, and online instruction and will evolve with the industry as new training needs emerge, build long-term sustainability in the workforce and career ladders within the field.

Investment: \$ 4 million over five years

ROI: Within five years will: (1) prepare workers for jobs across 150 occupations involved in the natural gas industry; (2) train 1,000 workers as energy retrofit installers; (3) prepare workers for employment opportunities in the management, development, operation and maintenance of complex energy and industrial processes; and (4) prepare workers with new skills that are transferable from the energy sector to other industries in the region

STRATEGY 2—Southern Tier Transportation Alliance. . . Building Next Generation Transportation Technology and Manufacturing

This alliance is designed to focus the more than 50 businesses in region's existing transportation industry into a technological hub for next generation transportation development. The alliance will be a partnership among Binghamton University and Cornell University; the region's mass transit, defense transport, hybrid vehicle, and simulation innovators; and regional transportation agencies. Specific examples of expertise include avionics/vehtronics expertise at BAE and Amphenol Aerospace; power train expertise at Borg Warner and Sikorsky; advanced materials expertise at Corning Incorporated and Cornell University; simulation expertise at more than 12 companies, including Rockwell-Collins, L3, Binghamton Simulator, Diamond Visionics; autonomous vehicle control expertise at Lockheed Martin and Binghamton University; sustainable/environmental engineering expertise at Cornell University; logistics expertise at Raymond Corporation, Maines, Inc. and Binghamton University; and vehicle manufacturing of CAF USA and Alstom Transportation. The alliance will develop and promote innovation in transportation technology and applications in key transportation sectors by convening leaders in the Southern Tier transportation manufacturing and service industries and identifying opportunities for innovation with high impact potential and are sustainable.

Action Item 2A. Next Generation Transportation Development Initiative. This initiative is focused on growing the number of transportation industry-related businesses through the launch of new ventures focused on next generation transportation technologies and a set of directed research and development and engineering efforts to establish new inter-city transportation modalities for upstate New York that are faster, more convenient, more energy efficient, and have less environmental impact. The primary objective is to provide existing companies, and new ventures, with the critical resources needed to allow them to move into next generation transportation engineering, design, and construction in as short a time

period as possible. The goal is to obtain sufficient success over the next five years (by 2016) using state, industry, and venture capital funds, to set the stage for a Transportation Equity Act funding request in 2016 to establish a private-public partnership to complete the development and undertake the first next generation of transportation installations. More specifically, the initiative involves funding of three new facilities (a quarter scale wind tunnel, simulation facility and quarter-scale system test facility), which will permit the engineering and testing of the components and integration of high-speed transportation systems. In addition, the immediate formation of six corporate/university collaborations will jump start the design effort expected to lead to multiple high-technology spin-off companies.

Investment: \$14 million

ROI: Within five years will: (1) leverage \$50 million in venture capital financing and \$100 million in Transportation Equity Act (TEA) funds; (2) launch nine new ventures; and (3) leverage expertise of 50+ businesses in the transportation industry sector

Action Item 2B. Southern Tier Transportation Industry Cluster. The initiative is focused on growing revenues and employment in existing transportation companies by leveraging under-utilized capacity and providing cost effective strategies to capture a large portion of the mass transportation and aviation manufacturing market, which includes military helicopters. The Southern Tier Transportation Industry Cluster will be a consortium of Southern Tier businesses and academic institutions dedicated to the growth of this industry sector. The cluster will leverage industry and academic collaboration to drive an innovation culture and structure designed to mitigate the boom and bust cycle trait that characterizes both the mass transit and aviation industries. It will develop an aggressive marketing strategy to build this niche of the transportation industry, while capitalizing on upcoming New York Metropolitan Transit Authority (NYMTA) project spending. The consortium also will work with the academic institutions to develop workforce strategies to assure an adequate supply of personnel and associated training.

Investment: \$5.3 million

ROI: Within five years will: (1) generate \$100 million in private investment; (2) commercialize at least five innovative products/applications for mass transit and/or aviation industries, including military helicopters; (3) potentially capture \$750 million in NYMTA contracts; (4) secure \$4 million in private sector training; (5) create 1,000 new jobs; (6) retain 3,000 jobs; (7) reduce unemployment weeks by 30% for primary consortium members; and (8) create opportunity for new spin-off companies

STRATEGY 3—Health Care 2020. . Integrating Health Care Providers, Higher Education, and Cutting-Edge Technology

These initiatives will build on recognized regional strengths and resources to integrate the region's health care, higher education and cutting-edge technology sectors in a plan designed to manage elderly patients and those with chronic disease more effectively to provide for a healthy communities and workforce, while addressing current and anticipated shortages in the supply of health care providers and faculty.

Action Item 3A. Regional Health Information Exchange and Electronic Medical Record System. This project will use Cornell University and Binghamton University capabilities in informatics to create a comprehensive Regional Health Information Exchange and Electronic Medical Record System that will facilitate effective care management and support expanded use of health care technology in the region. The initiative will allow the electronic medical record systems of all the health care providers and service delivery locations (hospitals, physicians, clinics, county health departments, etc.) throughout the region to communicate, regardless of the IT systems and proprietary electronic medical record applications used by each. A lead agency, Southern Tier Health Link, has been established to work with universities to develop an informatics solution that will integrate the disparate electronic medical record applications currently in use at the region's health care systems and other points of care delivery. The new

application will allow caregivers to exchange electronic patient records across the region to improve care coordination and outcomes; reduce redundancy in testing; and develop and implement regional best practices, in particular for patients with chronic conditions and the elderly. The initiative will also support New York State Medicaid reform.

Investment: \$5 million

ROI: Within five years will realize the benefit of \$100 million already invested in informatics by health care providers, supplementing a \$750,000 HEAL Grant

Action Item 3B. Expand Rural Health Care. This initiative will develop and expand the use of sophisticated diagnostic tools and care methods using telemedicine and mobile health care technology, together with training and deployment of mid-level health care providers and IT personnel, to provide care to persons living in the remote areas of the Southern Tier region, creating a healthier population and workforce. The initiative will reduce hospitalizations, create Medicare and Medicaid savings, eliminate transportation issues and disintegration of services for elderly and low-income populations, while providing cost effective alternatives to hospital-based services and reduction in health care costs and morbidity among rural residents.

Investment: \$5 million

ROI: Within five years will (1) provide on-going investment through revolving loans; and (2) reduce health insurance premiums for businesses with fewer than 200 insured staff

Action Item 3C. Senior Living Communities. This initiative will re-purpose unused or underused properties in the region and transform them into senior living communities, where the elderly can age in place with appropriate levels of long term care immediately available. Funding for the project will provide “gap financing” to leverage local municipal and private investment for development of senior living communities built using publicly-owned, but unused or under-utilized, properties. Communities

will consist of small housing for independent living, assisted care and long term skilled nursing care, thereby allowing residents to “age in place” and transition to different levels of housing without leaving their communities. The objective is to create “villages” for people with different abilities and needs, and improve the quality of health and life of the aging population. It is recommended that a prototype project be developed using vacant and underutilized property at the Binghamton Psychiatric Center. This project would serve as a model for future development in the region. The project leverages state and local funding, use of technology developed by Binghamton and Cornell Universities, underused property, existing programs such as New Markets Tax Credits, and not-for-profit developer investment.

Investment: \$5 million

ROI: Within three years will (1) attract \$13 million in municipal funding and \$25 million in private investment; and (2) re-purpose vacant or underused municipal property

ACTION ITEM 3D. Health Care Workforce Development. This initiative addresses critical workforce training, retention and development issues in public and private health care, education, and business and industry, and creates targeted public investment opportunities in health care and higher education collaboration that focus on IT professionals, nursing education and other health care-related faculty positions. The initiative will recruit faculty at the community colleges, colleges and universities to expand the number of accessible academic programs, with emphasis on programs that prepare advanced practice or masters prepared nurses and will expand the current programs involving health care systems and academic centers using a practical collaborative model to address workforce training. Expanded workforce training also will address a major increase in demand for health care workers associated with rapid aging and increased incidence of chronic disease in the Southern Tier population.

Investment: \$1.5 million over five years

ROI: Within five years, will train 1,450 new and replacement health care workers, with emphasis on registered nurses, nurse practitioners, physician assistants, technicians, technologists, and health care IT workers

STRATEGY 4—Revitalize the Rural Farm- and Forest-Based Economy of the Southern Tier

Action Item 4A. Rural Initiative Venture Fund. The Rural Initiative Venture Fund is a regional program designed to reduce financial risk and increase sustainability of agriculture and forestry ventures through product development and promotion, business infrastructure development and utilization of new technology. The Rural Initiative Fund will provide startup and expansion capital through a revolving loan fund and grants, and leverage existing programs such as the Farmers' Market Initiative to create new wholesale and marketing businesses, new processing facilities for value-added agricultural products, reinvestment in existing infrastructure, and increase revenue and long-term sustainability of agriculture and forestry businesses.

Investment: \$10 million over five years

ROI: Within five years will (1) leverage \$24 million in private investment; (2) accelerate diversification, new product development and efficiency improvements in the agriculture and forestry sectors; (3) create start-up farm operations and other agri-businesses and 2000 new jobs over five years; and (4) vertically integrate with and support regional energy efficiency and renewable energy programs

STRATEGY 5—Strengthen the Southern Tier's Economic Development Backbone

Action Item 5A. Southern Tier Community Revitalization Project. The project will provide "gap financing" for private sector redevelopment of key buildings, infill of new buildings, and development of our region's downtowns, neighborhoods and rural population centers, which will

particularly benefit those communities damaged by recent storms in 2011. The project will allow each community to identify its own priorities and to structure projects to support unique local needs in targeted areas and marketing strategies. The objective is to use both state and federal public investments as financing tools, although not primary, for specific downtown and community neighborhood revitalization projects that have a financing strategy and can demonstrate the greatest potential to leverage public funds and non-profit resources, attract and sustain both short-term and long-term private capital, and catalyze further development. Revitalization projects will create quality commercial space for commercial development and entrepreneurial enterprises and additional residential housing options, while building on existing infrastructure and housing stock with upgrades and new construction in keeping with the downtown and neighborhood character. While enhancing the tax base overall, the initiative will recapture the value of neighborhoods that have underused or deteriorated public assets, and most compellingly, respond to recent natural disasters that have severely impacted the sustainability of many downtowns.

Investment: \$60 million over three years

ROI: Within five years will leverage \$60 million in private investment and complete 60 community revitalization projects

Action Item 5B. Regional Broadband Communications Project. Broadband service will be extended through the region ranging from sophisticated technology transfer projects taking place between universities and large businesses to home-based entrepreneurs in the more remote rural areas of the region. The project involves three components: (1) extend and strengthen the "middle mile" broadband backbone to all eight counties in the Southern Tier to increase the region's global competitiveness and support strategic economic development initiatives; (2) extend broadband to the "last mile" via fiber and wireless service that will benefit small businesses, home-based businesses and residents; and (3) partner with community colleges and libraries to provide training in "hot" new technologies and applications to residents and small business owners.

Investment: \$7 million

ROI: Within five years will: (1) leverage \$7 million private and municipal investment; (2) connect 26,000 rural homes and businesses to new or enhanced broadband services; (3) reduce the percentage of underserved residents and employers by 15% +; and (4) provide an important resource to allow businesses and universities to be globally competitive

Action Item 5C. Shovel Ready Site Development Project. The Regional Infrastructure Fund for Shovel Ready Sites will be established and used as matching funding to leverage federal, state, municipal, local development corporations, economic development agencies and private sector financing to provide the region with a competitive edge to grow and attract businesses to the Southern Tier region. Sites might include an existing building, former brownfield, location, or a combination of all that has been prepared for development.

Investment: \$15 million over three years

ROI: Within 5 years will: (1) generate \$16 million in other grants, loans and investments by businesses, municipalities and economic agencies; (2) add 8–10 new development sites with NYS Shovel Ready Certification; (3) create 35–40 new businesses; and (4) create 4,500 jobs

F. How Strategies Will Transform the Region's Economy

The Southern Tier's economic development strategy is **Catalytic. Collaborative. Comprehensive. Competitive.**

There is the potential for the region to be transformed and experience:

- A new thought-leader triumvirate, resulting in a dynamic, self-sustaining platform for innovation
- New unexpected relationships and systematic support for expedited technology transfer, productization and industry growth

- Capitalization on present and emerging strengths, with a focus on innovation in energy, transportation, agriculture and health care
- Frictionless, unimpeded networks for distribution and exchange of goods services, ideas, information
- A new attitude and long-term commitment to energy solutions that will improve the quality of life for generations to come
- An improved quality of life with revitalized communities, a commitment to care for our aging population and resurgence of a vibrant and healthy workforce

There is the opportunity for the Southern Tier region to:

- Be a destination for the best and the brightest talent.
- Be in the national spotlight, both as an exemplary leader in the new age energy sector and as a source of the nation's most innovative and successful new energy solutions. The Southern Tier will be recognized for technology transfer that measurably reduces energy costs, optimizes forest and agricultural land resources, and reduces pollutants and greenhouse gas emissions, as well as development of energy solutions that will create a more sustainable future. The region will demonstrate its commitment to supporting the long-term sustainability goals outlined in New York State policy, such as the NYS Climate Action Plan and the 45x15 Initiative.
- Become a leader in rapid productization of energy technologies that are practical, manufacturable, and readily integrated into new or existing products for which there is clear market pull. Through close relationships among universities, research and development anchors and major manufacturing companies, the region will be recognized for creating a living blueprint of best practices for connecting all stations along the technology maturation pipeline and actively shepherding energy technologies along its path.

- Be the center of cutting edge transportation technology in North America in the next 20 years resulting in increased access to markets for products and services developed and/or produced in the Southern Tier. Advanced manufacturing will transform the region and create opportunity for its workforce. Revenue in the existing transportation cluster will double. Advances in the transportation sector will create 400–500 new jobs, and spin off of a minimum of nine new companies and create at least six new ventures from engineering initiatives launched as seed sites for transportation sector collaboration. These include advanced vehicle body and surface engineering, autonomous vehicle control and navigation, advanced vehicle power trains using electricity, advanced guideway engineering for very high speed vehicle travel, transportation power.
- Bring an innovation culture to both the mass transit and aviation manufacturing industries, and capture a larger share of that market



The region's colleges are prepared to offer next generation educational programs that address the region's emerging needs. Here, a view of technical training at Corning Community College.

by effectively utilizing the resources of Cornell and Binghamton Universities in partnership with industry leaders. Presently, BAE Systems is an industry leader in hybrid transportation power system development and vehtronics, while Lockheed Martin, in collaboration with Cornell and Binghamton Universities, is an industry leader in remotely controlled and autonomous vehicles. Corning Incorporated is actively involved in emission controls, and Rockwell-Collins is an industry leader in the development and manufacturing of transportation simulators.

- Undertake an engineering effort to establish a high-speed inter-city transportation project will result in establishing the Southern Tier as a "bedroom community" of New York City and to showcase the Southern Tier region's capacity to design and build an innovative transportation system model that is convenient, cost effective, sustainable and adoptable elsewhere in the state.
- Leverage the research and expertise at Cornell University, together with the quality and quantity of land, to grow and diversify the agricultural industry in a variety of ways ranging from implementation of new technology to extending the growing season, promotion of regional products, and creation of value-added products to support renewable energy and enhancing other regional industries such as agri-tourism.
- Serve as a model for developing partnerships between government agencies and developers to utilize vacant and underused, publicly owned property to develop senior living communities designed to meet the needs of a rapidly aging population.
- Restore the physical infrastructure, dignity and charm of our communities, particularly those damaged in the floods of 2011, to provide vibrant community centers and neighborhoods. Collaboration and planning will create smart growth in the region that will meet the needs of the region's residents and continue to preserve the region's quality of life for generations to come.



- Provide 21st century broadband connectivity throughout the entire region and create the information platform for the region's globally competitive multinational corporations and universities. Robust, affordable broadband will fill a critical gap in business recruitment and retention efforts, promote entrepreneurial activities, equalize coverage and access in urban and rural areas and allow health care providers to expand services in the most rural areas of the region.
- Develop a vibrant, healthy and educated workforce that is prepared to participate in the growth of several industry sectors including healthcare, energy, transportation, agriculture and more.

Attracting and retaining well-prepared college graduates and strategically educating the Southern Tier workforce are among critical factors in revitalizing the Southern Tier economy.

G. Implementation Agenda

The Regional Council has identified the necessary steps, timeframes, resources and responsibilities for implementation of the plan. Below is a project implementation matrix to track progress.

Strategic Actions/Projects	Lead Agency and Partners	Resources	Timeline				
			Year 1	Year 2	Year 3	Year 4	Year 5
STRATEGY 1. The Southern Tier...New York's Leader in Energy Efficiency and Renewable Energy Technology							
Strategic Action Item 1A. Southern Tier Renewable Energy and Efficiency Initiative—Residential and Small Scale Commercial Retrofit	Lead Agency: Cornell Cooperative Extension of Tompkins County Partners: Cornell Cooperative Extension offices throughout the region; counties and local municipal government agencies; Southern Tier Region Economic Development Corporation	Resources: Green Jobs Green NY; On-Bill Financing; NYSERDA's Energy Smart Communities; biomass and solar-related construction and manufacturing businesses; agricultural land for biomass; Cornell University College of Agriculture and Life Sciences	X	X	X		
Strategic Action Item 1B. Southern Tier Renewable Energy and Efficiency Initiative—Large Scale Institutional and Commercial Projects	Lead Agencies: Blue Hill; Southern Tier Region Economic Development Corporation Partners: EPA; municipalities; authorities; large institutions; economic development agencies	Resources: NYSERDA; solar and biomass technology developed at Cornell and Binghamton Universities; biomass and solar-related construction and manufacturing businesses; agricultural land for biomass; Cornell University College of Agriculture and Life Sciences		X	X	X	X

Strategic Actions/Projects	Lead Agency and Partners	Resources	Timeline				
			Year 1	Year 2	Year 3	Year 4	Year 5
STRATEGY 1. The Southern Tier...New York's Leader in Energy Efficiency and Renewable Energy Technology							
Strategic Action Item 1C. Energy Development Alliance for New York—EDANY	Lead Agencies: Southern Tier Region Economic Development Corporation and the Energy Development Alliance for New York—EDANY Partners: Business sector: AM&T; BAE Systems; Corning Inc.; Electron Coil Inc.; Endicott Interconnect Technologies; Lockheed Martin; MicroGen Systems; Primet Precision Materials; Raymond Corporation Cornell University: Energy Materials Center; Center for Materials Research; Nanoscale Science and Technology Facility; Center for Nanoscale Systems; Atkinson Center for a Sustainable Future; Center for Technology, Enterprise and Commercialization Binghamton University: Center for Advanced Microelectronics Manufacturing; Center for Autonomous Solar Power; Integrated Electronics Engineering Center; New York State Center of Excellence in Small Scale Systems Integration and Packaging; Northeast Center for Chemical Energy Storage; Institute for Materials Research	Resources: Community colleges; NYSTAR Center for Future; Cornell University Renewable Bio-Energy Initiative Energy Systems; funding and support from NYSERDA, NSF and DOE programs; BEAM NY, Public Service Commission's Energy Efficiency Marketing campaign; U.S. Economic Development Administration; NY-BEST; Innovate NY Fund; Energy Frontier Research Centers funded by the U.S. Department of Energy; Southern Tier Opportunity Coalition (STOC)	X	X	X	X	X

Strategic Actions/Projects	Lead Agency and Partners	Resources	Timeline				
			Year 1	Year 2	Year 3	Year 4	Year 5
STRATEGY 1. The Southern Tier...New York’s Leader in Energy Efficiency and Renewable Energy Technology							
Strategic Action Item 1D. Energy Workforce Development Initiative	Lead Agencies: Southern Tier Region Economic Development Corporation and community colleges: Broome, Corning, Tompkins Cortland Partners: Regional businesses; BOCES; Cornell Cooperative Extension; building trades and service organizations; SUNY Delhi; Norwich Campus of Morrisville State	Resources: Workforce Development Agencies; private businesses	X	X	X	X	X
STRATEGY 2. Southern Tier Transportation Alliance... Next Generation Transportation Technology And Manufacturing							
Strategic Action Item 2A. Next Generation Transportation Development Initiative	Lead Agencies: Southern Tier Transportation Alliance; Southern Tier Region Economic Development Corporation Partners: Cornell University; Binghamton University; regional consortium of transportation industry: mass transit, defense transport, hybrid vehicle and simulation expertise, and the regional transportation agencies; and spin off companies	Resources: Southern Tier Opportunity Coalition (STOC); Energy Development Alliance for New York—EDANY		X	X	X	X
Strategic Action Item 2B. Southern Tier Transportation Industry Cluster	Lead Agencies: Southern Tier Transportation Alliance; Consortium of Southern Tier Partners: Businesses dedicated to the mass transportation and military helicopter sector; Binghamton and Cornell Universities; Southern Tier Region Economic Development Corporation	Resources: Workforce development agencies; colleges; BOCES; trades and service organizations	X	X	X	X	X

Strategic Actions/Projects	Lead Agency and Partners	Resources	Timeline				
			Year 1	Year 2	Year 3	Year 4	Year 5
STRATEGY 3. Health Care 2020...Integrating Health Care Providers, Higher Education and Cutting-Edge Technology							
Strategic Action Item 3A. Regional Health Information Exchange and Electronic Medical Record System	Lead Agency: Southern Tier Health Link (RHIO) Partners: Binghamton University and Cornell University; other RHIOs in the Southern Tier region	Resources: IT vendors	X	X	X	X	X
Strategic Action Item 3B. Expand Rural Health Care	Lead Agencies: Southern Tier Health Link and Southern Tier Region Economic Development Corporation Partners: Region's health care provider systems			X	X	X	X
Strategic Action Item 3C. Senior Living Communities	Lead Agencies: Southern Tier Health Link and Southern Tier Region Economic Development Corporation Partners: State agencies; municipalities; private not-for-profit developers; health care providers; universities	Resources: Generations of Hope grant program; Broome County; low-income housing tax credits; New Markets Tax Credits; and not-for-profit investment		X	X	X	X
Strategic Action Item 3D. Health Care Workforce Development	Lead agencies: Colleges; community colleges and universities; health care providers	Resources: Workforce Development Agencies		X	X	X	X

Strategic Actions/Projects	Lead Agency and Partners	Resources	Timeline				
			Year 1	Year 2	Year 3	Year 4	Year 5
STRATEGY 4. Revitalize the Rural Farm- and Forest-Based Economy of the Southern Tier							
Strategic Action Item 4A. Rural Initiative Venture Fund	Lead Agency: Southern Tier Region Economic Development Corporation Partners: Fund Advisory Board; Cornell Cooperative Extension Offices; farm and agriculture cooperatives and associations; REDEC	Resources: Cornell Cooperative Extension offices; Cornell University College of Agriculture and Life Sciences; SUNY Delhi; Regional Planning and Development Boards; USDA programs; NYSERDA programs; U.S. Dept. of Energy programs; Finger Lakes Farm Initiative; Southern Tier Opportunity Coalition (STOC)	X	X	X	X	X
STRATEGY 5. Strengthen The Southern Tier’s Economic Development Backbone							
Strategic Action Item 5A. Southern Tier Community Revitalization Project	Lead Agency: Southern Tier Region Economic Development Corporation Partners: Property owners; developers; municipalities; housing authorities; local development corporations; banking institutions	Resources: Historic districts and commissions; housing authorities; local development corporations; NY Main Street; CDBG; HOME; New Markets Tax Credits		X	X	X	X
Strategic Action Item 5B. Regional Broadband Communications Project	Lead Agency: Southern Tier Region Economic Development Corporation Partners: Broadband providers; municipalities; colleges; universities; large institutions; businesses	Resources: Regional planning and development boards; Southern Tier Network (STN); broadband providers; NTIA; FCC		X	X	X	X

Strategic Actions/Projects	Lead Agency and Partners	Resources	Timeline				
			Year 1	Year 2	Year 3	Year 4	Year 5
STRATEGY 5. Strengthen The Southern Tier’s Economic Development Backbone							
Strategic Action Item 5C. Shovel Ready Site Development Project	Lead Agency: Southern Tier Region Economic Development Corporation Partners: Municipalities; economic development agencies; IDA’s; LDC’s; utility companies; short line rail companies; broadband service providers	Resources: ARC; U.S. EDA; NYS ESDC; NYS Environmental Facilities Corporation		X	X	X	X

Organizational Structure to Ensure Plan Implementation and Ongoing Public Participation

The Council has developed an organizational structure and operational arrangements to ensure implementation, including meaningful and timely public participation on an on-going basis.

Regional Economic Development Council of the Southern Tier. The Regional Council will meet quarterly, and more frequently as needed, and will be responsible for soliciting and receiving public input; monitoring and evaluating progress of the strategies, projects and initiatives; reviewing and recommending projects submitted through the CFA process; receiving input and recommendations from the work plan groups; and, referring statewide or inter-regional issues to the Chairman's Committee. The Regional Council's staff will continue to be the Empire State Development Corporation Southern Tier Regional Office.

Organizational Structure to Advance Projects. The Southern Tier Region Economic Development Corporation has been retooled and strengthened to take the lead in acquiring commitments to action, ensuring that the strategies to advance the projects are implemented within the targeted timeframe, and monitoring progress against the plan

Ongoing Stakeholder and Public Participation. While the Council has engaged the public in a meaningful and transparent way during the strategic planning process, it will be important to continue public outreach efforts, particularly as the Council refines strategies to advance economic growth and begins to implement the region's vision. The Council will solicit public input on emerging critical issues and opportunities and strategies to address them, and will enlist the community in evaluating the effectiveness of the plan and implementation activities. The Council will use an array of public engagement methods and techniques to solicit on-going input, including, but not limited to the following:

- Governor Cuomo's Regional Council website (<http://nyworks.ny.gov/content/southern-tier>)
- Public forums
- Council meetings and work sessions
- Work plan groups
- Existing groups, forums, networks and reports
- Media

H. Performance Measurement

Performance measures will provide the Council with mechanism for evaluating and updating the strategic plan based on progress, challenges, or unanticipated circumstances. Note that the Council has developed projected outcomes and quantitative results for each project and action as described in Section IV.

<i>Outcomes and Activities to be Measured</i>	<i>Measures</i>
Growth in Targeted Industry Sectors	
Productization of Energy Technologies	<ul style="list-style-type: none"> • State and federal funding leveraged • Private sector investment in prototype development and productization • Increased intellectual property development, licensing and commercialization • Percentage growth in exports • Absolute and percentage growth in net revenue • New and retained jobs in businesses related to product development • Active involvement of university-based technology centers and programs • Replication of the model • Percentage of energy use saved
Energy Efficiency and Renewable Energy	<ul style="list-style-type: none"> • Private and public sector investment • Number of residential and small scale commercial retrofit projects • Number of large scale energy efficiency retrofit projects • Number of new businesses developed (i.e., biomass and solar related construction and manufacturing) • Absolute and percentage growth of wood pellet manufacturing and timber industry sales • Number of new jobs created and maintained
Transportation Industry	<ul style="list-style-type: none"> • Private sector investment • Federal and state funds leverage • Percentage increase of mass transportation manufacturing market captured • Percentage increase of aviation manufacturing market captured • Number of new jobs created and maintained • Absolute and percentage growth in net revenue for businesses in the industry cluster • Number of spin-off companies created • Number of new ventures created • Development of regional transit system model

<i>Outcomes and Activities to be Measured</i>	<i>Measures</i>
Growth in Targeted Industry Sectors	
Agriculture Industry	<ul style="list-style-type: none"> • Number of start-up farm operations and other agri-businesses such as wholesale and distribution • Number of new processing facilities for value-added agricultural products • Number of new farm markets • Number of new jobs created and maintained • Renewable energy generated • Absolute and percentage increase in agricultural land in productive use • Absolute and percentage growth in net revenue for agriculture and forestry businesses • Private investment in application of new technology • Leverage funding such as the Farmers' Market Initiative
Health Care Industry	<ul style="list-style-type: none"> • Number of new non-clinical rural care centers established • Number of new clients served • Number of new and continuing client visits • Number of patients using telemedicine and mobile health care technology • Number of telemedical patient encounters • Cost effectiveness monitoring • Private and non-profit investment in new senior living facilities/programs such as New Markets Tax Credits leveraged • Use of publicly owned, unused or underused property • Use of university-based technology

<i>Outcomes and Activities to be Measured</i>	<i>Measures</i>
Strengthen the Southern Tier Region's Economic Development Backbone	
Downtown Revitalization and Community Development	<ul style="list-style-type: none"> • Private sector investment • Federal and state funds leveraged • Number of buildings renovated • Number of new commercial spaces • Neighborhoods revitalized • New housing units
Broadband Communications	<ul style="list-style-type: none"> • Increase in number of households and businesses gaining cell phone and high-speed Internet connection • Strengthened broadband for universities, municipalities, and major commercial users • Increase in number of broadband connections to universities, municipalities, major commercial users, schools, and hospitals • Increase in data capacity of connections serving universities, municipalities, major commercial users, schools, and hospitals • Decrease in broadband latency and service interruptions affecting universities, municipalities, major commercial users, and hospitals
Shovel Ready Sites	<ul style="list-style-type: none"> • Number of sites that secure New York's Shovel Ready Certification • Number of businesses locating in the shovel ready sites • Leveraging of federal grants and investments by municipalities, economic development agencies, and private sector • Job creation • Number of brownfields and un/underutilized properties reused
Workforce Development for Industry Sector Growth Projects and Initiatives	<ul style="list-style-type: none"> • Number of workers trained • Number of workers employed • Leveraging private sector investment in workforce development

SECTION II. EXISTING CONDITIONS AND STRATEGIC OPPORTUNITIES

"We are being asked to be a part of the process for the first time. This is a unique opportunity to do some course charting and I plan to make the most of this chance. Speaking on behalf of labor, we are seldom asked for our input. We are though, an integral part of any development project. To me, this is a door opening and I am honored to be a part of this process. When I worked in the field as a journeyman wireman I took great pride in the projects that I was associated with. I plan on feeling that pride again in a good project that will benefit our community, knowing that this Council was responsible for bringing it home."

— Ernest Hartman

Business Manager, IBEW Local 139
Elmira, NY

SOUTHERN TIER

Vibrant downtowns and municipal cores are key drivers of economic growth. Here, a view of Market Street in Corning, NY, historic and redeveloped into a thriving center of commercial development and upper-story housing.



SECTION II. EXISTING CONDITIONS AND STRATEGIC OPPORTUNITIES

Part 1. Regional Assessment of Existing Conditions and Economic Opportunities

A. Southern Tier Overview

The Southern Tier region of New York State comprises eight counties with a total landmass of 6,260.2 square miles, adjoining the border of Pennsylvania's Northern Tier. Counties within the region are Broome, Chemung, Chenango, Delaware, Schuyler, Steuben, Tioga and Tompkins with a total 2010 population of 657,909 residing within population centers in the Binghamton, Elmira-Corning and Ithaca areas, as well as the many towns and villages surrounding them. The region is known for the contributions of its global and national corporations, the quality and reputation of its nationally-recognized universities, the character and charm of its downtown areas, its vast natural resources and its many tourism and cultural destinations, as well as its natural beauty.

Infrastructure connecting the region includes three regional airports based at Binghamton, Elmira-Corning and Ithaca; an expanding network of interstate highways and railways; plentiful, clean waterways; and growing access to broadband communication.

Some 63% of jobs are currently in the service sector, with the largest proportion in health care and education. The region is distinguished by the quality of its resources for higher education and its manufacturing base. Cornell and Binghamton Universities offer nationally and internationally recognized programs of study and faculty, research and development centers and new technology and business incubators. SUNY Delhi offers technology-based education that includes specialized certificates,



The counties of the Southern Tier region. Source, New York State Empire State Development Corporation

more than 40 associate degree programs, 13 distinctive baccalaureate programs and the COE in WATER. In addition, the academic standards and reputation for quality attract students to Ithaca College and Elmira College. Chenango County also benefits from the presence of the Norwich Campus of Morrisville State College. The region's community colleges located in Broome, Chemung-Steuben and Tompkins County offer specialized programs of study to prepare students for professional, technical and other specific occupations in demand in the region.

Five integrated health care systems offer the region's populations access to preventive and wellness services, primary and specialty physician care, in- and outpatient hospital services and a multiplicity of allied health-related programs, both at their main locations and at regional offices located

SOUTHERN TIER

The result of back-to-back storms, the Flood of 2011 swept across the east-central Southern Tier in late summer, damaging thousands of homes and businesses. Here, a view of the devastation in Vestal, Broome County.



throughout the region. The health care sector is among the region's largest employers, and is expected to grow with anticipated demand for services.

Manufacturing provides 13.6% of jobs in the Southern Tier, ranking the region as one of the strongest of the state's ten economic development regions in that sector. Well established corporations with large national and global markets that maintain locations in the Southern Tier include Corning Incorporated, Lockheed Martin, BAE, Endicott Interconnect Technologies, Sikorsky Aircraft, and many more.

The Southern Tier region is also rich in natural resources. Lakes, rivers, gorges, forests and fertile farmland surround its cities, villages and towns. Ample soil, sunlight, wind, timber and the Marcellus shale formation are the region's abundant raw materials, in quantities required to fuel innovation and development of next-generation energy and agriculture solutions. Among the region's strongest assets are abundant and clean waterways, assuring sufficient water to support energy development, manufacturing, agriculture and other economic growth.

Natural Disaster: Hurricane Irene, Tropical Storm Lee and the Southern Tier. While water and wind are among promising new alternative energy sources powering Southern Tier economic development, these natural phenomena have another place in the memory of the Southern Tier populations, especially those residing near the banks of the Susquehanna and Chemung Rivers and their tributaries. These communities remember the devastating effect of Hurricane Agnes in 1972 and the floods of 2006, losses to businesses and residents alike, and the heavy economic and emotional costs on the path to recovery.

Recently, the next two storms came back-to-back in the late summer of 2011, causing massive destruction and devastation. Hurricane Irene ravaged the region on August 28, followed by Tropical Storm Lee on September 7–8, resulting in widespread and record-level flooding that destroyed or damaged some 11,000 residences and over 1,500 businesses. The wrath of these storms was primarily concentrated in the east-central portion of the region including Broome, Tioga, Chenango and Delaware Counties.

In the Town and Village of Owego, the communities of Margaretville and Middletown, and others, historic downtown areas and many small businesses were decimated. Many small business owners, some who have struggled to make their livings, were left wondering whether reopening would be an option. Residents rowed through the streets assessing their damage.

In the greater Binghamton area, the scene was much the same, but on a far larger scale. The Susquehanna River crested at a record 25.71 feet in the City of Binghamton, higher than record flooding experienced in June 2006. Flooding continued through the night, surging through communities along the Susquehanna and Chemung Rivers, and their tributaries. By the early morning hours, floodwaters reached the Owego area and beyond, moving west into eastern Chemung County. Tens of thousands of residents were forced to leave their homes; many were evacuated from their rooftops. Interstate roadways became impassable. Businesses, retail centers, recreational areas and schools were forced to close; many sustained significant damage to property and inventory. The affected area was paralyzed. Many properties were without power for five days or more. The New York National Guard and Western New York 2nd Squadron 101st Cavalry responded to the region with personnel, helicopters for rescue and reconnaissance, and high-axle vehicles, assisting regional emergency services providers.

The Flood of 2011: Impact on the Southern Tier Region

Homes Damaged—10,904

Businesses Damaged—1,488

Commercial Buildings Damaged*—600+

Total Damage Estimate—\$562.2 million

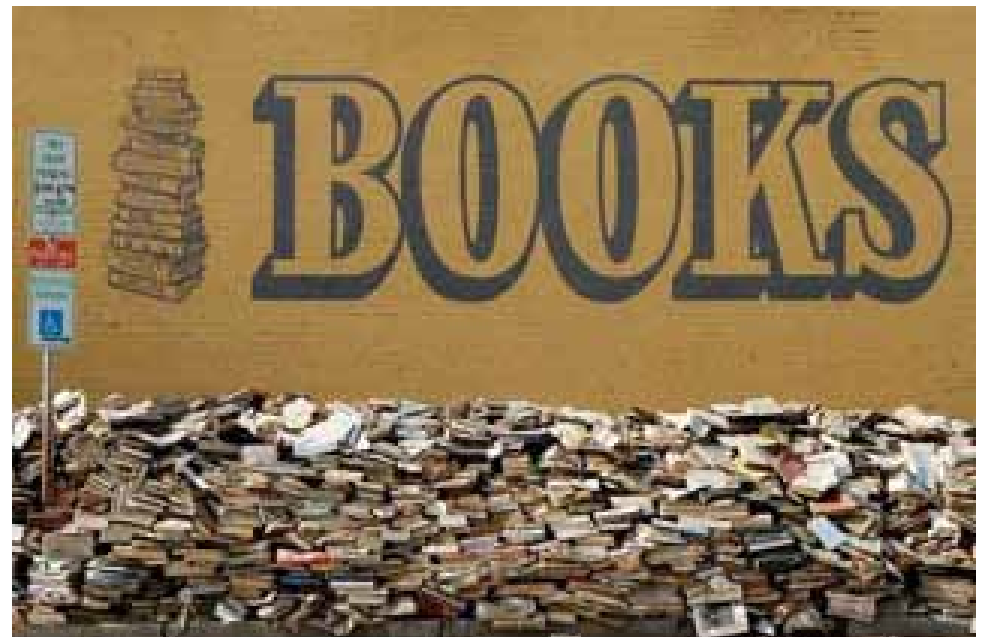
*Sources, Housing: FEMA, Total Applications for Assistance, 9-22-2011 & Chemung County Office of Emergency Management; Businesses: SBA, Total Applications for Assistance, 9-20-2011; Commercial Buildings: *Broome County only, other county data not available.*

Although the total economic impact is still under assessment, estimated financial damage in the hundreds of millions is expected. In affected cities and localities, years of investment in businesses, public and private facilities, homes and neighborhoods has vanished, leaving employers, employees and residents with the task and expense of starting over, and bearing the expense of rebuilding their lost communities. Some early impact estimates are highlighted below. As of fall 2011:

- As a result of flooding, Synergy Solutions, a 200-employee call center on Azon Road in Johnson City, announced they were closing due to flood damage, moving the work to another rural call center in the United States. Two major employers, Amphenol and BAE Systems, were completely flooded out of their facilities. Amphenol has determined the company will need to relocate, and BAE Systems is still assessing the damage. The two firms employ 2,550 workers.
- The Federal Emergency Management Administration (FEMA) had received 9,227 applications of assistance for damaged homes in the Southern Tier due to **Tropical Storm Lee**, including 6,360 in Broome County, 2,053 in Tioga County, 448 in Chenango County and 315 in Delaware County, and 1,564 applications of assistance due to **Hurricane Irene** including 703 in Broome County, 549 in Delaware County, 234 in Tioga County and 64 in Chenango County. The Chemung County Emergency Services Office reported FEMA received approximately 100 applications for assistance, primarily from the Wellsburg area. According to the Chemung County Office of Emergency Management, 113 residents registered with FEMA for emergency assistance in Chemung County.
- The Small Business Administration (SBA) had received 1,488 applications of assistance for damaged businesses in the Southern Tier due to Lee, including 1,003 in Broome County, 363 in Tioga County, 63 in Chenango County and 52 in Delaware County, and 139 applications of assistance for damaged businesses due to Irene, all of which were in Delaware County.



Historic downtown Owego was inundated by floodwaters.



Residents and businesses piled damaged property in parking lots and streets. In Owego, a bookseller's entire inventory lays on the curb, lost in the Tioga County flood.

Existing Conditions and Strategic Opportunities

- Broome County estimates that 601 commercial buildings were damaged by the flood with a combined building value of \$272.5 million.
- Tioga County has assessed that 120 small businesses were impacted by the flood, affecting more than 540 workers with an estimated damage/loss and amount needed to resume business operations at \$25.1 million. In Chemung County, damage is assessed at just over \$1 million, including damage to many roads and bridges.
- According to the New York State Department of State, Division of Code Enforcement, a total of 6,124 properties were destroyed or damaged in Broome County as a result of the flooding caused by the storms with a damage value of \$435.6 million. Twenty-eight properties were totally destroyed, estimated at \$4 million in losses, calculated at 95% of building assessment. One third of the total, or 2,038 properties sustained major damage, estimated at \$279.6 million in losses, calculated at 63% of building assessment. Some 92% of total destruction and damage was concentrated in the City of Binghamton, the Village of Johnson City, and the Towns of Conklin, Endicott, Kirkwood, Union and Vestal.
- According to the New York State Department of State, Division of Code Enforcement, a total of 1,749 properties have been destroyed or damaged in Tioga County from the resulting flooding caused by the storms with a damage value of \$125.6 million. Twenty-three properties were totally destroyed, estimated at \$1.7 million in losses. Nearly half or 848 properties sustained major damage estimated at \$81.9 million in losses. Some 92% of major damage occurred in the Village and Town of Owego.



Across the region, residents and officials could only inspect the damage by boat.



What was left, as shown here in Delaware County, was total devastation of homes, downtowns and municipal cores. Damage is estimated at more than \$500 million.



No one expected the force and speed of the rush of the floodwaters, as seen here in Delaware County.

Approach to Understanding Existing Conditions

The Council gathered information using several techniques to gain an in-depth understanding of the critical assets, strengths, issues and barriers related to economic growth and to answer the following key questions:

- What are the region's strengths and weaknesses?
- What are the region's principal growth sectors and clusters?
- What is driving the economy and where is it headed?
- What are the strategic development opportunities?
- What are the strategic, critical issues and barriers related to development opportunities that must be addressed?

1. Work Plan Groups. The work plan groups were a valuable source of knowledge and generated reports and proposals that provided the Council with an understanding of key geographic areas, core assets, strengths, and critical issues and barriers related to economic opportunities that could be the focus of the initial strategic plan. These work plan groups focused on agriculture, business development and entrepreneurship,

downtown revitalization and community development, energy, health care, infrastructure, technology development and transfer, and tourism.

Each work plan group began the evaluation process by conducting a SWOT analysis (strengths, weaknesses, opportunities, and threats) to identify those factors and characteristics that distinguish the Southern Tier region. The work plan groups then engaged in further evaluation, review of documentation and in-depth discussions about critical issues that were barriers to economic growth, as well as opportunities that should be seized that would drive the region's economy and meet the criteria of a strategy as "catalytic, collaborative, comprehensive, and competitive."

2. Community Input. At the outset of the strategic planning process, the Council developed a public participation strategy that outlined an array of methods and techniques to be used to engage the general public and key stakeholders. The Council held five community forums and an online survey to assist in identifying issues and opportunities and in helping to craft strategies to capitalize on the region's unique strengths and assets.

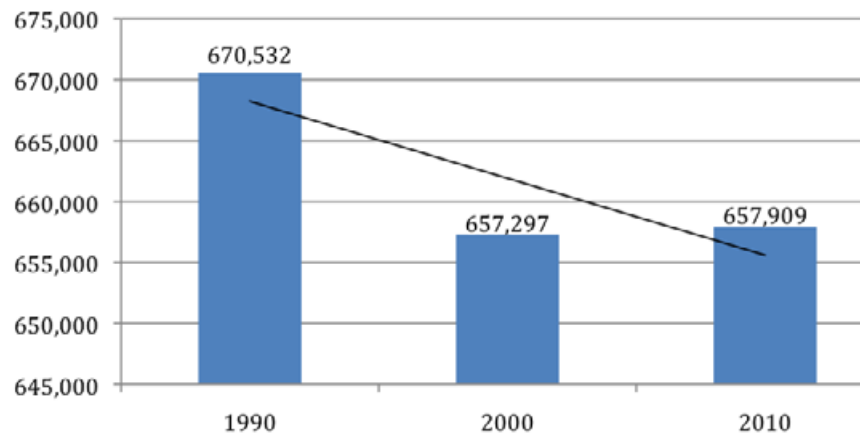
3. Education/Industry Discussions. Representatives of the university research and development centers, together with four-year and community college programs, engaged in concentrated discussions with private businesses to identify "real" opportunities for joint research, ways to bring research to the market, technology to increase productivity and revenues, and workforce development.

4. Agency Discussions. Representatives from a broad range of federal and state agencies engaged in thorough discussions, assessing and analyzing regional conditions and critical issues and participated actively in all aspects of plan development.

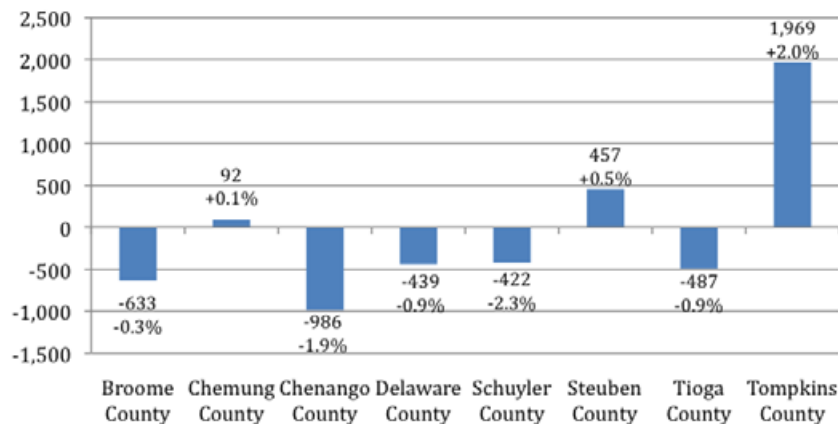
5. Cluster Analysis. The cluster analysis technique was also used to analyze existing conditions. The clusters included in the analysis were defined as a group of businesses and industries related through buyer-supplier relationships or indirect connections, such as dependence on a common workforce.

Existing Conditions and Strategic Opportunities

Southern Tier Population, 1990 - 2010



Source, U.S. Census Bureau, 2010

Southern Tier Population Change by County, 2006-2010
Percent and Absolute Change, July 1, 2006 - April 1, 2010

Source, U.S. Census Bureau, 2010

Following is a description of key factors including demographic profile of the region, socioeconomic trends, population projections, education levels, health of the population, housing stock, labor force and unemployment trends, physical infrastructure and natural resources.

B. Demographic and Socioeconomic Trends

Population Trends and Projections

Current Population. According to the U. S. Census Bureau, the population of the Southern Tier has been in decline over the past two decades. Most recently, the Southern Tier population in aggregate remained flat, growing by only 612 or 0.1% to 657,909 between 2000 and 2010. Between 1990 and 2010, Southern Tier population declined by more than 12,000, nearly 2%.

Among the 10 economic regions of the state, the Southern Tier ranked ninth in population growth rate from 2000 to 2010.

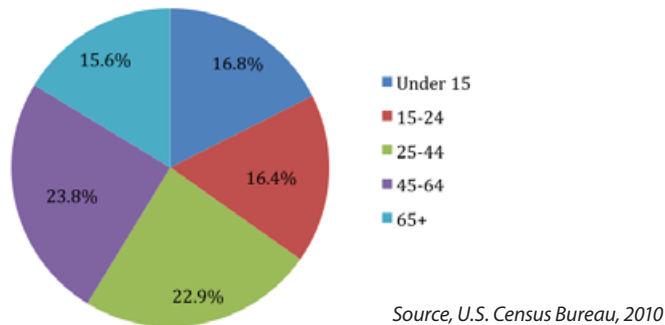
The Southern Tier's most populous counties are Broome (200,272), Tompkins (101,620), Steuben (98,930) and Chemung (88,824), composing nearly 75% of the region's population. The region's more rural counties include Tioga (51,049), Chenango (50,405), Delaware (47,832) and Schuyler (18,330), composing the remaining quarter of Southern Tier residents.

The most recent trended intercensal data reveals that population growth over the 2006–2010 period is limited to Tompkins County. Other counties in the region are experiencing population loss or only very modest gains.

Overall, the largest segment of the population is composed of 'baby boomers,' those born between 1946 and 1964, accounting for nearly three of every ten in the population. The next largest cohort was the 25–44 group, at just under one-quarter of the population.

The region experienced a shift in the age composition of the population from 2000–2010. Marked declines in the 0–14 and 25–44 age cohorts and corresponding growth in the 45+ population suggest contraction in the

Southern Tier Population Distribution by Age Cohort, 2010

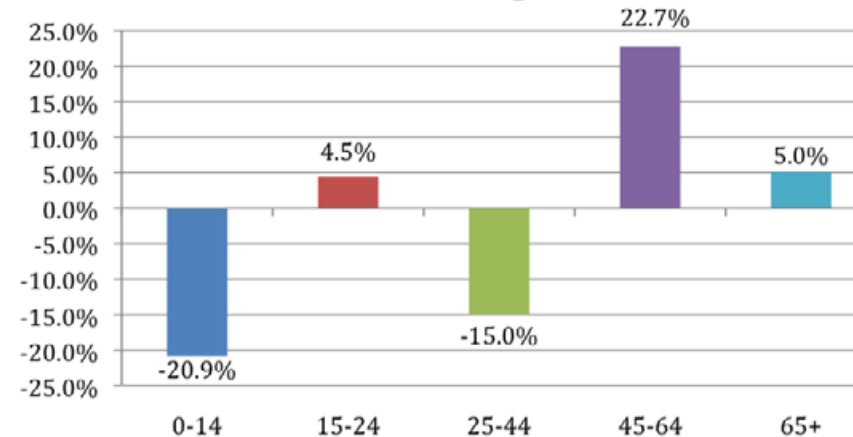


number of adults highly engaged in the workforce, and a decline in the number of growing families in the Southern Tier region. The median age of the population of the region was 40.0 years in 2010, up from 37.0 in 2000 further confirming the aging of the Southern Tier population.

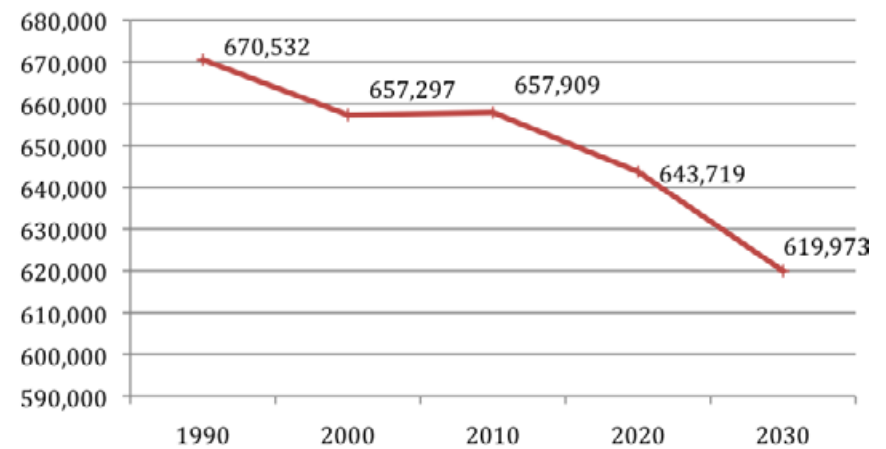
Southern Tier demographic changes also suggest that the region in aggregate may be experiencing a **'brain drain,'** commonly described as the significant out-migration of college-educated students upon graduation, which is in turn perpetuated by an economic landscape unable to attract and retain educated young workers.

A recent analysis conducted by the Federal Reserve Bank of New York indicates an insufficient 'brain gain' in upstate New York. The study reported that upstate New York's out-migration rate (described as the share of college graduates leaving the area over a five-year period as a share of the entire college-educated resident population) of 13.4% is roughly equivalent to the 13.5% percent nationwide median. Out-migration rates were higher in twenty-five states. But in-migration (described as the number of college-educated people moving into an area over a five-year period as a share of the entire college-educated resident population) was disproportionately low. **In fact, if upstate New York were considered a state, it would have an in-migration rate of 9.3%, the lowest rate in the United States.**

Southern Tier Population Trends by Age Cohort, 2000-2010, Percent Change



Southern Tier Population, 1990 - 2030, All Ages



Source, Cornell Program on Applied Demographics, 2008. (2020 and 2030 are Cornell PAD estimates.)

STRATEGIC FINDINGS: POPULATION TRENDS

Three population-based challenges must be addressed: (1) the rapid aging of the Southern Tier population, (2) the out-migration of upstate college graduates leaving the region, and (3) the lack of new college graduates migrating into Upstate New York in search of opportunity.

The Southern Tier is home to educational resources that include two internationally-recognized universities, four colleges, three community colleges and a broad range of technical training programs, as well as established corporations with large national and international markets, well-established research and development anchors, and new venture incubators located at Cornell University, Binghamton University and Corning Incorporated. Five integrated health care systems serve the

region's populations. Three ongoing interstate conversion projects and an emerging broadband infrastructure provide the promise of even more robust interchange and progress in the region. With this economic development strategic plan as the catalyst, carefully mapped collaboration among these and other assets can begin to inflect these unfavorable population trends and spur economic development.

With innovative, comprehensive planning and execution of workforce development strategies, the Southern Tier region will be able to attract and maintain the well-prepared, vital workforce required to catalyze and sustain continuing economic growth and vibrant communities.

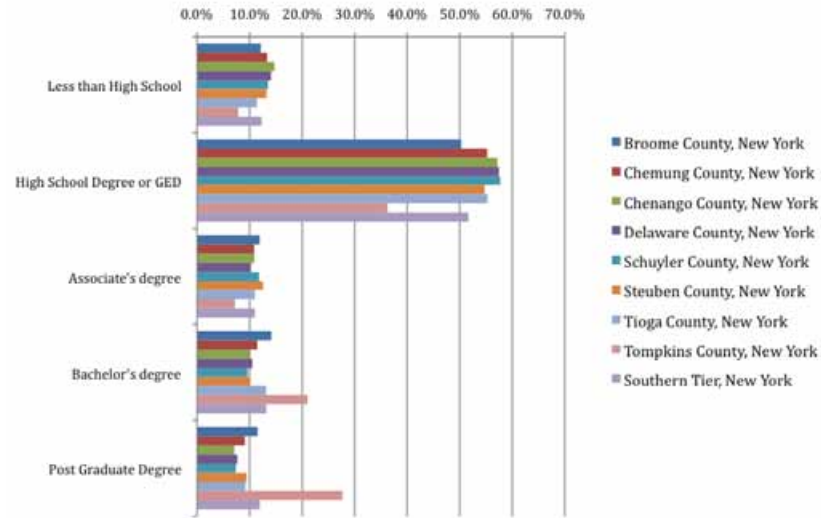
In upstate New York, college-educated adults are not moving into the region fast enough to offset the natural out-migration flows. Research indicates that job opportunities and local amenities influence choice of location. While regional amenities such as favorable climate, cultural offerings and family and social networks are attractive forces, they may not be enough to attract college-educated workers if good job opportunities do not exist. Similarly, job prospects may not be sufficient to sway a relocation decision if a region is not perceived to be a desirable place to live. Both factors are affected by policy decisions.

Racial and Ethnic Diversity. The Southern Tier in aggregate is largely white (91.4%). Greater diversity exists in the population centers, specifically, Tompkins County, and to a lesser degree, Broome County, which are also the two areas where universities are located. Greater detail appears in Appendix G.

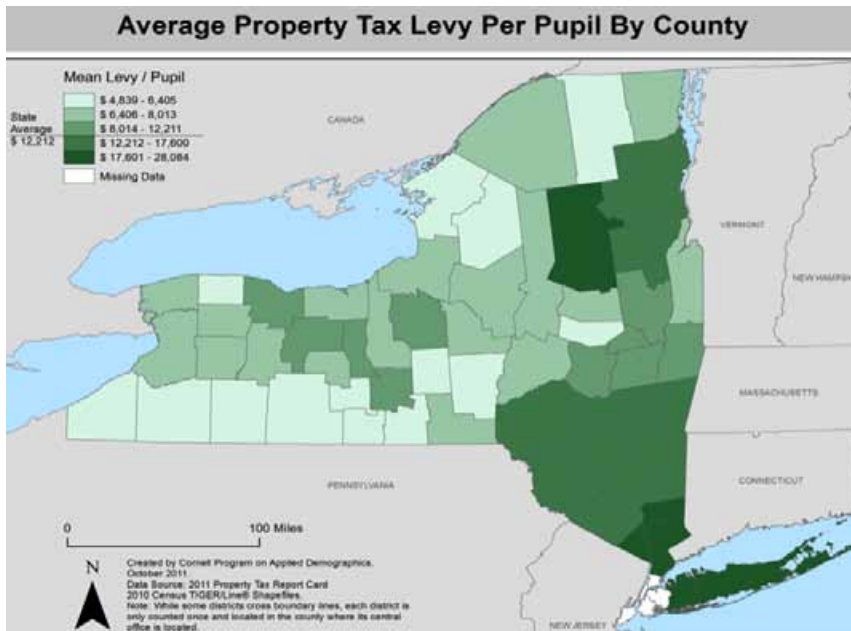
Population Projections. The Cornell Program on Applied Demographics (PAD) predicts that rapid aging of the population and decline in the 0–14 and 25–44 age cohorts are likely to continue. Greatest declines are predicted in the 0–14 age cohort and the greatest increase in those aged 65+. The share of the total population age 65+ is projected to increase from 15.6% in 2010 to 22.3% in 2030. Overall, in the Southern Tier region the 65+ age cohort is expected to grow by 34.9% over the 20 year period, as the 0–14 and 25–49 cohorts decline by -7.3% and -8.5% respectively. See Appendix G for additional detail.

Detailed population data appears in Appendix G.

Southern Tier Educational Attainment by Region and County, Adults 25+



Source, U.S. Census Bureau, 2005–2009 American Community Survey 5-Year Estimates



Source, Cornell Program on Applied Demographics

C. Education

Within the Southern Tier region, more than half of the population (51.6%) completed high school and more than a quarter attained a bachelor's degree or higher. Eleven percent earned associate's degrees. Aggregation masks the disparity at the county level.

Tompkins County, home to Cornell University, Ithaca College and Tompkins Cortland Community College, had the greatest proportion of population attaining bachelor's degrees or higher at nearly half the county population. Some 9% of the Tompkins County population holds doctoral degrees. The Broome-Tioga population had the second highest proportion of college graduates or higher, followed by the Chemung-Steuben area, at about a fifth of the population.

The Southern Tier's capacity to support primary and secondary education is significantly below that of many other regions in the state (2011 Property Tax Report Card, NYS Center for Rural Schools). The average tax levy per pupil is between \$4,839 and \$6,405 for Tioga, Steuben, and Chemung Counties. In Broome County, the levy is between \$6,406 and \$8,013 per pupil. Only Tompkins County approaches the state average of \$12,212 per pupil.

Constraints on the tax base across the region will likely preclude future increased spending to keep up with inflationary cost increases. Two other factors also impact the Southern Tier's ability to compete with other areas of the state and nation: the region's stalled "brain gain" (few talented young people are moving into the region), and its low average incomes (nearly 30% of residents earn less than \$25,000 per year and more than 55% earn less than \$50,000 per year). A robust K–12 system is the core of community development in rural communities and is crucial to attracting businesses and entrepreneurs, not only for their own and their employees' children, but to provide a talented, well-educated local pool for employers.

Detailed data on education appears in Appendix G.

STRATEGIC FINDINGS: EDUCATION

There is a marked disparity in educational attainment within the Southern Tier region's counties, correlating with the location of its universities, most notably Cornell University in Tompkins County. Higher-paying positions in manufacturing, information technology, health care and energy require a level of specialization gained only with advanced degree programs or technical training, yet more than half of the Southern Tier population has not advanced beyond a high school education. Further, **among the currently unemployed in the region, some 70% have not achieved degrees beyond the high school diploma.** An additional 13% have not completed high school. The present level of educational achievement in many parts of the Southern Tier region suggests that many undereducated workers may be more vulnerable to changing business cycles than their more educated peers. **The education-based challenge that must be addressed requires development of educational programming, credit and non-credit, designed to address the needs of Southern Tier sectors with the most growth opportunity.**

The Southern Tier region counts among its assets robust higher education and technical training resources, ready to catalyze growth in workforce development to meet the needs of emerging business and industry. Collaborating in this venture are Binghamton and Cornell Universities; the region's four-year SUNY institutions including SUNY Delhi and the Norwich Campus of Morrisville State College; the region's three community colleges, Tompkins Cortland, Corning and Broome Community Colleges; as well as Cornell Cooperative Extension and the Board of Cooperative Education Services (BOCES). In partnership with businesses, this alliance assures access to a comprehensive range of effective educational programs key to preparing the vibrant and productive workforce so critical in elevating Southern Tier prosperity and keeping the region competitive.

D. Health

In *Health and Economic Development: A resource for the New York Regional Economic Development Council meetings* (August 2011), the New York Academy of Medicine (NYAM) emphasizes the importance of "skilled, healthy individuals as workers and as consumers. When you have a healthy population, economic benefits follow." The authors note that improvement of health and reductions in costly chronic diseases are key drivers of economic growth (NYAM, 2011, p 3). Clearly, communities also need quality wellness, preventive and health care services; an adequate supply of highly trained health care providers and modern, accessible facilities; and a motivated, wellness-oriented population in order to achieve optimum public health.

The consequences of poor public health and illness, the Academy continues, "generate an economic burden to individuals, companies and regions. An unhealthy population generates costs in preventable health care expenditures, higher premiums from insurance companies and greater costs to business, and public expenditures on Medicaid and Medicare. These expenditures come at the expense of other investments." Unnecessary health care costs shift investments away from education, transportation, infrastructure, housing and businesses in the public and private sectors, all fundamental to economic growth, creating "an unhealthy cycle" (NYAM, 2011).

Obesity and Overweight. The incidence of overweight and obesity in the Southern Tier continues to rise among adults and children, and is

STRATEGIC FINDINGS: HEALTH

Six health care-based challenges must be addressed: (1) the high rate of overweight, obesity and smoking among much of the Southern Tier population and the growing rate of chronic disease, especially diabetes, cardiovascular disease and cancer; (2) the relative disparity in healthy lifestyles between urban, more educated population centers and sparsely populated, rural areas; (3) recruitment of primary and specialty care providers as well as technical and therapeutic support staff to assure sufficient supply and access to effective interventions and care throughout the region, which is particularly

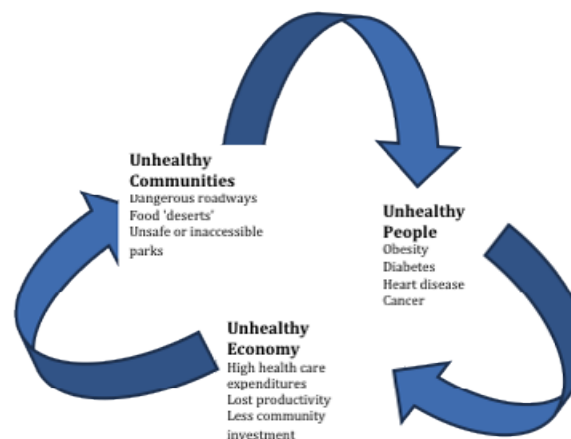
urgent given the aging and unhealthy segment of the population; (4) development of workforce training programs to prepare aspiring health care professionals for future careers; (5) enhanced collaboration among health care systems, including integration of electronic medical records, compatibility of advanced communications technologies and partnerships that will enhance and advance the quality and cost effectiveness of patient care; and (6) cost-effectively addressing the health care needs of its aging population.

high across the region. According to Excellus Blue Cross Blue Shield, the percentage of overweight or obese adults in upstate New York rose from 55% in 2003 to present levels greater than 60%. (Excellus, 2010, *Diabetes: New report shows spike in prevalence*). Behavioral Risk Factor Surveillance System (BRFSS) data show the rate of obesity and overweight in the Southern Tier exceed the state (59.3%) and upstate (60.6%) rates in seven of eight counties, ranging from the highest reported incidence in Chemung (69.7%), Chenango (67.8%) and Delaware (66.2%) Counties to the lowest in Tompkins (55.1%) and Broome (63.7%) Counties.

Chronic Disease. Overweight and obese populations in the Southern Tier are potentially at higher risk for degenerative, chronic conditions such as diabetes, cardiovascular and cerebrovascular disease, arthritis and cancer. Combined with the rapid aging of the population, obesity has already fueled a dramatic increase in diabetes in the Southern Tier. According to Excellus, "diabetes...is the leading cause of new blindness, kidney disease, and non-traumatic lower extremity amputation. It is also a major contributor to the state's and nation's leading killer, cardiovascular disease" (Excellus 2010). The insurance company estimated that the rate of diabetes in the Southern Tier region rose from 7.4% in 2003 to 8.4% in 2008, and by 2010

had reached 11.3% of adults, with an annual treatment cost of \$297.4 million (*The Facts About Upstate New York Adults With Diagnosed Type 1 and Type 2 Diabetes And Estimated Treatment Costs*, Winter, 2010). The Southern Tier now has the highest rate of diabetes of Excellus' four regions, including more than 40 counties in upstate New York.

Detailed data on health appears in Appendix G.



An Unhealthy Cycle. Source, The New York Academy of Medicine

E. Housing

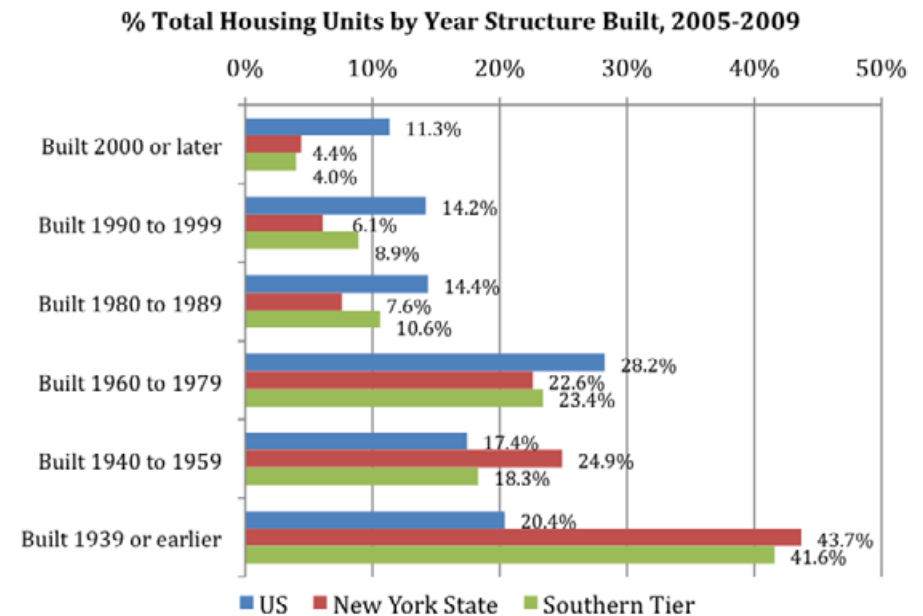
According to the 2005–2009 American Community Survey, housing in the Southern Tier includes more single-family, owner-occupied and newer units than the average for New York State. Nearly seven of ten units were owner-occupied, compared with 56% for New York State, and nearly two thirds were single-family units, compared with 47% for the state. In the region, 37% of the residential structures were built after 1970 compared with 28% for the state.

But when compared with the nation as a whole, it is clear that the age profile of housing structures in New York State and the Southern Tier, though similar, both significantly lag behind the age profile of housing in the country, with significantly more homes fifty years or older and fewer built during the past two decades.

According to American Community Survey 2005–2009 5-Year Estimates, the Southern Tier also has a higher rate of vacant housing units (13.6%) than either the state (10.2%) or the nation (11.8%). Considering the impact of the 2011 flood on Southern Tier housing and downtowns, the current vacancy rate is assuredly much higher.

As would be expected in communities with aging housing stock, occupied housing units in the Southern Tier and New York State are far more reliant on fossil fuels than those in the nation as a whole. In the Southern Tier, 20.9%, or a fifth of housing units, heat with fuel oil, kerosene or other petroleum fuels, less than the state (32.5%), but substantially higher than the nation as a whole (7.4%). Some 6.6% of occupied housing units in the Southern Tier heat with wood, far more than in the state (1.6%) or nation (1.9%). About half of occupied housing units in the Southern Tier, state and nation heat with gas. Solar and other alternative energy sources have barely been tapped as a source of home heating fuel.

Additional data on housing appears in Appendix G.



Source, U.S. Census Bureau, 2005-2009 American Community Survey 5-Year Estimates

STRATEGIC FINDINGS: HOUSING

Three primary challenges face Southern Tier housing: (1) housing units in the Southern Tier and New York State are substantially older than in the nation as a whole; (2) correspondingly, a larger proportion of occupied housing units in the Southern Tier and in the state rely on fossil fuel sources for home heating, while virtually none have adopted solar or other new renewable energy sources; (3) even before the 2011 flood, a larger proportion of total housing units were vacant in the Southern Tier as compared with the state and the nation. Given the major damage inflicted by Hurricane Irene and Tropical Storm Lee, vacancy rates have assuredly risen dramatically in affected communities, and until major restoration and repairs are complete, will remain a major challenge in the Southern Tier.

Storm damage has only worsened the relatively poor condition of housing units in the Southern Tier and the downtowns so critical in keeping them

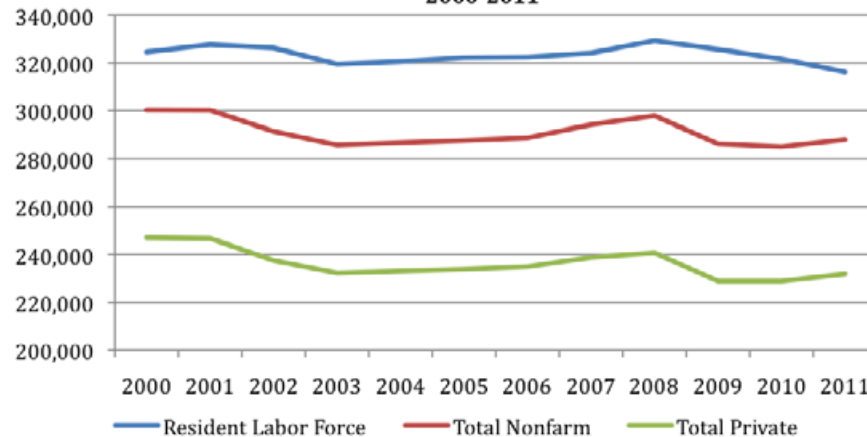
vibrant. Therefore, if economic development initiatives succeed in creating substantial new job growth, particularly in the natural gas sector, housing shortages may occur. Such housing shortages could impede future growth and artificially increase the cost of housing beyond its real value. Further, neighborhoods and surrounding downtown areas that lack the characteristics that attract new residents, and the services and resources on which neighborhoods rely, will fall behind, and serve as a barrier to the goal of economic growth across the Southern Tier's eight counties. Universal revitalization of homes, neighborhoods and downtowns will be a critical success factor in achieving and maintaining the Southern Tier's five-year goals. The plan for revitalization will also generate opportunities to retrofit aging structures and convert those heating with fossil fuels over to next generation energy sources.

F. Labor

Labor Force. Simply defined, the labor force of the region includes the total number of residents employed, as well as the unemployed, who are actively searching and available for work. A vibrant labor force providing a skilled and ample workforce is essential for the economic vitality of the Southern Tier. An analysis of recent and historical labor force trends is cause for concern in the region. In July 2011 (the most recent data available), the labor force of the eight-county Southern Tier region stood at 315,900, the lowest level for the month in the current historical series dating back to 1990. The highest labor force count for July on record was 333,400 in 1991, nearly 20,000 above the current level. Labor force levels have been stagnant or declining for the past 20 years. Recent trends indicate the labor force of the region declined 5,700 (1.8%) since July 2010, and 13,300 (4.0%) since July 2008. This recent three-year rate of reduction in the labor force was the

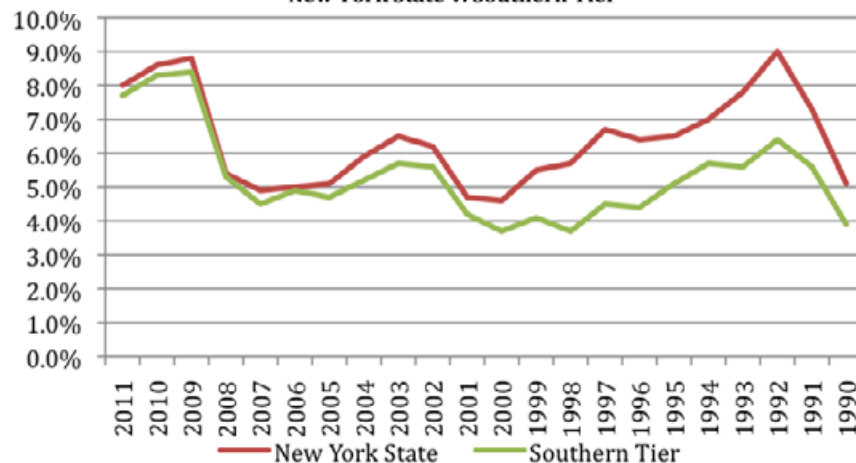
Existing Conditions and Strategic Opportunities

**Southern Tier Employment and Labor Force Trends
2000-2011**



Source, New York State Department of Labor

**Unemployment Rates, July 1990 - 2011
New York State v. Southern Tier**



Source, New York State Department of Labor

second highest reduction among the ten economic development regions of the state.

The labor force is impacted by population trends; demographic shifts within the population, labor force participation rates and the general health of the economy. According to the U. S. Census Bureau, the population of the Southern Tier increased by only 0.1% between 2000 and 2010. Over the same period, the population 25–49 years of age, considered young and prime age workers, declined by 25,200 (11.2%). Workers in these age cohorts typically have high labor force participation rates, in the 80–85% range. The population 50–64 years of age, considered older workers, soared by 32,900 to 31.6% of the population. Workers in this age cohort typically have much lower labor force participation rates, in the 55–75% range. In addition, the job market has been stagnant in the Southern Tier. From July 2008 to July 2011, the total number of jobs in the region contracted by 10,400 to the current 287,500. Flat population trends, an aging labor force and soft economic conditions have all negatively impacted the labor market in the Southern Tier.

Unemployment. The unemployment rate in the Southern Tier stood at 7.8% in July 2011, ranking fifth among the ten economic regions in New York State. Current levels are high by historical standards. Prior to 2009, July jobless rates in the Southern Tier were below 6% in 18 of the 19 previous years (back to 1990) and below 5% in nine of those years. One county in the Southern Tier, Tompkins, has had the lowest unemployment rate in New York State for the past seventeen years. As with health, education and income, the Southern Tier average is buoyed by this outlier.

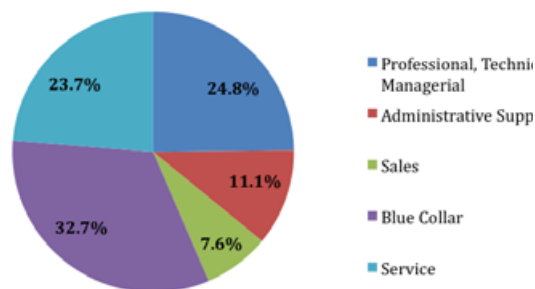
An analysis of unemployment insurance (UI) beneficiaries provides insight on the characteristics of experienced workers who are currently jobless. As of July 2011, approximately 6,200 residents were collecting regular UI benefits in the Southern Tier, representing approximately one-quarter of all those considered unemployed in the region. By occupational category, the largest share of the unemployed was blue-collar workers (32%), followed by professional/technical/managerial workers (25%), and those from service

jobs (23%). By educational attainment, the highest share had a high school diploma (37%), followed by those that had 1–3 years of college (33%). Approximately one in six had a bachelor's degree or higher (17%) and one in eight did not graduate from high school (13%). By age cohort, the highest distribution of UI beneficiaries was spread evenly among young to middle-aged workers including those 25–34 years of age (24%), 45–54 (23%) and 35–44 (21%).

Jobs by Sector. The industrial landscape of the Southern Tier has several unique characteristics presenting both opportunity and challenge. Despite a 20-year decline, with job levels cut nearly in half by the loss of more than 30,000 jobs, the manufacturing sector of the Southern Tier is the strongest among all regions in the state. The share of total jobs centered in manufacturing stands at 13.6% in the region, 2.5 times higher than the statewide average (5.5%) and with jobs in the highest concentration among all economic regions of the state. Major manufacturers include Corning Incorporated, Lockheed Martin, Endicott Interconnect Technologies, Amphenol Corporation, BAE Systems—Platform Solutions, Sikorsky Aircraft, Raymond Corporation, MeadWestvaco, Alstom Transportation, CAF and Covidien.

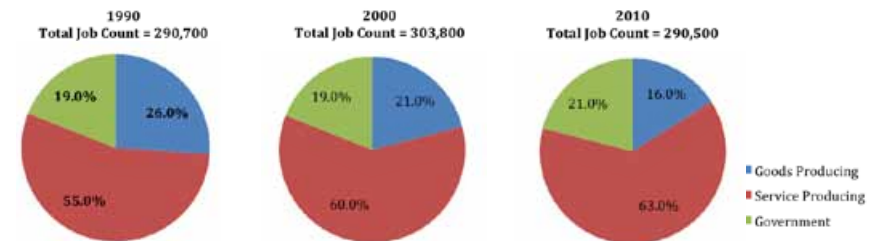
The Southern Tier's share of private educational service jobs, at 6.7% of all jobs in the region, is nearly double that of New York State (3.6%) and is also the highest among all regions of the state. This includes all private

Southern Tier UI Beneficiaries by Occupational Category, July 2011



Source, New York State Department of Labor

Southern Tier Distribution of Jobs by Industry, 1990-2010



Source, New York State Department of Labor

universities, colleges and schools including Cornell University, Ithaca College and Elmira College.

The region also has a relatively high share of government jobs. Just over one in every five jobs (21%) are federal, state and local public sector positions staffing local school districts, community colleges, Binghamton University, municipal governments, and state and federal agencies. This share is well above the state average (17.2%). Only three economic regions in the state have a higher share of government jobs.

On the downside, several high paying, service-producing industries in the region have a low share of jobs as compared with New York State. Only 3.6% of regional jobs are in professional and technical services compared to 6.6% in the state, and only 2.9 % of all jobs in the Southern Tier are concentrated in finance and insurance, half of the state's 5.8% share. Regional wages in professional and technical services averaged \$63,643 in 2010 while finance wages stood at \$54,181, well above the \$40,351 average for all workers in the Southern Tier.

Occupational Profile. The New York State Department of Labor maintains and updates the annual Occupational Employment Statistics (OES) survey, which collects and aggregates information from approximately 52,000 New York State businesses. Employment and wage information is developed for 22 major occupational categories and hundreds of specific

occupations. OES data for the Southern Tier indicate that over one half of all workers in the region are employed in just five occupational categories: administrative support (17.0%), education and training (12.0%), sales (9.0%), food preparation and service (8.7%) and production (7.8%). Some of these occupations, such as administrative support and sales, are common among a variety of industry sectors, and therefore, numbers classified in these categories are large. But others, such as education and production occupations, reflect the high concentration of jobs at higher education institutions and manufacturing facilities in the region. Median wages in these common occupational categories range from a low of \$18,940 for food preparation and service to a high of \$45,330 in education and training.

Occupational categories with a much higher share of regional jobs as compared with New York State include architecture and engineering (3.1% vs. 1.2%), education and training (12.0% vs. 8.0%) and production (7.8% vs. 4.1%). Once again, this reflects the high concentration of manufacturing and education jobs in the region.

Wages. The New York State Department of Labor maintains two data series that track wages in the state. The Quarterly Census of Employment and Wages (QCEW) aggregate data on firms, employment, and payrolls covered

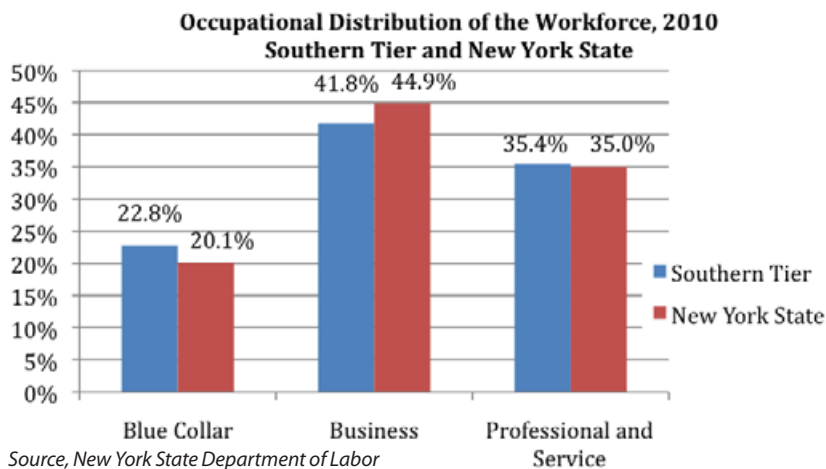
by Unemployment Insurance Law. Overtime pay, bonus pay, and part-time workers are all included in the data series; therefore, the wage information does not reflect straight time earnings. QCEW data for the Southern Tier indicate that the average annual wage in 2010 for all workers was \$40,351, nearly \$20,000 (33%) below the statewide average. In ranking the ten economic regions from highest (1) to lowest (10) in average wages the Southern Tier placed seventh.

The Occupational Employment Statistics (OES) survey derives wage information from businesses. OES data for the Southern Tier indicate that the median wage for a worker in 2010 was \$32,440, approximately \$6,900 (18%) below the statewide average. Only two regions in the state had a lower median OES wage.

Payrolls. An analysis of payroll trends in the Southern Tier, which reflect the total of all wages paid to workers, is optimistic when compared with the stagnant job growth trend over the past five years. From 2005 to 2010, the annual payroll of the region advanced by \$1.1 billion (13.9%) to a total of \$10.7 billion. This growth rate exceeded the inflation rate of 11.7%, as measured by the Consumer Price Index for All Urban Consumers, indicating that the combined purchasing power of the region grew in real terms. The healthiest payroll gains were posted in health and social services (+\$331.1 million, or 30.5%), accommodation and food services (+\$50.6 million, or 23.1%), professional and technical services (+ \$110.1 million, or 22.0%), and construction (+\$63.8 million, or 20.1%).

Business Development

Firm Growth. The total number of firms operating in the Southern Tier expanded by 300, or 2.1%, from 2005 to 14,639 in 2010. This ranked as the fourth best firm growth rate among the ten economic regions in the state over the period. Firm generation was concentrated in construction (+133 firms) including building construction and special trades contractors; accommodation and food services (+119 firms) including bars and restaurants; and administrative and waste services (+99 firms).



Size of Firm Trends. An analysis of private sector firm and job generation trends by employment size of the firm indicates that that new economic activity in the Southern Tier was centered in small businesses from 2005 to 2010. While the total number of private firms in the region increased from 2005 to 2010, all of the growth was centered in firms with 3 or less employees (+489). This gain overshadowed losses in all other firm size

cohorts. The number of jobs in the private sector contracted by nearly 6,000 over the period with only those firms employing less than 3 workers (+170 jobs) and 50–99 workers (+199 jobs) recording gains.

A listing of recent announcements regarding business growth, expansion and other changes is contained in Appendix E. Additional data on firm growth appears in Appendix G.

STRATEGIC FINDINGS: LABOR

The Southern Tier region faces four major challenges: (1) a shrinking, aging workforce that is undereducated, unprepared for occupations of the future and more vulnerable to business cycles; (2) a concentration of jobs in private education and government sectors, the highest in the state, in spite of manufacturing strength; (3) an average annual wage 33% below the state average (and median annual wage 18% below the state average); (4) lagging growth among the region's largest employers; and (5) a need for a well-trained workforce to support future growth.

The Southern Tier workforce has been shrinking since 1990, and in July 2011 it reached its lowest level in three decades. Over the past three years, the rate of contraction was the second highest of the ten economic development regions in New York. Changes in demography and a rapid rate of aging in the population characterize the region. The population aged 25–49, considered young and prime age workers, declined by 11.2% over the past decade. Generally, some 80–85% of the workers in these age cohorts are actively involved in the workforce. At the same time, the older population aged 50–64 grew by some 32%; these workers generally participate in the workforce at a much lower rate.

The unemployment rate in the region stood at 7.8% in July 2011. By far, unemployment affected workers whose highest educational degree was a high school diploma, which makes up some two thirds of the jobless

in the Southern Tier. An additional 13% did not graduate from college at all. By occupational category the largest share of the unemployed are displaced blue-collar workers (32%).

Despite a 20-year decline and loss of nearly half of Southern Tier jobs over the period, the manufacturing sector of the Southern Tier remains the strongest among all regions in the state. Manufacturing employs 13.6% of workers in the region, 2.5 times higher than the statewide average (5.5%) and highest in concentration among all economic regions of the state. The Southern Tier's share of private educational service jobs is nearly double that of New York State and highest among all regions of the state. Some 21% of jobs are federal, state and local public sector government positions, well above the state average and fourth highest among economic regions.

New economic activity in the Southern Tier was centered in small businesses from 2005 to 2010. While the total number of private firms in the region increased from 2005 to 2010, all of the growth was centered in firms with 3 or less employees, a gain that masks losses in all other firm size cohorts.

These conditions suggest a compelling need for aggressive workforce training programs, specific to the needs of emerging growth industries, and multi-sector innovation that will inflect the demographic and educational profile of the Southern Tier workforce.

G. Infrastructure

Highways

The Southern Tier region is served by an impressive network of interstate highways, namely, I-88, I-86 (formerly known as Route 17), I-81, and I-99, which will be completed in 2012. This network provides efficient access to major metropolitan areas across the Northeast. (Descriptions below from *wikipedia.com*.)

- **Interstate 88 (I-88)** is an intrastate interstate highway located entirely within the state of New York. Its western end begins at I-81 in Binghamton and it terminates at I-90 in Schenectady. I-88 serves as an important connector route from Albany to Binghamton, Elmira (via I-86), and Scranton, PA (via I-81). From Binghamton to Oneonta, I-88 begins at an interchange with I-81 just north of downtown Binghamton on the banks of the Chenango River. While both directions of I-81 are accessible from I-88 westbound, only one direction of I-81 northbound connects to I-88. The missing connection, I-81 south to I-88 east, is made via US Route 11, NY 12 and NY 12A at I-81 exit 6. NY 12A then connects to I-88 at exit 2.
- **Interstate 86 (I-86)** and NYS Route 17 extend for 397 miles through the Southern Tier and downstate regions of New York. I-86 begins at the Pennsylvania state line in Mina and follows east through Corning and Binghamton to Woodbury, where it connects to the New York State Thruway. A section of I-86 to the east of the Southern Tier region is still under construction.
- **Interstate 81 (I-81)** extends 184 miles from the Pennsylvania state line, southeast of Binghamton, to the Canadian border at Wellesley Island, northwest of Alexandria Bay. I-81 runs north to south through Central New York, serving the cities of Binghamton, Syracuse and Watertown. North of Syracuse, I-81 meets the New York State Thruway (I-90) at exit 25A. In North Syracuse, I-81 meets with I-481 and NY 481 at exit 29. Further north, I-81 crosses the Thousand Islands Bridge (toll northbound only) at the U.S./Canadian border six miles north of Fisher's Landing.
- **Interstate 99 (I-99)** is an intrastate interstate highway located in central Pennsylvania. I-99 passes through Altoona and State College—the latter home to Pennsylvania State University—and is entirely concurrent to US 220. Long-term plans call for I-99 to be extended northward along the US 220 and US 15 corridors to an interchange with I-86 west of Corning, New York.
- The segment from Williamsport, PA to the northern terminus at I-86 and NY 17 in Painted Post, NY has been completely upgraded to Interstate standards and runs along with the newly re-designated I-99. From Lindley to Presho, NY, construction on the final limited-access stretch between Williamsport and I-86 began in 2010 and is expected to be complete in 2012. The 12.59-mile (20.26 km) segment of US 15 in New York runs parallel to the Tioga River from the state line to its current northern terminus at I-86 and NY 17 exit 44 at the junction of the Tioga and Cohocton rivers in Painted Post, west of downtown Corning. The interchange of US 15 and I-86 has been upgraded to meet Interstate standards.

The New York State Department of Transportation map that includes the interstate highways and major arteries and Average Annual Daily Traffic (AADT) on each road segment appears in Appendix G.

Broadband

Under the American Recovery and Reinvestment Act of 2009, the National Telecommunications and Information Administration (NTIA) was directed to develop and maintain a comprehensive nationwide map of broadband (high-speed) internet service availability, and to make the map publicly available as an online resource.

The New York State Office of Cyber Security (OCS) was designated by Governor David A. Paterson in 2009 to receive funding under the NTIA program. OCS provides a wide variety of mapping and analysis services for the benefit of New York State. It is the home of the state's Geographic Information Systems (GIS) Coordination Program. OCS's mapping unit began its analysis of New York State's broadband availability in February of 2009.

Broadband internet service can be delivered to home or business through a variety of methods, which are described in brief below:

Wireline Services. Wireline services are generally provided via copper telephone line, cable, fiber-optic and other infrastructure.

Wireless Service. Available service includes fixed wireless (delivered via radio waves to a specific location) and mobile wireless, which typically requires a wireless card used with a computer.

Satellite Service. Provided via satellite, in some remote areas, this is the only access to broadband service.

An analysis of current data as of June 29, 2011, provided by OCS for the eight-county Southern Tier region, displays some considerable contrasts in service coverage, particularly in wireline.

- The share of housing units covered by digital subscriber line (DSL) services in the Southern Tier ranged from a low of 73.32% and 77.75% in Delaware and Steuben Counties to highs of 98.99% and 96.82% in Chenango and Broome Counties. Excepting Chenango and Broome Counties, DSL coverage rates for all counties in the Southern Tier region fell below the state average of 95.43%.



Corning Incorporated, headquartered in Steuben County, NY, is a world leader in the manufacture and advancement of optical fiber technology.

- For cable, the share of housing units covered ranged from a low of 54.98% in Delaware County to a high of 94.48% in Tompkins. Cable broadband coverage rates for all counties in the Southern Tier region were below the state average of 96.93%.
- For fiber to the premises (FTTP), the share of housing units covered ranged from lows of 0.00% and 0.07% in Chenango and Chemung Counties to highs of 29.76% and 23.62% in Tompkins and Broome Counties. All counties in the Southern Tier were significantly below the 46.80% for New York State.
- The share of housing units with wireless coverage in the Southern Tier region was well above 90% for all counties, excepting Delaware (59.83%) and Chenango (87.35%) Counties.

Shovel Ready Sites

Shovel ready sites are equipped with the infrastructure needed for development, including natural gas, electric services, broadband fiber, municipal water and municipal sewer. These sites provide competitive

advantage due to the fact that they can be developed quickly. Shovel ready sites also demonstrate a community's commitment to future business growth and development.

An inventory of shovel ready sites in the Southern Tier found that there were only three such shovel ready parks currently available in the entire region, including Hornell Industrial Park, Shawmut Industrial Park in Hornell, and Schuyler Industrial Park. There are numerous other sites in the region with the potential to offer the full offerings of infrastructure and should be included among New York State's certified shovel ready sites, but require an investment of more than \$40 million.

This sample list of potential shovel ready sites, including the cost for infrastructure development, is included in Appendix F.

Rail

Major Routes. The north-south route runs on Canadian Pacific Railway's (CPR) Freight Subdivision from Schenectady to Binghamton, then on the Sunbury Subdivision into Pennsylvania and northern New Jersey. This route is capable of handling the industry-standard 286,000 gross weight railcar, known as a 286k car, and double-stack containers.

The alternate north-south route, New York, Susquehanna and Western (NYSW) Railway's Utica Branch between Chenango Forks and Sherburne, was heavily damaged in the June 2006 floods. As there were no current rail-served customers between these points, the line was initially embargoed. After two years, NYSW filed a Discontinuance of Service notice with the Surface Transportation Board. The rails remain in place, but would need significant investment to return to active service.

There are two east-west routes. One begins with Norfolk Southern Railway's (NS) Southern Tier Line from Buffalo to Binghamton. Montreal and New England traffic continues on the CPR Freight Main Line to Saratoga Springs and Mechanicville, respectively. Northern New Jersey and Pennsylvania/New York/New Jersey traffic continues on the CPR Sunbury Subdivision and connects with NS lines into northern New Jersey. The route is not capable

of handling 286k cars but can accommodate double-stack containers. The second east-west route is NYSW Railway's Syracuse Main Line to Binghamton. The northern New Jersey traffic continues on the Central New York Railroad (CNYK)/NYSW Southern Tier Line and connects with the NYSW's Northern Division into New Jersey. This route is capable of 286k cars and double stack containers.

Major Yard. The region's major rail yard facilities belonging to NS, CPR and NYSW are located in the Binghamton area. At Binghamton, NS, CPR and NYSW all interchange traffic with one another; CPR and NS further transfer the run-through intermodal train, originating and terminating in Ayer, MA, between each other.

Major Constraints, Bottlenecks and Lack of Service. Railroads offer an efficient and economical way to transport both passengers and freight over long distances. The Southern Tier is the only region in the state without intercity or commuter passenger rail service, and there is a particular deficit in short line freight throughout the Southern Tier. There is a need to retain and reestablish service where necessary to leverage private investment in business development and expansion, particularly in shovel ready sites.

The NYS DOT's 2009 Statewide Rail Plan, along with its 2008 Rail Needs Survey, identifies tens of millions in investments needed for short line freight operations in the Southern Tier. Most notably, the New York Susquehanna and Western, the Utica Main Line, the Bath & Hammondsport Railway, and the WCOR are in need of significant investment to keep them functional, usable short line rail connections in New York. Additional investments needed in the region include a \$2.6 million investment (2000 figures; likely substantially higher today) to replace a bridge in the Binghamton area, which has become hazardous to trucks passing below—with an average of three to five accidents annually.

A map of the Southern Tier Railroad Infrastructure appears in Appendix G.

STRATEGIC FINDINGS: INFRASTRUCTURE

Fundamental to developing the Southern Tier economy is funding completion of a robust infrastructure, supporting efficient and reliable distribution of both goods and information. The primary challenges are related to gaps in the rail, highway and information technology pathways presently interrupting distribution flow in many areas of the region.

The Southern Tier region has seen significant growth in rail traffic in the last two to three years, driven by the extraction of natural gas from the Marcellus Shale formation in Pennsylvania. There is potential for significant further increases in such traffic if horizontal drilling is permitted in New York. This additional traffic will drive a need for the location and construction of additional rail-to-truck transfer facilities for pipe, sand and other drilling supplies.

There are three major challenges: (1) parts of the rail infrastructure are old or damaged, and unable to handle the 286k cars necessary to efficiently move rail freight; (2) plans for a necessary replacement of the NS Portageville Bridge have been stalled by a lack of funding; and (3) the condition of the infrastructure drives congestion in the Binghamton area that further affects the movement of freight.

A comprehensive plan of conversion projects is dramatically expanding the network of interstate highways in the region, linking it to the major commercial centers of the Northeast and beyond. Continuation of conversion of Route 17 to I-86 between Elmira and Binghamton and extension of the I-99 corridor from the Pennsylvania state line to exit 44 on I-86 west of Corning are essential components of a fully integrated network of interstate highways. **The primary challenge is assuring that**

federal and state governments commit the funds necessary to complete both projects.

A recent study prepared by Wilbur Smith Associates for the Southern Tier Central Planning and Development Board predicts that the I-86 interstate conversion alone will create 3,455 new jobs, 6,281 new residents and \$3.2 billion in economic impact in the Southern Tier and Hudson Valley between 2000 and 2020. Published reports quote Chemung County Executive Thomas Santulli's observation that in 2011, Chemung County alone created more than 3,400 jobs, all directly related to the I-86 conversion (*Star Gazette*, October 2011). Similar potential exists as I-86 conversion is completed and work begins on the final segment of the I-99 corridor.

Twenty-first century growth is unquestionably dependent on the flow of digital information over uninterrupted high-bandwidth channels. While broadband access is developing in the Southern Tier, geographic pockets exist where wireless and wireline coverage lags behind the state. This is particularly true in the region's most rural communities, where economic development is most sluggish. **The primary challenge in developing ubiquitous broadband access is securing the funding to expand infrastructure into the most rural regions, and assuring that the cost of access remains affordable to emerging businesses and residents.**

Addressing the infrastructure needs of the Southern Tier comprehensively is a critical factor in maintaining the viability and growth of existing businesses, catalyzing the emergence of new businesses and entrepreneurs, connecting the residents of the region's diverse communities, and developing a collaborative and competitive economic region.

H. Natural Resources

Lakes and Rivers. The Southern Tier is well endowed with clean rivers and lakes—providing an abundance of beauty and recreational activities for residents and visitors. Rivers in the Western portion of the region include the Chemung, Cohocton and Canisteo, while the Susquehanna, Chenango, Delaware and Tioughnioga serve the eastern portion. Several of the Finger Lakes, including Keuka, Seneca and Cayuga, are located in the northwestern portion of the Southern Tier.

Chesapeake Bay Watershed. Chesapeake Bay is the largest estuary in the United States. It is approximately 200 miles long with more than 1,600 miles of shoreline in its many coves, wetlands and tidal tributaries. The Chesapeake Bay watershed covers 64,000 square miles and includes more than 16 million people in portions of six states (Delaware, Maryland, New York, Pennsylvania, Virginia and West Virginia) and the District of Columbia.

The New York portion of the Bay watershed consists of the Chemung and Susquehanna River basins and includes more than 6,250 miles in 19 counties with a population of about 650,000. New York makes up approximately 10% of the total Bay watershed area and 4% of the total population.

In 2000, Governor George Pataki signed a Memorandum of Understanding to agree to work cooperatively with the EPA and other tributary states and the District of Columbia to improve Chesapeake Bay water quality. The EPA has made estimates regarding the maximum annual loadings of nitrogen, phosphorus and sediment that can be received by the Bay and still meet water quality standards. These maximum annual loading limits will be allocated to each state by the EPA at Total Maximum Daily Loads (TMDLs).

The EPA has pending regulations for TMDL, with stringent discharge limits for Total Nitrogen (NP) and Total Phosphorus (TP). These mandates could come with very high costs to municipalities and businesses in New York State, increasing operating costs and system user rates. Upgrades would be required for some wastewater treatment plants. Operation and maintenance

costs would also increase as phosphorus removal often necessitates the addition of costly chemicals for treatment.

New York City Watershed. The New York City Watershed (12,800 square miles) covers parts of New York, Pennsylvania, New Jersey and Delaware. About one-fifth of the upper watershed lies within New York State. These headwaters originate in the Catskill Mountains and eventually flow into Delaware Bay and the Atlantic Ocean. The Delaware River and a portion of the West Branch serve as the border between New York and Pennsylvania (Source: NYS DEC, 2001). The Upper Delaware Council (UDC), a formal partnership of local, state, and federal governments and agencies manage the Upper Delaware Scenic and Recreational River, guided by a formal River Management Plan.

Upper Susquehanna and Chemung River Watersheds. The Susquehanna River Basin is the second largest east of the Mississippi River. The 444 miles of the Susquehanna drain 27,500 square miles covering large parts of New York, Pennsylvania and Maryland before emptying into the Chesapeake Bay. Two separate Susquehanna River Basin watersheds drain portions of south-central New York State: the Upper Susquehanna Watershed and the Chemung River Watershed (2,600 square miles), which straddles the border between New York and Pennsylvania. The waters of the Chemung River flow across the western portion of Southern Tier of New York State before joining the Susquehanna River and eventually emptying into the Chesapeake Bay (NYS DEC, 2011).

During 2010, the Southern Tier East Regional Planning and Development Board (STERPDB) partnered with the Southern Tier Central Regional Planning and Development Board (STCRPDB) in development of the Susquehanna-Chemung Action Plan for areas of the combined regions within the Upper Susquehanna River Basin. The project is funded by Federal Clean Water Act money through the NYS Department of Environmental Conservation. The plan is expected to be completed by February 2012. One of the goals of the project is to integrate the plan's recommendations with the Comprehensive Economic Development Strategies for both the

Southern Tier Central and Southern Tier East Regions (STERPDB, CEDS 2010 and STCRPDB, 2011).

Great Lakes Watershed. Most of Schuyler and Tompkins Counties, and parts of Steuben County, are in the Finger Lakes Watershed, draining to the Great Lakes. The overall Great Lakes Basin is monitored by the binational Great Lakes Commission.

Marcellus Shale. The Marcellus Shale is a black shale formation extending deep underground from Ohio and West Virginia northeast into Pennsylvania and southern New York. Although the Marcellus Shale is exposed at the ground surface in some locations in the northern Finger Lakes area, it is as deep and 7,000 feet or more below the ground surface along the Pennsylvania border in the Delaware River valley. Drilling activity is expected to focus on areas where the Marcellus Shale is deeper than 2,000 feet.

Geologists estimate that the entire Marcellus Shale formation may contain up to 489 trillion cubic feet of natural gas throughout the entire extent. It is not yet known how much gas will be commercially recoverable from the Marcellus in New York. To put this in context, New York State uses about 1.1 trillion cubic feet of natural gas per year.

Although geologists have long known about the natural gas resources of the Marcellus Shale formation, the depth and tightness of the shale made gas exploration and extraction very difficult and expensive. Interest has increased significantly of late due to:

- Recent enhancements to gas well development technology, specifically horizontal drilling and hydraulic fracturing
- The proximity of high natural gas demand markets in New York and New England
- The construction of the Millennium Pipeline through the Southern Tier

Questions have been raised about possible environmental and community impacts. These include concerns related to water use and the composition

of fluids used for fracturing the shale, and impacts on existing economic activity, roads and bridges, and local governments.

The New York State Department of Environmental Conservation released the Revised Draft Supplemental Generic Environmental Impact Statement (SGEIS) on September 7, 2011. A Socio-Economic Impact Analysis Report was prepared in support of the Revised Draft SGEIS. The public comment period ends on December 12, 2011.

In September 2011, the NYS DEC released estimates of potential economic impact associated with high-volume natural gas fracturing operations as follows:

“Total direct construction employment is predicted to range from 4,408 full-time equivalent (FTE) workers under a low-development scenario to 17,634 FTE workers under an average development scenario. These employment figures assume annual construction of 413 horizontal and vertical wells under the low-development scenario and 1,652 horizontal and vertical wells under the medium-development scenario. At the peak of activity, employment in jobs operating well pads and related work is expected to range from 1,790 FTE workers under the low-development scenario to 7,161 FTE workers under the average development scenario... Indirect employment impacts are expected to range from an additional 7,293 FTE workers under the low-development scenario to an additional 29,174 FTE workers under the average development scenario. (NYS DEC Division of Mineral Resources, 9/2011) At maximum build-out, earnings among employees in this sector are estimated to range from \$621.9 million to \$2.5 billion annually, generating additional state personal income tax revenue between \$31 million and \$125 million annually.”

Southern Tier Economic Report Card, Southern Tier Regional Economic Development Council

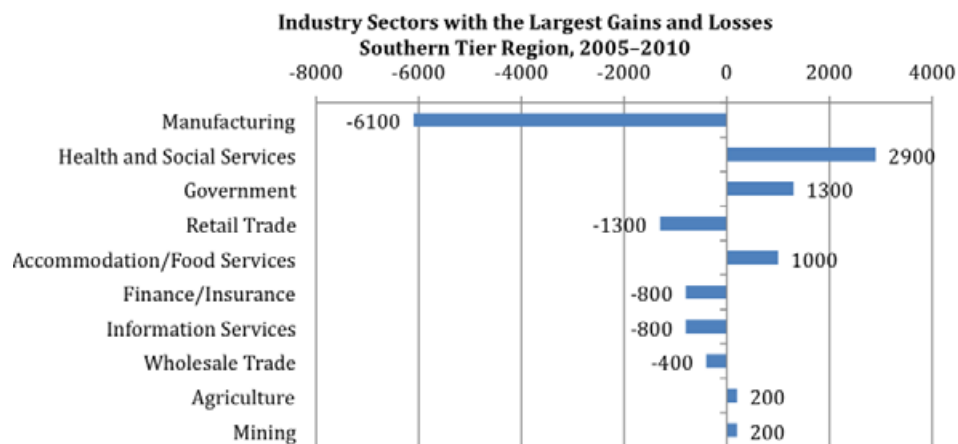
Economic Category	Measure	Rank Among 10 Regions
		(1) Best– (10) Worst
Unemployment Rate - July 2011	7.80%	5
Labor Force Growth Rate: 2005-2010	-0.10%	4
Total Job Growth Rate: 2005-2010	-1.90%	4
Private Sector Job Growth Rate: 2005-2010	-3.00%	4
Share of Total Jobs in Manufacturing, 2010	13.60%	1
Share of Total Jobs in Private Education, 2010	6.70%	1
Firm Growth Rate: 2005-2010	2.10%	4
Total Regional Payroll Growth Rate: 2005-2010	13.90%	6
Median Wage (OES): 2010	\$32,440	8
Average Wage Per Worker (QCEW): 2010	\$40,351	7
Total Population Growth: 2000-2010 (Census)	0.10%	9

Source, New York State Department of Labor

Part 2. Southern Tier's Principal Growth Sectors and Clusters

A. Industry Growth Trends

In tracking the New York State Department of Labor's Quarterly Census of Employment and Wages series, the number of jobs physically located in the Southern Tier was sporadic during the past five years. From 2005 to 2008, the region gained 8,000 jobs, increasing total employment to 300,500. But between 2008 and 2010, the global/national recession and continued restructuring in the manufacturing sector resulted in a loss of 10,000 jobs in the Southern Tier, bringing the total job count down to 290,500. The private sector recorded a similar pattern. Private jobs increased from 232,300 in 2005 to 239,000 in 2008, only to fall to 228,700 in 2010. This represents the lowest annual average job count since 1996.



Source, New York State Department of Labor

Industry sectors with the largest gains from 2005 to 2010 and their average annual wage per worker included: health and social services (+2,900 jobs/average wage \$37,444); government (+1,300 jobs/average wage \$39,548); accommodation and food services (+1,000 jobs/average wage \$13,824); mining (+200 jobs/average wage \$45,572); and agriculture (+200 jobs/average wage \$27,763).

On the downside, contracting industry sectors offset the gains listed above. Industries with significant losses from 2005 to 2010 and their average wage per worker included manufacturing (-6,100/average wage \$58,423); retail trade (-1,300/average wage \$22,411); information services (-800/average wage \$43,661); finance/insurance (-800/average wage \$54,181); and wholesale trade (-400/average wage \$39,768).

The long-term industry projections for the Southern Tier developed by the New York State Department of Labor indicate that the region is expected to continue to add jobs in the service-producing sector. The largest projected growth industries include health care and social assistance, educational services, accommodation and food services, professional/technical/managerial services and the self-employed. Manufacturing employment is predicted to continue to contract, with the loss of 6,000 jobs (or by 14%) during the next decade.

New York State Industry Clusters

- Back Office & Outsourcing
- Biomedical
- Communications, Software & Media Services
- Distribution
- Electronics & Imaging
- Fashion, Apparel & Textiles
- Financial Services
- Food Processing
- Forest Products
- Front Office & Producer Services
- Industrial Machinery & Services
- Information Technology Services
- Materials Processing
- Miscellaneous Manufacturing
- Transportation Equipment
- Travel & Tourism

Source, Empire State Development Corporation



B. Industry Cluster Analysis

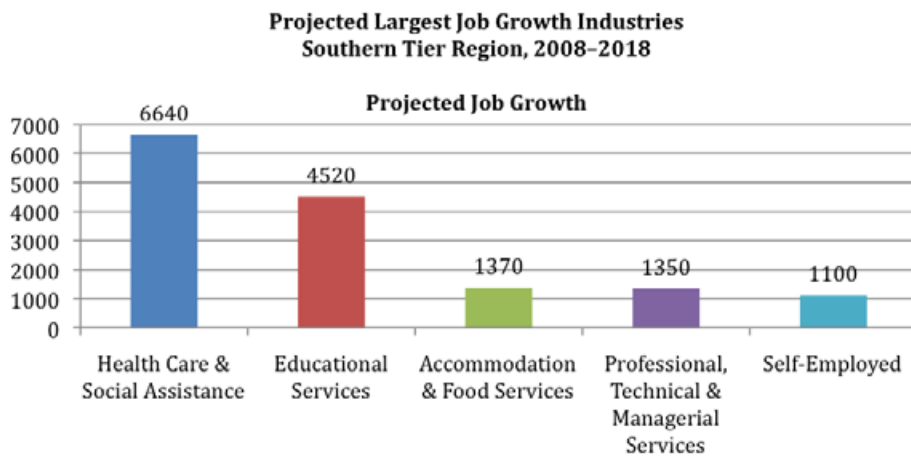
Industry clusters are defined as geographic concentrations of competing, complementary, or interdependent firms and industries that do business with each other and/or have common needs for talent, technology and infrastructure. Clusters include interconnected companies, specialized suppliers, service providers and associated institutions in a particular field that are present in a region. Clusters arise because they increase the productivity with which companies can compete.

The Empire State Development Corporation has identified 16 industry clusters in New York State. The New York State Department of Labor produces regional analyses on the labor market importance of these clusters. One key aspect of industry clusters is that they are export-oriented, selling products and services outside the regional market, thus generating high multiplier impact on income and employment.

The Southern Tier's 16 identified clusters included 6,000 establishments with total employment of 77,400 and total wages of \$3.9 billion in 2009. Annual cluster wages averaged \$49,900, approximately \$10,000 higher than the average wage for all industries. The Labor Department's regional analysis ranks the importance of employment, payroll, annual average wage, and location quotient, defined as the share of regional employment compared to corresponding national share.

In the Southern Tier, industrial machinery and services, which includes manufacturers of electrical equipment, fabricated metals, instruments and machinery, ranked first in employment (13,600), first in payroll (\$855.0 million), second in average wage (\$65,100) and second in location quotient (2.31). Electronics and imaging, which includes manufacturers of computer equipment, semiconductors and electronic components, also ranked in the top five in each category including fifth in employment (6,600), third in payroll (\$411.6 million), third in average wage (\$62,800) and first in location quotient (4.42).

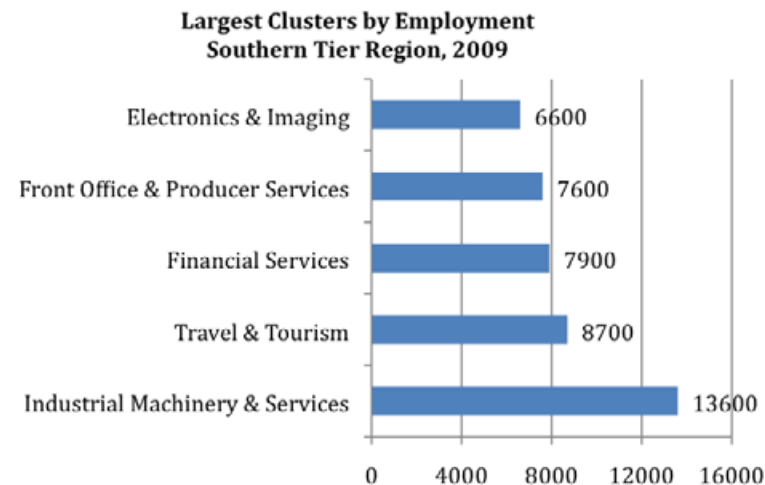




Source, New York State Department of Labor

Front office and producer services, which includes professional, technical and business services, ranked high in three categories including third in employment (7,600), second in payroll (\$510.4 million), and first in average wage (\$67,100). Transportation equipment, which includes auto, bus, rail, and aerospace manufacturers, ranked fourth in location quotient (1.76) and fifth in payroll (\$249.2 million), while the biomedical cluster, including drug manufacturing, research labs and medical equipment/supplies, ranked third in location quotient (2.05) and fifth in average wage (\$59,300).

Firms involved in the transportation cluster are prevalent across the entire Southern Tier region. According to the Labor Department's February 2011 Industry Cluster report, there were 56 firms employing 4,600 workers in the cluster. Regional firms include BAE Systems and Westcode in Broome County; Orthstar, CAF, Sikorsky Aircraft and the Hilliard Corporation in Chemung County; Amphenol in Delaware County; Alstom, Lin Industries and Mercury Aircraft in Steuben County; and Borg-Warner Automotive in Tompkins County. According to the Metropolitan Transit Authority (MTA), its capital program from 2005–2009 had a \$3.3 billion economic impact on the Southern Tier region, supporting 26,400 jobs. This impact includes the



Source, New York State Department of Labor

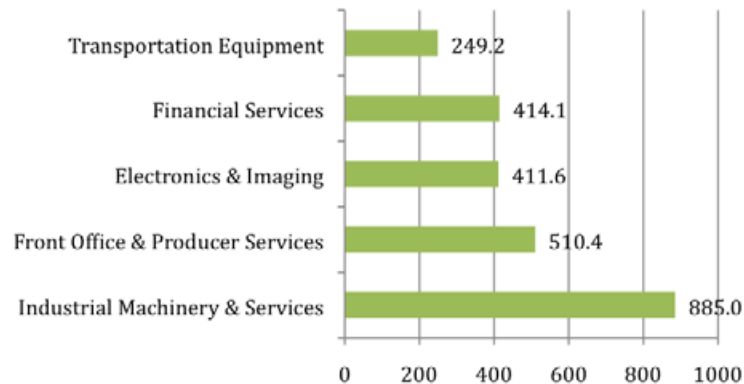
high multiplier effect that transportation investments have on the region, including component manufacturers and suppliers. Workforce needs in this cluster are concentrated among assemblers, machine operators, welders, machinists, technicians and engineers.

Other high employment clusters included travel and tourism (second largest with 8,700 jobs) and financial services (third largest with 7,900 jobs). Travel and tourism in the Southern Tier includes approximately 4,500 businesses in the region that are involved in hotel services, restaurants, air transportation, travel agencies, performing arts and sports facilities, nature parks, skiing facilities, golf courses and other industries supported by travelers. The most common workforce needs in this cluster are service-oriented jobs such as clerks, waiters and waitresses, landscapers, janitors and cleaners, cooks and operations managers.

According to data from Tourism Economics, visitors spent approximately \$804 million in the Southern Tier in 2010, up nearly 9% from the previous year. Year-over-year growth was concentrated in Chemung, Tioga and Broome Counties. New York State and localities benefitted substantially from Southern Tier tourism. Local and state tax contributions attributed to

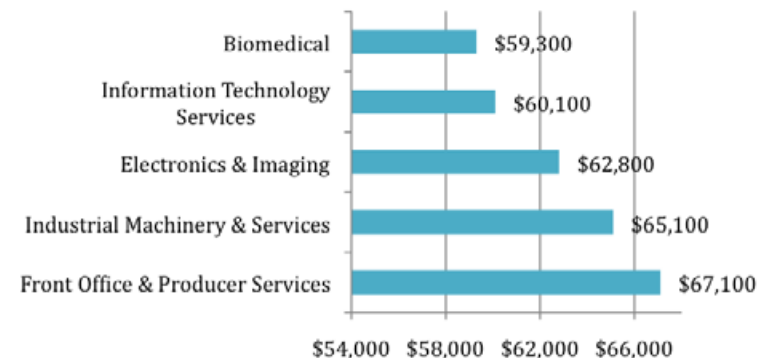
Existing Conditions and Strategic Opportunities

**Highest Payroll Clusters (in \$ millions)
Southern Tier Region, 2009**



Source, New York State Department of Labor

**Best Paid Clusters (Average Annual Wage)
Southern Tier Region, 2009**



Source, New York State Department of Labor

tourism totaled an estimated \$103.3 million in 2010, resulting in an average benefit per household of \$412.

Regional and county-level tourism data are reported in Appendix G.

There are a number of important industry clusters in the Southern Tier that are not included in the parameters defined by Empire State Development Corporation. These clusters include health care and social assistance, clean energy, advanced manufacturing and agriculture. A brief description of these clusters and their workforce needs are highlighted below.

Health care and social assistance is the largest industry sector by employment in the Southern Tier, as well as the most sizeable job generator. As of 2010, 1,500 businesses and 36,800 jobs were regionally concentrated in this sector. From 2005 to 2010, a total of 2,900 jobs were added in this industry cluster including 1,300 at nursing homes and residential facilities, 900 at hospitals, 500 at ambulatory care services and 200 in social assistance. Workforce needs are greatest for registered nurses, nurse aides, administrative assistants, clerks, physicians, licensed practical nurses, supervisors and managers, medical assistants, janitors and cleaners.

Clean energy includes business activity directly related to the production of goods or the delivery of services that increase energy efficiency (EE) or generate renewable energy (RE). This cluster includes the development, production, installation and maintenance of EE and RE products and services. Included in this cluster are research and development activities, component manufacturers, professional and technical services, installation and maintenance involved in home and business retrofitting, solar photovoltaic (PV) and thermal technologies, wind, biomass, geothermal or hydropower. According to a 2010 survey on 20,000 New York State businesses to quantify and qualify clean energy jobs by the Labor Department, 1,130 businesses indicated they were involved in clean energy activities in the Central New York and Southern Tier regions. These businesses were concentrated in construction (710), building services (220), professional services (170) and manufacturing (30). By industry, occupational demand was greatest in the following occupations: construction trades (HVAC mechanics, carpenters, plumbers and electricians); building services (janitors, building supervisors and general maintenance); professional services (architects, engineers, technicians and environmental scientists);



Based in Broome County, Endicott Interconnect Technologies is a world-class supplier of advanced electronic packaging solutions, including printed circuit board fabrication, semiconductor packaging, and assembly services and maintains a partnership with Binghamton University, Cornell University and the Flex Tech Alliance through the Center for Advanced Microelectronics Manufacturing, the nation's first prototype research and development facility in large area flexible electronics.



The CASP has two goals: To develop its own solar technology, which can then be licensed to local firms, and to help solar companies in Greater Binghamton become competitive.

and manufacturing (assemblers, machine operators, iron and sheet metal workers and machinists).

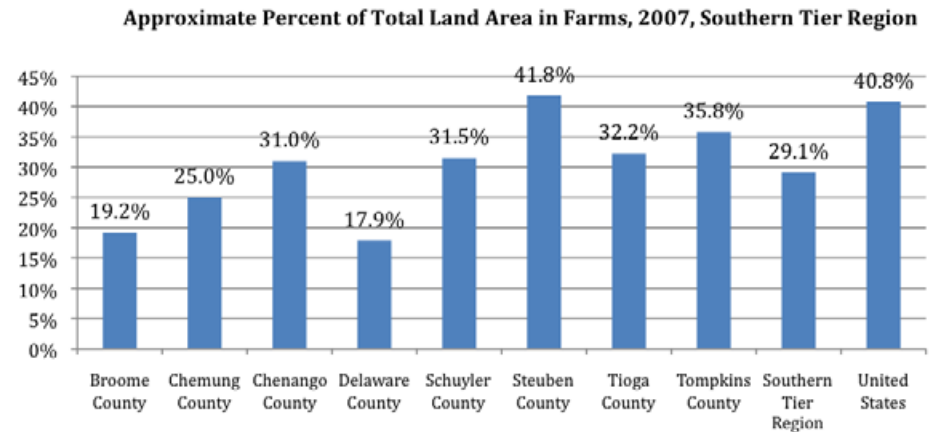
Advanced manufacturing involves the use of technology to improve products and/or processes, with the relevant technology described as advanced, innovative or cutting edge. Advanced manufacturing focuses on improving the performance of U.S. industry through the innovative application of technologies, processes and methods of product design and production. It entails the rapid transfer of science and technology into manufacturing products and processes.

The Southern Tier region includes a wide array of advanced manufacturing activities and collaborations. The Labor Department estimates that approximately 14,000 factory jobs in the region were concentrated in advanced manufacturing in a special analysis completed in 2008. This includes production activities in semiconductors and electronic components, transportation equipment, aerospace products, navigational equipment, ceramics, industrial machinery and computer equipment. Research and development collaborative ties among advanced manufacturers and Cornell and Binghamton Universities are strong.

Existing Conditions and Strategic Opportunities

Agriculture represents a relatively small share of the total job base of the region (approximately 2%) but a very large portion of the private sector land base (29%). In 2007, Steuben County had the largest percentage of land area in farms (42%) while Delaware had the smallest (18%).

According to the 2007 Census of Agriculture, the number of farms in the region declined from 2002 while land acreage in farms contracted, but the market value of products sold and the average sales per farm increased significantly. Farming continues to be an important industry cluster in the region. Farming contributes to economic diversity, part of a mix of amenities that attract and retain people and businesses across a range of industries. Farms are an important part of Southern Tier culture and community vitality. In the Southern Tier, the market value of products sold increased by more than \$114 million (36%) from 2002 to 2007, to a total of \$432.6 million. The average sales per farm soared 39% to \$75,462 over the same period.



Source, U. S. Department of Agriculture, 2007

Census of Agriculture, 2007, Southern Tier Region

Area	Number of Farms			Land in Farms (Acres)			Average Acres Per Farm			Market Value of Products Sold			Average Sales Per Farm		
	2007	2002	% +/-	2007	2002	% +/-	2007	2002	% +/-	2007	2002	% +/-	2007	2002	% +/-
Broome County	580	588	-1%	86,613	98,276	-12%	149	167	-11%	\$29,885,000	\$28,792,000	4%	\$51,526	\$48,966	5%
Chemung County	373	427	-13%	65,124	69,183	-6%	175	162	8%	\$16,608,000	\$12,064,000	38%	\$44,526	\$28,253	58%
Chenango County	908	960	-5%	177,267	189,980	-7%	195	198	-2%	\$65,794,000	\$52,282,000	26%	\$72,460	\$54,460	33%
Delaware County	747	788	-5%	165,572	191,537	-14%	222	243	-9%	\$55,143,000	\$50,520,000	9%	\$73,820	\$64,111	15%
Schuyler County	394	405	-3%	66,368	73,865	-10%	168	182	-8%	\$33,059,000	\$17,911,000	85%	\$83,907	\$44,225	90%
Steuben County	1,578	1,501	5%	371,932	373,294	0%	236	249	-5%	\$135,286,000	\$84,804,000	60%	\$85,732	\$56,498	52%
Tioga County	565	604	-6%	106,834	128,224	-17%	189	212	-11%	\$36,665,000	\$29,939,000	22%	\$64,894	\$49,567	31%
Tompkins County	588	563	4%	108,739	100,931	8%	185	179	3%	\$60,185,000	\$41,908,000	44%	\$102,356	\$74,438	38%
Southern Tier Region	5733	5836	-2%	1,148,449	1,225,290	-6%	200	210	-5%	\$432,625,000	\$318,220,000	36%	\$75,462	\$54,356	39%

Source, U. S. Department of Agriculture, 2007

SECTION III. VISION STATEMENT

"I am very impressed with the collaboration between the universities and the Council, specifically the amount of time that they contribute and the accommodations that they provide for each Council meeting. I am also impressed with the contributions of the private and public members of the work plan groups in bringing their differing and sometimes contradictory opinions and data to our attention. That said, the biggest change that I see is in my own thinking. I have a new found optimism for the region's economic future; I am confident that the measureable, achievable projects and initiatives agreed upon by the Council will provide a powerful springboard for a sustainable economic future for this region."

— Patricia Cummings, Esq.

Leonard & Cummings, LLP
Binghamton, NY



SOUTHERN TIER

The Center for Advanced Microelectronics Manufacturing (CAMM), a partnership between Binghamton University, Endicott Interconnect Technologies, Cornell University and the Flex Tech Alliance, is the nation's first prototype research and development facility in large area flexible electronics.

SECTION III. VISION STATEMENT

A. Regional Economic Development Vision for the Southern Tier

The Regional Economic Development Council of the Southern Tier has adopted a vision that capitalizes on the region's assets, is forward-looking, and provides guidance and direction for a strategic action plan that is "catalytic, collaborative, comprehensive and competitive."

Building on a strong foundation of existing businesses and higher education institutions, the Southern Tier region uses a collaborative approach to leverage its globally competitive advantages to attract talent and investment for the development of industry clusters. Our focus will be on increasing the size and prosperity of the region's workforce through new business creation based on high-technology discoveries and other entrepreneurship activities, while ensuring healthy communities and protecting the natural beauty and resources of the region.

B. Strategies

The Regional Council of the Southern Tier engaged in an analysis of its core strengths, critical issues and economic development opportunities to develop a set of strategies to be pursued over the next five years.

The Southern Tier. . .New York's Leader in Energy Efficiency and Renewable Energy Technology

Southern Tier Transportation Alliance. . .Building Next Generation Transportation Technology and Manufacturing

Health Care 2020. . .Integrating Health Care Providers, Higher Education and Cutting-Edge Technology

Revitalizing the Rural Farm- and Forest-Based Economy of the Southern Tier

Strengthening The Southern Tier's Economic Development Backbone

A detailed description of each strategy, the action items required to achieve it, and the projected outcomes and measurable results are presented in Section IV of this strategic plan. Also contained in Section IV is the Council's set of priorities for funding in 2011–12 should the Southern Tier Region be selected as one of the four regions to receive a portion of the \$200 million being made available in the competition.

C. Critical Issues to be Addressed and Opportunities to be Seized

CRITICAL ISSUES TO BE ADDRESSED

In its initial strategic plan, the Council has identified the following as the most critical issues and barriers that need to be addressed in the strategies and specific action items:

- Need to revitalize the region's downtowns and neighborhoods, especially as a result of the devastation from Hurricane Irene and Tropical Storm Lee
- Lack of critical and basic infrastructure, including shovel ready sites, broadband, quality commercial buildings, adequate housing stock in neighborhoods and ground transportation
- Need for improved workforce development, especially in health care and in preparation for growth in the energy industry
- Aging population, with growing demand for health care services
- Growing population with chronic diseases
- Length of time needed to bring research and experimentation to productization

VIBRANT DOWNTOWNS/MUNICIPAL CORES CHALLENGED BY ECONOMY, NATURAL DISASTERS

Vibrant downtowns or town and village centers are at the heart of healthy communities and provide social and cultural experiences for residents in surrounding areas. Healthy downtowns have architectural and historical resources, including commercial buildings and traditional, time-honored geographic community centers with walkable pedestrian-based venues that represent the tenets of smart growth. Downtowns that offer quality, upper-story housing provide an opportunity to attract talent and investment. It is a national and local trend that a talent-based workforce desires downtown housing options, diverse services, cultural experiences, and a legitimate "quality of place." There is an increasing interest for downtown living within the ranks of young professionals, families, and retirees.

The downtowns and community centers in the Southern Tier have unique and historically significant buildings; however, there is a large stock of buildings that require significant rehabilitation to make them viable for both commercial and residential tenants. The recent hurricane and flood compounded this issue. As of September 22, 2011, FEMA had received some 11,000 applications for assistance from Broome, Tioga, Delaware and Chenango Counties for homes damaged or destroyed during flooding caused by the storms. Chemung County's Office of Emergency Management reported damage to an additional 113 homes. A count of applications for assistance suggests the greatest impact on residential areas occurred in Broome County (7,063), Tioga County (2,287), and Delaware County (854).

As of September 20, 2011, FEMA had also received some 1,500 applications from damaged businesses, including 1,003 from Broome County, 191 from Delaware County and 363 from Tioga County. Broome County officials estimate some 600 commercial buildings were damaged or destroyed by

flooding, with damage estimated at \$25.1 million. In Broome and Tioga Counties alone, the New York State Department of State's Division of Code Enforcement estimates total damage value at \$561.2 million. The Chemung County Office of Emergency Management estimates additional loss of \$1 million associated with residential damage. Losses are expected to rise as assessment of flood damage continues.

The state also reported that a total of 1,179 properties have been damaged in Tioga County as the result flooding caused by the storms with a damage value of \$125.6 million. Nearly half of the properties (848) and two thirds of the damage value (\$81.9 million) were classified as major damages.

In the recent past, given unfavorable economic conditions, developers did not have incentive to undertake major rehabilitation of the region's downtown areas. Now, the devastation of businesses and property resulting from the late-summer floods has compounded the challenge. Economic stagnation and flood devastation have created a larger gap in financing strategies to rehabilitate commercial buildings. The result: even more limited ability to develop quality commercial space for business development, entrepreneurial enterprises, and creation of upper-story housing options.

Revitalizing the Southern Tier region's downtown centers will provide opportunities for smart and sustainable community development and growth, increased tax bases and ancillary economic benefits. A movement to revitalize the downtowns and community cores would also play a role in recapturing the value of neighborhoods that have underused or deteriorated public assets.

A significant barrier to renovation of these downtown properties is the inability of property owners and developers to secure long-term, private-sector financing.

What is especially needed are programs that can demonstrate that Southern Tier developers are willing to invest in downtown development if there is an acceptable return on investment and if they can secure "gap financing."

WORKFORCE DEVELOPMENT NEEDS

Energy. Human capital is an increasingly important element in the region's ability to assume a leadership role in the energy industry. There is potential for the Southern Tier to have a highly qualified and vibrant workforce prepared to respond to the emergence of the region's energy industry. Opportunities for projects include wind farm construction and maintenance, retrofitting residential and commercial facilities for adaptation to biomass, expanded research and manufacturing of existing and new solar energy technology products, and potentially, in the future, natural gas extraction. There is a particular demand for welders, hydraulics, rigging, rough terrain forklift operators, and BPI-certified workers. The focus on energy efficiency alone will require training of at least 1,000 expert retrofitters.

Southern Tier community colleges and BOCES are well-prepared to deliver workforce development programs designed for the energy industries that will provide either specific skills or more in-depth education programs that are designed to provide a solid foundation for understanding industrial data acquisition, analysis and communication.

There is the opportunity to build on existing programs at the community colleges such as the many non-credit programs linked to energy businesses at Broome, Corning and Tompkins Cortland Community Colleges. Their faculties and administrators have the experience and ability to take the lead in working collaboratively with energy-related businesses, BOCES, and workforce development boards to offer customized non-credit and credit programs.

For example:

- Corning Community College (CCC) has developed a career pathway program that includes three non-credit certificate programs: a 72-hour natural gas industry training program, a PEC Basic-SafeGulf/SafeLand certification program (which provides an overview of life and safety issues in the oil and gas industry), and a pending welding certificate program. The 72-hour non-credit natural gas industry training program

is a collaborative partnership between Chesapeake Energy, SOS Staffing and Falcon Technologies.

- In addition, CCC has also developed a new associates degree in energy process technology (EPT), which was recently approved by the New York State Department of Education. The EPT degree is the first energy-specific associate's degree program in the region. The program is designed to provide a broad based, technical education that prepares students for careers in energy production settings and general industrial fields.
- Broome Community College (BCC) is one of the only educational centers in the state that is a designated Center for Energy Efficiency and Building Sciences (CEEBS), offering contractors the BPI-certification trainings required by NYSEDA to carry out energy efficiency work funded with state dollars. Also, BCC is one of a handful of sites in New York State that was awarded an advanced computerized structure called a "pressure house," which is used to mimic leaky homes and train contractors in energy efficiency and building sciences.
- Tompkins Cortland Community College (TC3) has offered "green jobs" training for new high school graduates as well as for older students returning to enhance their skills. Having enough workers with BPI certification is critical to implementing the full range of NYSEDA programs in the region. Skills include weatherization and installation of renewable systems (solar, biofuel, and geothermal). TC3's curriculum and experience in offering this hands-on training will be used to expand course offerings in the other regional community colleges. In addition, TC3's SUNY GREENS NY Program is planning to develop a curriculum in biomass using USDA grant funding.
- In 2011, the Tioga County Rural Economic Area Partnership (REAP) launched a new training program entitled Stronger Economies Together (SET) to assist rural economic development with a special emphasis on bio-energy business developments. The program has

partnered with the Tioga Department of Economic Development and Planning, Cornell Cooperative Extension, and the Cornell University Community and Regional Development Initiative (CaRDI), to connect participants with resources.

Regarding the potential for natural gas-related jobs, according to Penn State's Marcellus Shale Education and Training Center, "to bring a single Marcellus well on line requires about 420 individuals across 150 different occupations" (Brundage 2011). The Department of Environmental Conservation (Leff 2011) has projected more than 13,000 jobs in a low-development scenario of the annual construction of 413 gas wells. Each phase of natural gas development includes different workforce demand and varies based on the use of multi-well pads and the need for additional natural gas infrastructure. The need for a trained workforce for this industry will greatly impact the Southern Tier region not only for direct hiring by the large natural gas employers but also from those businesses that indirectly support the natural gas infrastructure (subcontractors, suppliers, etc.).

Advanced Manufacturing. Formation of the Southern Tier Transportation Alliance is expected to grow the region's existing transportation industry, consisting of more than 50 businesses, into a technological hub for next generation transportation development. This will be accomplished by leveraging academic resources together with the region's mass transit, defense transport, hybrid vehicle, and simulation expertise, along with regional transportation agencies to form a Southern Tier consortium of transportation industry leaders. This consortium will catalyze development and productization of next generation transportation technologies. Southern Tier universities and manufacturers already have demonstrated the expertise and partnership required to accomplish substantial growth.

- Avionics/vehtronics expertise at BAE and Amphenol Aerospace
- Power train expertise at Borg Warner and Sikorsky
- Advanced materials expertise at Corning Incorporated and Cornell University

- Simulation expertise at more than 12 companies, including Rockwell-Collins, L3, Binghamton Simulator, Diamond Visionics, and others
- Autonomous vehicle control expertise at Lockheed Martin and Binghamton University
- Sustainable/environmental engineering expertise at Cornell University
- Logistics expertise at Raymond Corporation, Maines, Inc. and Binghamton University
- Vehicle manufacturing at CAF USA and Alstom Transportation

Expansion of advanced manufacturing is expected to generate as many as 500 new jobs and at least nine new spin-off companies during the first five years of the initiative. There is opportunity to leverage existing partnerships with the education sector to expand technical training programs, both credit and non-credit, to prepare the workforce for specialized new jobs, and to encourage future engineers and innovators to work in the Southern Tier.

Health Care. Attracting and retaining highly skilled health care professionals, together with integration of new technology, are fundamental in assuring effective and efficient delivery of health care services in the region.

Increasing incidence of, and costs associated with, managing chronic disease will be major factors affecting economic growth in the Southern Tier and the nation. The Federal Patient Protection and Affordable Care Act of 2010 includes numerous chronic condition and care management provisions, incentivizing development of evidence-based, comprehensive plans for enhancing the quality and effectiveness of disease management, and the information systems required for robust exchange of patient data. The Health Sciences Institute reports that approximately 75% of all U.S. health care spending is attributed to chronic conditions. Yet, both the National Academies of Sciences Institute of Medicine and the World Health Organization have concluded that the current health care workforce is not



Attracting and retaining highly skilled health care professionals remains a challenge for the Southern Tier region.



The health care industry is experiencing a shortage of key health care professionals, especially in nursing and nursing faculty. Partnerships are in place between providers and educators to assure an adequate supply in the future.

prepared for a new health care environment, where chronic, rather than acute or episodic conditions, predominate. Health care policy experts believe that chronic disease prevention and chronic care improvement will be two of the fastest growing fields in health care.

Health care occupational projections for the Southern Tier region through 2018 reflect tremendous opportunities and challenges for the region in the key areas of data and information transfer, rural care, senior living communities and, of no less importance, workforce development.

Demand for workers across all health care occupations will grow by some 2.3% over the next six-plus years. In the Southern Tier, the challenge is the anticipated shortages. Average job openings during the period are estimated at 8,100, while potential projected replacements are projected at only 7,350. Workforce shortages, predicted in occupations ranging from health care academia to nursing and substance abuse counseling, also provide opportunities for collaboration at several levels. The region's colleges and community colleges currently collaborate with health care providers and offer a full range of education programs to support the sector. All are prepared to expand and collaborate with SUNY Upstate Medical University to optimize programming and faculty staffing.

BROADBAND COMMUNICATIONS

The Southern Tier lacks broadband coverage in several regional pockets, which restricts business development, the area's quality of life, and opportunities to develop collaborative and comprehensive strategies. It is currently estimated that 15% of the households and small businesses outside of Broome County do not have access to broadband. Even in Tompkins County, which has a high degree of local connectivity due to Cornell University and Ithaca College, 13.6% of households and small businesses lack access to high-speed internet service.

Residents and businesses in rural areas of the region that are without access to basic high speed internet service cannot participate effectively

2011 Broadband Mapping Project, Southern Tier Region

<i>Characteristics/Services</i>		<i>Broome</i>	<i>Chemung</i>	<i>Chenango</i>	<i>Delaware</i>	<i>Schuyler</i>	<i>Steuben</i>	<i>Tioga</i>	<i>Tompkins</i>	<i>Statewide</i>
Area (in square miles)		715.23	419.9	898.07	1,466.93	342.38	1,404.04	522.34	491.3	54,570.99
Population		200,536	91,070	51,401	48,055	19,224	98,726	51,784	96,501	18,976,457
Housing Units*		88,817	37,745	23,890	28,952	9,181	46,132	21,410	38,625	7,679,188
Census Blocks		4,795	2,831	3,101	3,516	1,668	5,303	2,083	3,193	297,463
Wireline Coverage*		99.14%	98.29%	99.28%	87.00%	94.75%	92.08%	98.34%	97.54%	99.02%
Wireless Coverage*		99.41%	98.54%	87.35%	59.83%	99.05%	94.12%	96.50%	99.85%	99.05%
DSL	# of Providers	8	6	2	8	4	5	3	5	46
	Housing Units Covered*	96.82%	91.19%	98.99%	73.32%	81.37%	77.75%	91.61%	83.40%	95.43%
Cable	# of Providers	3	2	2	3	2	2	2	3	16
	Housing Units Covered*	93.05%	94.79%	74.73%	54.98%	78.88%	81.35%	90.28%	94.48%	96.93%
Fiber	# of Providers	3	1	0	2	2	2	2	1	22
	Housing Units Covered*	23.62%	0.07%	0.00%	6.84%	7.95%	1.61%	3.37%	29.76%	46.80%
Wireless	# of Providers	4	4	4	4	3	4	5	6	14
	Housing Units Covered*	99.41%	98.54%	87.35%	59.83%	93.90%	94.12%	96.50%	99.85%	99.05%
Satellite	# of Providers	3	3	3	3	3	3	3	3	3
	Housing Units Covered*	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

* Based on Census Block 2000 'Housing Units' data.

Source, New York State Office Of Cyber Security (OCS)



IT leadership and research are among assets universities can contribute to revolutionizing health care data exchange.

and fully in today's economy, limiting economic growth and educational opportunities. The lack of high speed service often means that (1) potential employees do not want to relocate to the area; (2) current employees are unable to telecommute; (3) health care providers are unable to extend telemedicine to remote areas; (4) large companies and the universities cannot transfer or exchange large volumes of data; (5) farmers are unable to start new value-added enterprises to enhance their earnings; and (6) residential property values are depressed where internet is unavailable or prohibitively expensive.

There is a critical need to extend both the "middle mile" and the "last mile" to strengthen the region's broadband backbone in response to the need for greater access to high-speed data. Doing so will increase global

competitiveness and catalyze progress during execution of several strategic economic development strategic priorities, including:

- Seamless health care information exchange, which requires equitable digital transmission of patient records, telemedicine, and creation of virtual rural clinics
- Regional entrepreneurial business development, including the needed strategies to retain college and university student talent in the region
- Attraction of new business development, especially those reliant on data processing and transmission and open-access fiber networks
- Partnerships between universities and the private sector to bring about productization of technology and encourage research and development collaboration between the world-class centers at Binghamton University and Cornell University
- Promotion of the region as a tourism destination, as well as increased support of bed and breakfasts, our vibrant arts communities, and other visitor-related businesses in the more rural areas of the Southern Tier
- Telecommuting for employees living in rural areas and/or for organizations that have embraced green initiatives to reduce mass commuting in single-occupancy vehicles
- Development of viable initiatives that would actively encourage rural and home-based businesses and entrepreneurs

There is a model that has been developed for Chemung, Schuyler and Steuben counties, the Southern Tier Network (STN), which is a high-speed "dark fiber" network that could be leveraged for the remaining five Southern Tier counties through proactive cooperation with regional municipalities, as well as with heavy users through lease agreements. Building on the existing STN would offer the opportunity to shorten the start-up cycle by taking advantage of completed work and existing partnerships. Additional

partnerships with the health care, education and the business communities throughout the Southern Tier would be developed to identify the anchor tenants and requirements of the immediate surrounding area.

LACK OF SHOVEL READY SITES

In today's global economy, the amount of time it takes to bring a product or service to market can be more important than the location of a facility. The uncertainty of whether a site can physically meet the demands of any given project, in addition to acquiring necessary regulatory approvals, often presents too much risk for companies looking to expand or relocate—and in most cases the site will not even be considered.

A shovel ready site can either be a greenfield location, an existing building, an infill site or a former brownfield. A greenfield site is considered shovel ready if it has undergone the various permitting, engineering and expansion of basic infrastructure required for new construction based on a community's desired development plan. Where an existing building is prepared for reuse, the preparations for development may also include environmental remediation, but the efficient reuse of infrastructure and community acceptance of reuse can outweigh the added challenges. By their nature and definition, shovel ready sites are equipped with the infrastructure needed for development including natural gas, electric services, broadband fiber, and municipal water and sewer. Rail service is also becoming critical infrastructure. In particular, development of short line freight rail transport offers the Southern Tier region potential to leverage federal funding available through Rail Line Relocation and Improvement (RLR) grants, and to capitalize on opportunities to open the region up to new local and national distribution routes.

The ability for communities to deliver shovel ready sites is critical to the region's economic development success. A shovel ready site provides a community a competitive advantage by not only demonstrating to a company that the site can be developed quickly, but that the community

has planned for the future development and growth of their business base. It also sends a strong message, nationally and internationally, that New York is open for business.

The lack of shovel ready sites along key transportation corridors places the Southern Tier at a competitive disadvantage with other similar communities in the Northeast, especially in Pennsylvania. Traditionally this task has been left to private developers, but due to the lack of private development in the Southern Tier, this task has been left to economic development groups who typically do not have the necessary resources to fund successful ventures.

An inventory of shovel ready sites in the Southern Tier revealed only three such sites in the entire region, at Hornell Industrial Park, Shawmut Industrial Park (also in Hornell) and Schuyler Industrial Park. In addition, there are a limited number of single sites available in the region.

The demand for infrastructure investment exceeds \$30 million. Appendix F contains a list of examples of several sites with investments ranging from \$100,000 to more than \$4 million that have the potential to become attractive shovel ready sites in the region.

AGING POPULATION

The Cornell Program on Applied Demographics (PAD) estimates that the Southern Tier population aged 65 and over will increase by some 35% during the next two decades, composing 22% of the total Southern Tier population by 2030. American Community Survey 2005–2009 data estimate that at present, some 69,000 Southern Tier households include at least one person over the age of 65, or 26.6% of all households in the region. Of those households, an estimated 30,600 are one-person households where the resident is 65 or older and living alone, or some 11.3% of Southern Tier households. As these individuals age over the coming two decades, it is likely that their need for proximity to medical services and resources



The rapid aging of the Southern Tier population and rising rate of chronic disease presents opportunity to explore development of new models of care delivery and alternatives to the fragmented assisted living and long-term care models prevalent today.

required for daily living will increase, and that generally, their ability to live independently may be compromised.

Genworth Financial, source of an annual Cost of Care Survey canvassing long-term care providers nationally, predicts two thirds of individuals over 65 will require home- or institutionally-based long-term care during their remaining lifetimes. Genworth's **New York State-Specific Data from the 2011 Cost of Care Survey** reports the median annual cost of institutional nursing home care in the Southern Tier's major cities is approximately \$100,000 per year, while annual median costs for assisted living in the region are about half as much. Home health aides or licensed housekeepers delivering services in a home-based environment can cost nearly \$50,000 each in the Twin Tiers, according to Genworth. Clearly, expense threatens to be a burden in the future.

Southern Tier living options for aging individuals may not be adequate to meet the needs of the future. Much of the senior care housing (nursing homes) in the Southern Tier is antiquated and has been demonstrated as less than ideal for both the residents' and caregivers' physical and emotional needs. Nursing home care and assisted living are also expensive, beyond the means of most patients in the Southern Tier. As baby-boomers age many may seek housing in age-friendly communities where transitions from levels of need are not accompanied by relocation from known communities and friends. Studies suggest that the trend will shift to one-floor buildings that house 15–30 residents grouped in campus settings. The region's cost of living and open available spaces, compared with population centers, suggest that senior living communities could be developed in these locations and offered at an attractive, lower price, while preserving ease of access to necessary resources and services.

ECONOMIC DEVELOPMENT OPPORTUNITIES TO BE SEIZED

Following an in-depth analysis of the existing conditions, the Council used the work plan groups and community input to further refine the assets and opportunities that could be seized and leveraged to grow the Southern Tier's economy.

The Council identified the following economic development opportunities as the essential drivers to strengthening key industry clusters, fostering start-up businesses, creating jobs, attracting talent and enhancing the quality of life:

- Regional history of innovation and an entrepreneurial attitude
- Natural resources ranging from abundant and clean waterways to wind, sun and natural gas
- Successes and commitment to energy efficiency and use of renewable energy
- Agriculture, in terms of the amount and quality of land, capacity to respond to demand for biomass in support of renewable energy at

Connecting the thriving downstate economy with the upstate region is a compelling opportunity for economic development according to the SUNY Levin Institute. Its New York and the World Project, is a data- and fact-driven initiative aimed at improving New York's competitive position in the world, and sustaining and growing the standard and quality of life of its people. In October it released its primary findings. One of their primary findings cites the need for partnerships between upstate and downstate strengths: "Proximity to New York City, one of the nation's few truly global cities, should be a real asset for upstate metro areas. Unfortunately...connections have not been made between New York City and upstate areas or even between the large upstate metro areas themselves, in large part due to the sheer distance between these centers...Although [New York] has the interstate highway network it does not have adequate rail or air connections linking population and commercial centers." The group observed that greater effort is needed to bring emerging businesses upstate together with the New York City investment and other communities, continuing: "There is also significant potential to create downstate/upstate partnerships in efforts to grow industries such as clean tech and life sciences. For instance, New York City has exceptional research capacities but little room for emerging companies to grow or manufacture products, while several upstate regions have ample space and manufacturing capacity that tech companies require." Clearly, transportation infrastructure is only a part of this major opportunity for growth.

both the small and large scale, opportunities to apply technology for improved crops and operations and the ability to respond to the consumer market

- Strength in advanced manufacturing, with a particularly large concentration of businesses in the energy and transportation sectors
- Internationally recognized research and development anchors, centers for excellence, and incubators located at Cornell University and Binghamton University with particular strengths in energy, informatics, engineering and agriculture research and technology
- Well-established and successful corporations with large national and international markets that are motivated to partner with the research universities to rapidly bring key technology to productization, particularly in the areas of advanced manufacturing, energy and transportation
- Proximity to major markets and key transportation corridors (I-81, I-86, I-99, I-88) that are essential in supporting several industries including advanced manufacturing, tourism and agriculture
- Quality health care providers who collaborate on regional issues
- Both credit and non-credit educational programming for workforce training provided by excellent two and four-year academic institutions including SUNY Delhi, the Norwich Campus of Morrisville State University, and three community colleges including Broome Community College, Corning Community College and Tompkins Cortland Community College
- Communities with charm and character that also are critical factors to retaining businesses, recruiting talent and providing a high quality of life

In identifying these opportunities, the Council understood that it was laying the groundwork for the strategies that would evolve today and tomorrow from collaborative thinking, risk-taking when appropriate, and an aggressive

entrepreneurial spirit. The Council believes the Southern Tier has the potential and the pieces in place to be a leading, business-friendly climate, with an exceptionally trained workforce that assists employers of every size, from major universities to small rural-based business operations.

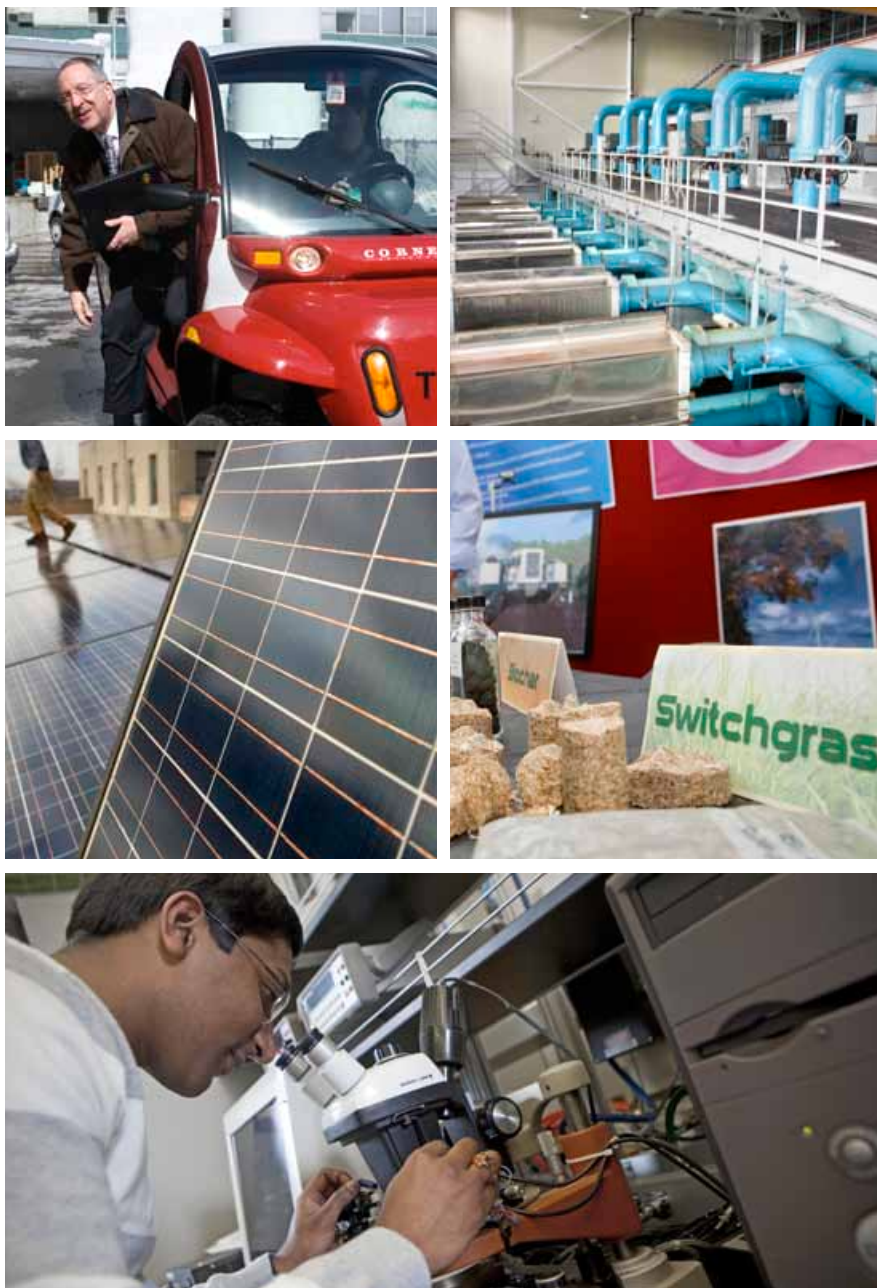
THE ENERGY INDUSTRY

Energy as a source of usable power comes from many resources available in New York's Southern Tier via wind, biomass, solar radiation, and natural gas. Energy in the Southern Tier is a discrete industry and has the potential to be an economic development driver. There is an opportunity to use energy resources available in the region, and to combine use of technology, innovation and training to harness these resources for the benefit of its individual residents, institutions, businesses and major industrial centers.

The overall benefits of a regional approach include the potential to play a leading role in addressing the national energy crisis, reducing energy costs, creating jobs, re-investing in the local economy, reducing pollutants and emissions, and transferring university-based research and development for the direct benefit of businesses and residents alike.

There is also opportunity to leverage New York State's long-term sustainable goals outlined in state policy, such as the New York State's Climate Action Plan and the 45x15 Initiative, and to capitalize on the new On-Bill Financing laws and Green Jobs Green NY, one of the most progressive state policies in the nation dealing with energy efficiency.

Wind Energy. Wind energy plays an ever-increasing role worldwide as a renewable energy source. It is a viable power source with potential to grow from its present share of less than 2% of U.S. electricity production to 20% by 2030. In the Southern Tier, wind can provide environmentally friendly electricity and offers the promise of financial gains to rural communities and landowners. According to the American Wind Energy Association, New York State is one of the top 20 states with wind energy resource potential in the country, with the greatest potential in Steuben, Schuyler and Tompkins Counties. This effort also supports the New York State Renewable Portfolio



The Southern Tier has the natural resources, research centers, manufacturers and entrepreneurs necessary to gain leadership in biomass, solar, geothermal and other renewable fuel source technology and productization.

Standard policy, which calls for an increase in renewable energy used from the current level of 19% to 25% by 2013. Wind energy will play a role in reaching this goal.

Biomass Energy. Biomass energy is a major thrust of renewable energy research at Cornell University, as well as a practical tool available today to increase energy efficiency in homes and commercial buildings throughout the Southern Tier region. The economic benefits related to a biomass energy initiative range from significant cost savings in the commercial sector to the growing of perennial grasses and woody biomass for conversion into biofuels, making productive use of marginal agricultural land in the region. This focus on energy efficiency has the potential to create thousands of jobs and hundreds of small businesses, setting the stage for the rise and growth of a renewable energy industry. Among downstream benefits, the industry could need hundreds of contractors to install renewable energy equipment in residential and commercial buildings. Biomass energy production would also lower energy costs, create a regional market for biomass production, reduce greenhouse gas emissions and increase comfort for homeowners.

The Southern Tier will benefit more readily because of the proximity of large amounts of land to population centers. There exists the resource base, the expertise, and the demand for biomass energy in the Southern Tier.

Solar Energy. Solar energy technology development and transfer to productization affords opportunity for meaningful and productive collaboration between Binghamton University's Center for Autonomous Solar Power and Southern Tier companies, development of industry clusters compatible with the region's glass and electronics manufacturing strengths, and development of green technology.

The future outlook and forecasted economic impact of photovoltaics (PV) at the national scale is very positive. Solar energy technology is the focus of the Center for Autonomous Solar Power (CASP) at Binghamton University, with its latest concentration on developing thin film solar modules that will be a major player in PV technology. In addition, Corning Incorporated has made significant investment in the new technology, and its research and

development facilities are actively engaged in testing manufacturing and product development. The research involves tapping into the sun's supply of renewable energy and making it accessible as a flexible, large-area and low-cost power source. This technology mimics nature's own energy-conversion process. Potential applications include devices that will charge cell phones and laptops without the use of batteries.

Natural Gas. Natural gas has the potential to be among the largest energy industries in the Southern Tier. Regardless of the outcomes on the current EPA and DEC analyses regarding horizontal hydrofracking, the region already has both a natural gas production industry and growing pipeline infrastructure. Natural gas has been an economic driver for employment and manufacturing throughout the Southern Tier and remains a competitive



The Cornell University Renewable Bioenergy Initiative (CURBI) plans to turn Cornell's "biotrash" into a sustainable source of biofuel to power the university. The program could be a model not only for the state but also for the country.

advantage available to local industry. The Southern Tier of New York and Northern Tier of Pennsylvania are geographically contiguous regions and contain some of the largest natural gas resources in the world with the potential for major job creation and development of support businesses. The region needs to prepare for growing economic benefit related to development of the natural gas industry by preparing its workforce to respond to the job growth opportunities.

As previously noted for the record by this Council, high-volume hydraulic fracturing for natural gas is an issue being studied very closely by the US EPA and is currently under regulatory review by the NYS Department of Environmental Conservation. The outcomes of these proceedings will have profound impact on the Southern Tier economy and most of upstate New York. This Regional Economic Council will pay close attention to the developments at the state and federal governments. Until there is a regulatory structure in place, we would not want to prejudge the experts and our Regional Council is not requesting state resources at this time.

Commitment to Diverse Energy Sources. The Southern Tier has proven experience within the renewable energy industry. Cornell Cooperative Extension of Tompkins County's consumer-based, educational and marketing strategies promoting energy efficiency have driven exceptional market demand and job creation. Binghamton University and Cornell University operate recognized research programs in solar and biomass, respectively. Private sector corporate leaders are deeply involved in energy technology research and manufacturing, from Corning Incorporated and Endicott Interconnect Technologies to New England Wood Pellet LLC in Deposit, the largest wood pellet manufacturer in the Northeast. Some of the New York's most forward-thinking energy curricula are in place now at Corning Community College and Broome Community College. Because plentiful natural resources are unique to our area, marginal agricultural land and natural gas deposits can be sustainably and responsibly tapped to renew our region's economic competitiveness and vitality.

Many partners in the Southern Tier are ready to assume a leadership role and fill a major policy void, marshaling all of our strengths, assets and resources to demonstrate the power of a bold, sustainable, collaborative and transformative energy initiative. We believe that initiative could serve as a leading model for the nation and other states seeking to achieve sustainable economic and community development while improving social and environmental health for future generations.

There is an opportunity for the Southern Tier region to make strategic investments that will lead to a much-needed transition from a volatile economy that is over-reliant on global energy supplies and nonrenewable fossil fuels and burdened by high energy prices and inefficient buildings, to a resilient economy strengthened by natural gas resources and regional production of diverse, renewable energy sources and technologies. The resulting low energy costs and energy-efficient structures will leave the Southern Tier with more financial resources to reinvest in its growth.

Southern Tier residents and businesses will benefit disproportionately from a transition to more efficient energy generation and use. With 6% of homes heating primarily with wood and another 10% relying on propane, this region of New York is in need of dramatic improvements in energy infrastructure to improve economic and public health and safety conditions.

University/Industry Partnerships for Energy Technology Productization.

The Southern Tier's future national and global competitiveness will derive from its powerful resources focused on development and deployment of energy technologies for today and tomorrow. There is the opportunity to encourage innovation, facilitate energy technology productization, diversify and grow businesses, create sustainable jobs and train a qualified workforce in the Southern Tier region's key industry clusters.

There are already Southern Tier industry leaders with a focus on energy technology and energy-related product development. These include: **Lockheed Martin**, which recently commercialized a distributed-generation biomass CHP solution; **Corning Incorporated**, whose expertise in flexible transparent electronics has applications in solar PV, LEDs, and beyond;

BAE Systems, a leader in systems development of battery and fuel cell systems for hybrid buses; the teamwork of **Raymond Corporation**, a global leader in electric forklifts, and **Plug Power**, whose partnership enables hydrogen fuel cell powered models; **Binghamton University** is a global leader in high-accuracy roll-to-roll electronics manufacturing and in electrical energy storage; and **Cornell University**, an emerging leader in materials development for fuel cells and, more recently, for batteries and super-capacitors. The region's three community colleges are successfully advancing the development of courses of study matched with the workforce needs of this sector.

One important hurdle in moving ideas into the marketplace is known as the "valley of death" early in the life of new technologies. New York State has existing programs that successfully help companies bridge this first gap; a fitting example is the NYSTAR Centers for Advanced Technology (CAT)



Lockheed Martin in Owego, NY is among Southern Tier leaders in biomass fuel technology.

program. Cornell University is a contributor to the CAT for Future Energy Systems (CFES) together with Rensselaer Polytechnic Institute in Troy, and houses the Center in Life Sciences.

Binghamton University has long directed a successful CAT in microelectronics manufacturing. The success of such programs shows that strategic technology transfer led by managers that are experienced with both labs and markets, greatly accelerates marketability and improves the success of translating new concepts from the lab to market. But these programs do not go far enough. An equally daunting but less understood “valley of death” also exists just before the launch of new products.

Today, there is a critical need for targeted programs in prototype-proving and pilot-scale development, to minimize investor risk and decrease the time to market, enabling successful passage through this second “valley of death.” As stakeholders throughout the Southern Tier and beyond engage in energy upgrades, investment in the industry leaders in this sector and working together with universities has the ability to quickly produce dividends from increased exports, both regionally and beyond. Such long-term growth is key to attracting and retaining talent in the area. There is the opportunity for a targeted alliance of existing regional assets to yield tangible research and development, demonstration and product deployment results, while building an innovation cluster in the energy technology sector.

Moreover, this essential focus is informed by greater New York industry strengths in battery and energy storage, energy efficiency and renewable energy, flexible electronics, and hydrogen and fuel cells, plus the quickly growing global market opportunities for advanced energy products. The opportunity for “market pull” can be strengthened by existing activities such as New York’s Renewable Portfolio Standard (RPS) net metering and the new On-Bill Financing, industry-led consortia such as NY-BEST and NYH2, and clear regional leadership in roll-to-roll manufacturing (BU-CAMM). Applying this partnership expertise to this important sector will enable projects for near-term success and long-term economic growth.

THE AGRICULTURE INDUSTRY

Across our eight-county region, sustainable agriculture and forestry, including renewable energy, offer the opportunity to contribute to the agricultural sector in ways that balance economic prosperity, environmental stewardship and social equity. Rural landowners and residents are often overlooked by traditional economic development efforts, contributing to locally high unemployment and rural poverty. Stimulating and revitalizing the rural land-based economy provides a long-term, sustainable economic development opportunity that capitalizes on the skills and initiative of rural residents.

The Southern Tier abounds in resources to revitalize the rural farm- and forest-based economy and improve the opportunity for long-term sustainability, to support a more powerful economic driver. Five of the eight Southern Tier counties are among the fastest-growing agricultural regions in New York State.

As illustrated in Section II of this plan, *Regional Assessment of Existing Conditions and Economic Opportunities*, agriculture represents a relatively small share of the total job base of the region (approximately 2%) but a very large portion of the private sector land base (29%). The latest data available show that Steuben County had the largest percentage of land area in farms (42%) while Delaware had the smallest (18%). According to the 2007 Census of Agriculture, the number of farms in the region declined from 2002 to 2007, and land acreage in farms contracted, but the market value of products sold and the average sales per farm increased significantly. Farming continues to be an important industry cluster in the Southern Tier, with related opportunities and profits showing marked potential.

The Southern Tier has many opportunities to leverage its resources to stabilize and grow the agricultural base, and is home to many success stories in agricultural diversification, value-added products, innovative marketing, renewable energy and agricultural tourism.



Cornell University has nationally and internationally recognized strengths in agriculture, including new food product development, biomass production and innovative production techniques. The university is a center of technological innovation in agriculture and has a long history of applied innovation in the Southern Tier.

For example, SUNY Delhi offers the COE in WATER, an economic development initiative that will create an innovative, sustainable public/private job creation project to benefit major agri-business.

A valuable resource that has contributed to this success is Cornell University, New York's land-grant institution. Cornell has nationally and internationally recognized strengths in agriculture, including new food product development, biomass production and innovative production techniques. The university is a center of technological innovation in agriculture and has a long history of applied innovation in the Southern Tier region.

Not only does Cornell's College of Agriculture and Life Sciences (CALS) help grow the state economy, it is also growing the next crop of entrepreneurs thanks to curricula that develop leaders in the boardroom and in the laboratory, complemented by additional outreach programs in schools across the state.

Examples of Cornell's recent impact on New York State in agriculture include these contributions:

- Cornell continues to collaborate with and improve the region's \$3.8 billion wine industry, which employs 17,000 people. Grape value was \$68.4 million in 2010. The simple creation of a new grape-and-wine classifieds site generated \$1.2 million in transactions for New York State producers.
- A new licensing agreement with New York Apple Growers, LLC, will help to promote the competitiveness of the state's \$223 million apple industry, which employs 17,500 people, by giving New York growers exclusive rights to new varieties.
- The development of new specialty maple products has helped double the value of the maple syrup industry, from \$7.5 million in 2004 to \$17.8 million in 2008. The maple industry in New York State is a key target for further development.

- With more than 65 research and extension projects in organic agriculture, CALS has helped New York become fourth in the nation in organics, with 827 farms and \$105 million in sales.

A variety of new processing operations and new products are being developed in the region today to increase productivity and revenue to agricultural businesses. The wine industry is an example of how agriculture has attracted talent from around the world to the region's agricultural sector.

Governor Cuomo's Fresh Connect Farmers' Markets initiative and similar programs will additionally advance the agriculture industry in the Southern Tier. There is also a significant private sector investment in infrastructure to support processing and marketing of value-added products that can be expanded to cover more of the region and more agricultural and forest products. But experience has shown that traditional financing sources will not support the acquisition and implementation of new technologies in the agricultural sector.

Agricultural economic development can be achieved through product development, business infrastructure development and the use of new technology. Start-up farm operations, value-added processing and marketing, and new product development can all contribute to new job creation in the rural economy and in the small communities of the Southern Tier. Specifically, there is opportunity to:

- Add value to agricultural and forest products
- Diversify the agricultural economy
- Attract new farmers
- Promote regional products
- Develop additional farm-to-market operations including new wholesale and marketing businesses
- Increase revenue and long-term sustainability of agriculture and forestry businesses

To illustrate, consider three representative Cornell University accomplishments:

- **The development of mathematical models to predict the movement of nutrients and pesticides from agricultural systems to surface and groundwater.** These models have been used to establish pesticide and nutrient management regulations, improve the management of agricultural systems to reduce their impact on the quality of water resources, and increase our understanding of how chemicals move through soils and watersheds.
- **Advances in agricultural science.** Molecular genetics of wheat, rice, tomato, pepper, oat, barley, and sugarcane with the first molecular maps, quantitative trait loci, and comparative maps of the grasses were generated at Cornell. Based on the work of a series of Cornell plant breeders and molecular geneticists, the first molecular genetic maps were developed for several species of grasses and solanaceous crops. Among other uses, these landmark discoveries will guide practical recommendations for determining the best locations for growing specific crops.
- **Innovation in pest control.** Pioneering novel approaches to enhancing pest resistance across multiple crops, Cornell plant breeders developed the multiline concept for enhancing disease resistance, providing an alternative to the boom and bust cycles that often followed the development and deployment of single major resistance genes, especially in the cereal grains. Ultimately, these discoveries will help farmers to reduce pesticide use.

Across our region, homegrown success stories are playing out in new and/or enhanced farmers' markets and local food movements, with a growing number of restaurateurs specializing in local cuisine based on locally produced vegetables, fruits, meat and wines.

Investment in new agricultural technologies has also helped expand local agriculture productivity. For instance, Cornell's new raspberry variety,

Crimson Giant, was developed specifically for upstate New York's climate and will extend the harvest window for fresh, local raspberries into the beginning of November. The late harvest requires a protected production system such as "high tunnels" to shield the flowers and fruit from fall frost. (High tunnels are structures composed of hoops of metal or plastic covered by plastic sheeting. Unlike greenhouses, they do not have a foundation and are generally not heated, hence, they are highly affordable.)

The Crimson Giant is a product of Cornell's small fruits breeding program, established at the New York State Agricultural Experiment Station in Geneva in 1882. Since then, breeders have produced more than 80 berry varieties for production in New York and abroad, with two new strawberries slated for release in 2012.

Renewable energy, including biomass production (see previous subsection), and processing and production of sustainably certified forest products also provides fertile ground for economic development opportunities based on New York State agriculture.

THE TRANSPORTATION INDUSTRY

There is a large and successful transportation business sector in the Southern Tier, which comprises more than 50 companies involved in all aspects of the transportation industry ranging from mass transit to defense transport to hybrid vehicles. Further, these companies span the geographic region, from Alstom in Hornell, to Corning Incorporated, to Sikorsky and CAF USA in Big Flats and Elmira, to Borg-Warner in Ithaca, to Lockheed Martin in Owego, to BAE Systems in Johnson City and Rockwell-Collins in Binghamton, to Amphenol Aerospace in Delaware County.

Existing resources and talent have the potential to leverage their expertise, making the Southern Tier the New York State hub for next-generation transportation development. Specific examples include:

- Avionics/vehtronics expertise at BAE and Amphenol Aerospace
- Power train expertise at Borg Warner and Sikorsky



Partnerships among Southern Tier researchers, innovators and manufacturers continue to transfer technologies and advance manufacturing, developing ever more sophisticated and energy efficient transportation vehicles.

- Advanced materials expertise at Corning Incorporated and Cornell University
- Simulation expertise at more than 12 companies, including Rockwell-Collins, L3, Binghamton Simulator, Diamond Visionics, and more
- Autonomous vehicle control expertise at Lockheed Martin and Binghamton University
- Sustainable/environmental engineering expertise at Cornell University
- Logistics expertise at Raymond Corporation, Maines, Inc., and Binghamton University
- Vehicle manufacturing of CAF USA and Alstom Transportation
- Hybrid transportation power system development and vehtronics leadership at BAE Systems Robotic and autonomous vehicle control leadership at Lockheed Martin in collaboration with Cornell and Binghamton Universities
- Emission control expertise at Corning Incorporated
- Transportation simulation development and manufacturing leadership at Rockwell-Collins

There is opportunity to grow the transportation industry to achieve cost-reduction initiatives, enhance transportation power generation systems, improve freight management systems, and use alternative transportation systems to interconnect the upstate region (specifically, high-speed ground transportation). In particular, there are opportunities to:

- Develop and promote innovation in transportation technology and applications in all transportation sub-sectors, specifically through convening leaders in the Southern Tier transportation manufacturing and service industries to identify opportunities for innovation with high likelihood of large impacts within and beyond the Southern Tier.
- Build an advanced and efficient ground transportation network that will connect the Southern Tier with upstate and downstate markets that have strong demand for products manufactured or produced

within the region, bridging infrastructure gaps that currently impede distribution.

- Coordinate with the Energy Development Alliance of New York—EDANY to share technology and resources to achieve common economic development goals.
- Establish the correlation of wealth retention and development of efficient local and regional transportation infrastructure by measuring increases in return on investment, reduction in workforce transportation costs, and increases in salary tied to new job creation in the region.
- Investigate and measure return on projects in this sector that have globally demonstrated, even from rural communities, a high rate of return (leveraging costs from energy savings and emissions reductions) and new employment opportunities at the state, local, business and individual levels. Some examples include initiatives in BRT (bus rapid transit), car share programs and NMT (non-motorized transport).

There are numerous factors on which to build. These are among considerations:

- Transportation is the fourth largest industry in the United States, after housing, health care, and agriculture, but unlike the three larger industries, development tends to occur in regional centers. The U.S. transportation industry is a \$1.2 trillion industry employing close to 10% of the American workforce.
- The transportation industry in New York State currently generates economic activity of more than \$800 billion and directly or indirectly employs close to one million people.
- The region has excellent access to many of the largest users of mass transit equipment in the country. The New York Metropolitan Transit Authority (NYMTA) is arguably the largest transit authority in the world and prefers to keep as much spending in New York State as possible. As many as 30 local companies currently serve as primary suppliers to

the NYMTA in addition to several other prominent transit authorities in the Northeast corridor such as WMATA, SEPTA, MBTA, NJT and MTA (Maryland Transit Authority).

- The industry offers exceptional opportunity for technology transfer such as environmental applications, rail and flight management systems, and improvements in hardware and operating software. Examples are on-going demand for high-technology flight systems (in particular, helicopters) and anticipated future demand for associated parts.
- Increasing energy and environmental regulation of transportation are opportunities for research and development and product development at local companies such as Corning Incorporated and BAE.
- A large portion of transportation work in the region is linked to defense, which has a boom and bust cycle, creating periods of underuse of capacity. These periods can be filled with projects related to the development of the commercial transportation industry.
- The NYMTA alone expends over \$1 billion annually and desires to keep as much of the spending in New York State as possible. The Southern Tier needs to capitalize on that opportunity, with an objective of winning at least 75% of the NYMTA bids for an incremental \$750 million in revenue with value added of \$375 million. Given 50% of the value added is in wages, and at an average wage of \$45,000, new job creation is estimated at approximately 4,000 jobs.
- The Southern Tier's transportation industry has numerous applications for technology transfer, such as environmental applications, rail and flight management systems, and improvements in hardware and operating software.
- The industry has and may continue to develop power systems based on natural gas, a natural resource that is plentiful in the Southern Tier.
- The region has good access to many of the largest users of mass transit equipment in the country.

- The region has excellent academic technical capabilities in Cornell University (leaders of the seven-university research consortium on transportation at the NYS Department of Transportation) and Binghamton University, and resources in its colleges and community colleges for talent development and training.
- The Southern Tier has been home to several innovative research and implementation efforts. One example is the initial research into personal rapid transit, and the 2008 international Podcar conference held at Cornell University, as well as subsequent feasibility studies that identified a need for a test-track proving ground for this technology as a first step toward productization.

THE HEALTH CARE INDUSTRY

The Southern Tier has a recognized regional strength and resource in its health care industry, but the industry faces critical issues and opportunities in its role as an economic development driver. Competition among large systems occurs in overlapping market areas and simultaneously presents a challenge. There is potential to integrate the region's health care providers, higher education and cutting-edge technology in ways that would strengthen the health care industry's long-term sustainability and leverage the technology development and education provided by academic institutions.

Five integrated health care systems serve the population of the Southern Tier, representing one of the region's largest employment sectors. These are: United Health Services, Broome County NY; Our Lady of Lourdes Memorial Hospital, Broome County NY; Guthrie Health, Bradford County PA; Arnot Health, Chemung County NY; and Cayuga Medical Center at Ithaca, Tompkins County NY.

Each system offers preventive and wellness services, primary and multispecialty physician practices, inpatient and outpatient hospital care, rehabilitative care, and more, to regional, overlapping market areas. Each

maintains regional physician offices located in selected rural and populous localities to improve access to preventive, diagnostic and therapeutic services, and outpatient care. Each, individually, has begun implementation of advanced computerized medical records, digital imaging technologies, telemedicine, and state-of-the-art health care information systems. Consistent with the Patient Protection and Affordable Care Act of 2010, each provides, monitors and continuously improves outcome-based patient care according to quantitative best practices and measures. Because the Health Sciences Institute estimates some 75% of health care spending is attributable to managing chronic conditions, a collaborative approach to managing patients and costs will be critical in the future. Finally, each, to varying degrees, faces the challenge of recruiting a highly-skilled, well-trained, specialized workforce to continue to provide services of the highest quality.

The region's systems have invested in state-of-the-art electronic medical records applications, digital imaging technology, computerized pharmacy applications, and telemedical infrastructure and applications, linking them to larger, more specialized centers of excellence elsewhere in the state. They have begun to employ these advanced technologies to support outcomes-based delivery of health care services, using accepted standards of care applicable to specific patient populations. Computerized medical records, for example, allow physicians to monitor patients within their panels with a specific diagnosis, monitor the effectiveness of interventions, compare outcomes and apply those with the best results to the entire group, thus elevating the quality and effectiveness of care. Progress suggests that our region's systems are evolving into Accountable Care Organizations (ACOs), as described in the Federal Patient Protection and Affordable Care Act of

2010. The ACO model is built on a structure that emphasizes measurable quality improvement and reduction of cost (McClellan, McKethan, Lewis, Roski, and Fisher, 2010), and has these basic attributes:

- Provider-led organizations with a strong primary care base that is accountable for quality and costs across the full continuum of care for a specific patient population
- Reimbursement tied to measureable cost reduction and quality improvement
- Quantitative performance measurement and continuous improvement of outcomes based on experience and introduction of new best practices

The ACO model is particularly relevant for management of chronic disease, given the emphasis on ever more effective care with ever lower cost. Each of the major health systems in the region has in place the technology, quality management mechanisms and provider complement to succeed in delivering next generation care to patients with chronic disease. But to date, each has worked independently, using proprietary software and systems, progressing at different rates. Further, many struggle with primary care physician shortages and difficulty in recruitment. Were systems to collaborate and cooperate through a regional umbrella organization focused on chronic disease management, best practices could be shared throughout the region, and the benefit of the health systems' considerable investment in technology, care management and quality improvement could be shared.

Results of the federal Behavioral Risk Factor Surveillance System survey (2008–9) estimate the percent of individuals who visited a doctor for routine

	<i>National Benchmark</i>	<i>New York State</i>	<i>Broome County</i>	<i>Chemung County</i>	<i>Chenango County</i>	<i>Delaware County</i>	<i>Schuyler County</i>	<i>Steuben County</i>	<i>Tioga County</i>	<i>Tompkins County</i>
Ratio of population to primary care physicians, 2009	631:1	689:1	698:1	1,172:1	1,185:1	1,701:1	1,258:1	1,135:1	1,620:1	702:1

Source, Robert Wood Johnson Foundation

care within the past year is generally lower in the Southern Tier than in the state. Considerable variances exist in more rural counties where access to care may be more challenging.

To assure access to continuing primary care, timely screenings and wellness counseling, an adequate supply of accessible primary care providers must be maintained with easily accessible practice locations, particularly in rural regions without major health care facilities. Yet, according to the Robert Wood Johnson Foundation, the Southern Tier region is experiencing a shortage of primary care physicians, despite the recruitment efforts of its major health care systems.

Many areas in the region face shortages in physician specialties, notably primary care, and in critical health care clinical occupations, especially nursing. The region's education sector is addressing these shortfalls on two fronts: (1) four-year and community colleges offer health care curricula to train nurses and other allied health care professionals to meet growing needs, and (2) advanced educational programs are in place to train physician assistants, nurse practitioners and other mid-level providers. Health systems rely on mid-level providers in the primary care setting to partner with physicians and provide appropriate patient care, thus expanding primary care practice capacity and mitigating provider shortage to a degree. Intensified collaboration of health systems and the many educational institutions in the Southern Tier region will create the platform for expanding and adding curricula to prepare clinicians and allied health professionals in occupations with the greatest shortages.

The region's major providers have adopted telemedicine, but have not aggressively linked with rural regions because of the cost associated with a build-out of broadband infrastructure. Collaboration between expert informatics faculty at Cornell and Binghamton Universities and the health industry have the potential to provide a more cost effective solution, using a substantially different approach to resolve issues of cost and access.

In fact, as a result of the Regional Council bringing together university experts and the health care providers, the process has begun. University researchers are discussing partnering with health care providers in the region to intersect information science, computer science and health care with the goal of integrating IT systems for exchange of electronic medical records, a step toward removing the barrier to record exchange. The project has the potential to significantly improve the acquisition, storage and retrieval of health care information, which will enhance the ability of the health care providers to respond to patient needs in an efficient and cost effective manner. In turn, this next generation exchange could provide the magnetism to continuously attract health care providers to the region.

Aging and Health Care Delivery. Accommodating the health care and living needs of the aging population in the Southern Tier region is a challenge that will only become more compelling with time. The Cornell Program on Applied Demographics (PAD) estimates that the Southern Tier population aged 65 and over will increase by some 35% during the next two decades, comprising some 22% of the total Southern Tier population by 2030.

	Broome County	Chemung County	Chenango County	Delaware County	Schuyler County	Steuben County	Tioga County	Tompkins County	NYS
No health insurance among adults, 18-64 Age Adjusted	13.4	15.7	16.5	17.8	25.8	18.4	11.9	12.8	15.7
Visited a doctor for routine care within the past year among adults, Age-Adjusted	68.8	69.9	61.5	66.8	70.8	64.5	63.5	68	72.7

Sources, New York State Department of Health, 2003–2007 Cancer Registry Data as of June, 2010, & CDC Behavioral Risk Factor Surveillance System (BRFSS), 2008–9. Highlighted cells represent rates higher than the New York State average.



The rapid aging of the Southern Tier population and rising rate of chronic disease presents opportunity to explore development of new models of care delivery and alternatives to the fragmented assisted living and long-term care models prevalent today.

American Community Survey 2005–2009 data estimate that at present, some 69,000 Southern Tier households include at least one person over the age of 65, or 26.6% of all households in the region. Of those households, an estimated 30,600, roughly half, are one-person households where the resident is 65 or older and living alone, reflecting 11.3% of Southern Tier households. As these individuals age over the coming two decades, it is likely that their need for proximity to medical services and resources required for daily living will increase and that generally, their ability to live independently may be compromised.

Genworth Financial, source of an annual Cost of Care Survey canvassing some 15,500 providers of long-term care in 432 U.S. regions, predicts two thirds of individuals over 65 will require home- or institutionally-based long-term care during their remaining lifetimes. Genworth's **New York State-Specific Data from the 2011 Cost of Care Survey** report the median annual cost associated with several levels of adult long term care as follows:

The rapid aging of the Southern Tier population also presents opportunity to explore development of new models of care delivery, alternatives to the fragmented assisted living and long-term care models prevalent today. To become truly competitive as a destination for new business ventures, the Southern Tier region must aggressively address competition among health care providers and encourage collaborative efforts that will reduce chronic disease, improve access to care, and optimize health care outcomes while driving down cost.

Many of the Southern Tier's businesses, health departments, health systems and health-related organizations sponsor wellness and prevention programs and services designed to reduce the incidence of chronic disease in the region's populations. These individual commitments to residents and employees within the region form a fundamental base for an integrated initiative based on that shared vision. The Southern Tier is fortunate to have the resources of nationally recognized universities, thriving community colleges, state-of-the-art health systems and providers ready to collaborate and catalyze progress, to comprehensively meet the challenge of the ever increasing burden of chronic and anticipated expense.

<i>Annual Median Cost</i>	<i>Binghamton</i>	<i>Elmira</i>	<i>Ithaca</i>
Institutional Nursing Home Care	\$ 110,000	\$ 116,800	\$ 97,090
Assisted Living	\$ 54,765	\$ 40,185	\$ 68,322
Home Health Aide Services	\$ 49,489	\$ 45,485	\$ 52,624
Licensed Homemaker Services	\$ 46,332	\$ 41,481	\$ 50,908

Source, Genworth Financial, New York State-Specific Data from the 2011 Cost of Care Survey

D. Public and Stakeholder Engagement Process

Broad stakeholder and public engagement, along with forthright, collaborative discussions, are critical to the success of any regional planning effort and were fundamental in development of the initial five-year Southern Tier Region Economic Development Plan.

To reach a shared vision, planners must reach out to every critical constituency, acknowledging realities and differences, encouraging lively discussion and finally, catalyzing consensus-building from within.

To begin this process, the Southern Tier Regional Development Council (the Council) scheduled intensive discussions, interviews and public forums throughout the region designed to engage key stakeholders and the general public in meaningful dialog. Execution of the plan maximized citizen involvement in the information-gathering process and assured comprehensive identification of issues and opportunities from across the Southern Tier and its economic sectors. Public feedback helped the Council to identify the region's specific needs, craft proactive, practical strategies, and capitalize on the Southern Tier's unique strengths and assets while addressing its most compelling issues. Throughout the strategic planning process, the Council and staff monitored the effectiveness of its public engagement efforts and made adjustments to continually improve the depth and quality of feedback.

In the end, the public and key stakeholders—residents, employers, government leaders, educators, community leaders, and representatives from the Southern Tier's public and private organizations—joined the Southern Tier Regional Economic Development Council in collaboration, creating a comprehensive economic development plan designed to elevate the Southern Tier to highly competitive status.

Approaches to public engagement included the following:

Governor Cuomo's Regional Council Website

The Regional Council Website was established to serve as a one-stop clearinghouse for information about Governor Cuomo's overall initiative and each of New York's ten Regional Economic Development Councils. Southern Tier Council documents and information were uploaded to the public website (<http://nyworks.ny.gov/content/southern-tier>) regularly during the planning process, and have been communicated to the media via press releases and other media notices. Postings included draft and final versions of the strategic plan and its components, including the Council's vision statement, public engagement strategy, project priority ranking criteria and Consolidated Funding Application (CFA) endorsement standards. Postings to the website will continue as the Council progresses.

To date, all Council meeting dates, public forums and other news related to the planning process have been announced on the website as well as the Council's results, including PowerPoint presentations, SWOT analyses, and summaries of public input. The Council also solicited public comment and suggestions via the website and received more than 9,000 responses, all of which were reviewed by Council staff and shared with Council members.

In addition, website postings included general and detailed information about the Southern Tier Region, staff contact information, the Council membership list, and FAQs pertaining to the ten Regional Councils for public review.

Surveys

At the outset of the planning process, Council members participated in a survey seeking initial opinions about key economic development issues in the Southern Tier region. The results of that survey were shared with the Council's many work plan groups, forming the shared base from which they would work.



The Council and staff then sought public perspective on critical issues, opportunities and assets within the region, also early in the planning process via a web-based survey publicized through news releases and extensive email outreach to stakeholders as well as at the public forums. The Southern Tier Stakeholder/Community Survey presented 22 economic development opportunities selected for further study by the Council, and asked respondents to rank their opinion of the influence of each on economic growth within the Southern Tier, with the option of offering no opinion.

Questions asked for opinions in these general areas:

1. Adequacy and reliability of infrastructure and transportation
2. Government inefficiency and overregulation
3. High taxes and high cost of doing business
4. Workforce development and training
5. Business capital and lack of quality buildings
6. Promotion of local agriculture and tourism industries
7. Strengthening of university and economic development partnerships
8. Natural gas industry and Marcellus Shale
9. Improvement of access to transportation systems and infrastructure
10. Clean energy
11. Quality of higher education institutions
12. Natural beauty and resources
13. Natural gas and energy
14. Low cost of living and high quality of life
15. Globally recognized businesses
16. High taxes
17. Prevailing economic development issues
18. Natural gas industry, Marcellus Shale and hydrofracking
19. State regulatory process and procedure

20. Infrastructure and transportation issues

21. Energy costs and availability

22. State mandate relief

Nearly 1,900 respondents participated in the web-based survey. Results, tabulated by staff, were shared with the Council its work plan groups, and assisted the Council in selecting the final key strategies in the plan. A sample of the survey tool and summary of responses to each question are summarized in Appendix C. More than 9,000 free-text comments also were received and can be seen on the Council's website (<http://nyworks.ny.gov/content/southern-tier>).

Public Forums

Five public forums were held in Binghamton, Norwich, Corning, Ithaca and Delhi to solicit input on the strategic plan. In total, 445 community members participated in the forums, including active participation by Council and work plan group members at each location. The forums were advertised to the general public through press releases, the public website and email notices to stakeholder lists developed by Council members, work plan group members and Council staff. Additionally, Council members and staff reached out to county and local leaders for assistance in coordinating and publicizing the forums. Local media sources provided extensive coverage of the forums, both in advance of and following each event.

The format was standardized and included a PowerPoint presentation by the Regional Council Executive Director communicating a thorough overview of Governor Cuomo's Regional Council initiative and detailed information on the Southern Tier Council, which was followed by table discussions. The presentation outlined the Southern Tier Council's draft vision for economic growth, the Council's organizational structure, the work plan groups' charges, timelines and deliverables and a summary of work plan group findings to date, including strengths and opportunities, strategic plan scoring criteria, draft project priority ranking criteria, and draft endorsement standards for Consolidated Funding Applications (CFAs). Table



To begin this process, the Southern Tier Regional Development Council scheduled intensive discussions, interviews and public forums throughout the region designed to engage key stakeholders and the general public in meaningful dialog.

discussions were structured around the Council work plan groups' study areas: infrastructure, energy, business development and entrepreneurship, technology transfer and development, downtown revitalization and community development, health care, agriculture, and tourism. This format fostered effective and meaningful engagement of the participants and resulted in valuable input to the planning process. At the end of each table discussion, a spokesperson for each group presented findings and recommendations to all forum participants.

In addition to the table discussions, forum participants were provided comment cards on which to provide additional comments and suggestions. More than 130 written comments were received and tabulated by staff.

These comments were shared with Council and work plan group members via a posting on the Council's internal website.

During the initial five public forums, summaries of public input from each forum were posted on the public website and can be seen at <http://nyworks.ny.gov/content/southern-tier>. The results of the public input also were distributed to Council and work plan group members via the internal website for consideration during the planning process. Toward the end of the planning process, a final public forum was held in Binghamton on October 24, 2011 to collect feedback on the draft plan. As with previous forums, this event was advertised to the general public through press releases, the website and extensive email notices. Twenty-two people attended the forum, where the draft strategic plan was presented and public comment was received.

Council Meetings and Work Sessions

With the exception of the inaugural Council meeting, which served as an orientation for members, at least a portion of each Council meeting was open to the public. Each open portion included an opportunity for public comment, and offered attendees the opportunity to observe discussion and action taken by the Council.

Work Plan Groups

The Council established eight work plan groups at its inaugural meeting to address key issues and opportunities within the region. These work plan groups included: Agriculture, Energy (natural gas, wind, solar and biomass), Health Care, Infrastructure (IT/broadband, water, sewer, roads and rail), Technology Transfer and Development, Tourism, Downtown Revitalization and Community Development, and Business Development and Entrepreneurship. Each Council member selected work plan group(s) in which to participate and also identified community stakeholders in the region to participate. During the planning process, additional stakeholders were added to the work plan groups and/or participated in meetings as subject matter experts. In total, more than 160 community members were part of the eight work plan groups.



In addition to the work plan groups, a Data Committee was established that consisted of staff from the NYS Departments of Labor and State, Cornell University, the Southern Tier East Regional Planning and Development Board, and the Southern Tier Central Regional Planning and Development Board. This committee responded to the needs of each work plan group by identifying and/or collecting existing studies, reports and plans and by providing additional data or information as requested by the groups.

An internal website was developed and hosted by Binghamton University for all Council and work plan group members. Folders were established for each work plan group, allowing on-going exchange of information among members.

Work plan groups met on a weekly basis beginning immediately after the inaugural Council meeting, and a total of 31 work/plan sessions were completed.

During the first set of work plan group meetings, participants were provided with a PowerPoint overview of Governor Cuomo's charge to the Regional Councils, along with detailed information on the Southern Tier Council, including the organizational structure, the draft vision statement, the work plan groups' charge, timeline and deliverables, and the public engagement strategy.

The work plan groups then participated in a facilitated SWOT (strengths, weaknesses, opportunities and threats) exercise. Results of these sessions were documented and reported on by a Council member liaison at the following Council meeting. Summaries of the SWOT analyses were also posted on the public and internal websites.

During subsequent work plan group meetings, participants engaged in strategy sessions to identify and refine catalytic and transformative

initiatives and projects that will have demonstrated positive impact on the region within the next five years. These meetings included presentations by subject matter experts, along with work plan group member presentations of proposals for discussion and consideration. Once each work plan group agreed upon strategic priorities, they were shared with the full Council.

Existing Groups, Forums, Networks and Reports

Throughout the strategic planning process, the Council and its staff used existing groups, forums, and networks to discuss the strategic plan and solicit input/suggestions. These existing organizations received email notices of survey opportunities and public forums. Council members and staff made presentations to a number of groups to discuss the strategic planning process and obtain input from participants. Additionally, Council members, work plan group members, the Data Committee, and Council staff collaborated with organizations throughout the region to identify relevant existing plans and reports. These reports were posted to the websites, reviewed, summarized and integrated with the planning process as appropriate.

A listing of organizations contacted and existing plans and reports made available during the planning process is included in Appendix B.

One-on-One Meetings

Council members, work plan group members and staff reached out directly to stakeholders within the eight-county region throughout the planning process to gather input during preparation of the strategic plan and for guidance in refining the strategies developed. Council members and staff also responded directly to inquiries from community members.

Media

All Council meeting dates, public forums and other key announcements were provided to media sources within the Southern Tier through press releases distributed by the Empire State Development Corporation's Office

David Skorton (center), President of Cornell University, and Tom Tranter (right), President of Corning Enterprises lead a Southern Tier Region Economic Development Council session, as Kevin McLaughlin, Director of the Empire Development Corporation's Southern Tier Office, looks on.

of Public Affairs. Media sources provided ongoing coverage of the Council's activities and encouraged public participation throughout the planning process, with dozens of online hits now accessible through multiple platforms, from blogging to traditional print media.

Outreach Based on Special Circumstances

A significant portion of the Southern Tier Region was impacted severely by flooding that occurred during the planning process. Not only did this result in adjustments to strategic plan priorities, but it required significant attention to the needs within affected areas. Council members and staff spent countless hours meeting with residents, businesses, government officials and others affected by the floods to assess the impacts and determine how best to address the overwhelming needs through the strategic plan and associated resources.

Summary

The Southern Tier Regional Council was efficient and effective in its engagement of the public, immediately initiating community outreach efforts, beginning with a public survey and establishment/meeting of work plan groups shortly after the Council was announced. The Council's plan catalyzed a high volume of public interest and participation, employed diverse civic engagement techniques, and received outstanding and thoughtful quality of public input. This collaboration resulted in the desired, shared vision and consensus on a strategy to advance economic growth within the region.

This strategic plan represents only the beginning of an effort to actively engage stakeholders and citizens to innovate and shape this region's economic future. As the Council refines its strategies to advance economic growth and begins to implement its vision, encouraging input from residents and stakeholders will continue to be a priority. The Council will solicit suggestions on emerging critical issues and opportunities and strategies to address them. Additionally, the public will have an opportunity to evaluate the effectiveness of the plan and implementation activities.

Continuously sharing new and transparent data, creating platforms for collaborative thinking, collectively finding solutions and sharing successes and best practices will continue going forward on the public engagement front.

"In just a few months, leaders from both the public and private sectors from throughout the region have formed alliances that will benefit the regional and its individual communities. The efforts of the Council will result in a stronger regional economy and new, quality jobs in its individual communities."

— Michael Stamm

President, Tompkins County Area Development, Inc.
Ithaca, NY

SECTION IV. ECONOMIC DEVELOPMENT STRATEGY AND COMPONENTS

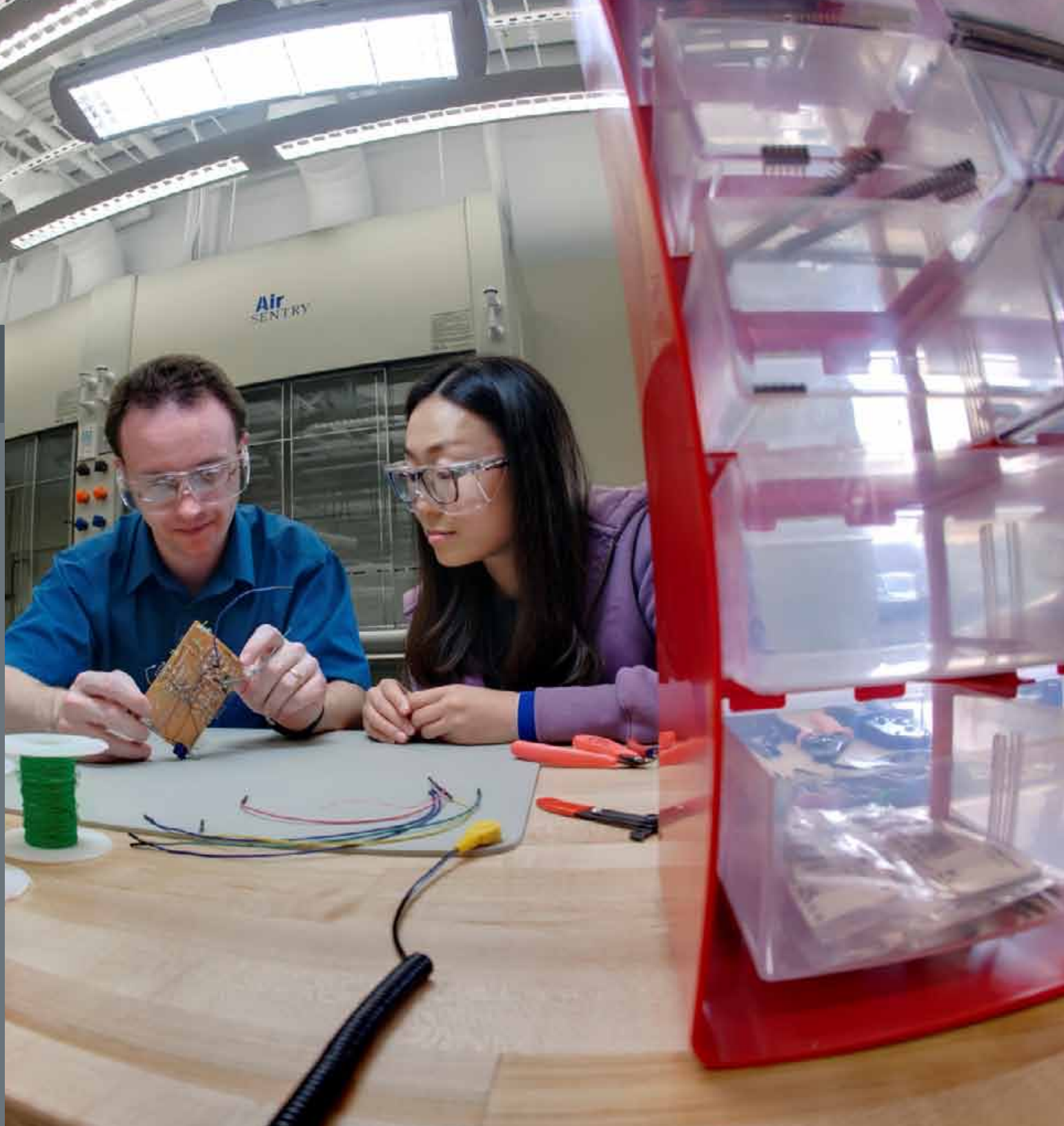
"I am committed to an economic planning process that recognizes the companies that have enabled thousands of Southern Tier residents to live and raise families here and have supported our communities by investing and reinvesting in the region. When the planning process started, representatives on the council had very limited knowledge about businesses and industries in neighboring counties. This process has catalyzed a new level of collaboration and interchange. The greatest impact I have witnessed has been the involvement of the academic community in this regional planning process. That has never happened in my 18 years in Chemung County."

— George Miner

President, Southern Tier Economic Growth, Inc.
Elmira, NY

SOUTHERN TIER

The joint effort of Binghamton University, Cornell University and Endicott Interconnect Technologies produced a vision to be among international leaders in flexible electronics research and development. The initiative is enabled through partnerships with government, academia and industry, which provide unique opportunities for collaboration to advance the development of next generation roll-to-roll (R2R) and printed flexible electronics manufacturing.



SECTION IV. ECONOMIC DEVELOPMENT STRATEGY AND COMPONENTS

A. Process Used to Determine Strategies

Based on the information gained from work plan groups, Council members, stakeholders, the public, Council staff, and other means, the critical issues that must be overcome and the opportunities that may be seized were refined. The Council began the process by reviewing proposals and concepts submitted. Using the set of criteria adopted by the Council, each project and/or initiative was independently ranked by each Council member. The results were aggregated and presented to the Council. The entire Council then discussed each project/initiative, and the priority projects to be included in the initial five-year plan were selected by the Council.

B. Criteria Used to Select Priority Projects

The Council adopted the following criteria to select the priority, transformative projects and actions to achieve its vision. Each work plan group was provided with the criteria as they developed their respective recommendations. The Council utilized the criteria in conducting a preliminary ranking and subsequent selection of projects and initiatives to be included in the initial five-year strategic plan.

- | | |
|--|-----------|
| 1. Supports Sustainable Economic Development | 50 points |
| <ul style="list-style-type: none"> • Supports retention of existing businesses • Promotes creation of new businesses • Promotes innovation and technology | |

- Leverages private investment
- Enhances capacity workforce
- Retains and attracts talent
- Creates long-term jobs

2. Demonstrates Measurable Impact in Five Years	20 points
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3. Promotes Vibrant Communities and Overall Quality of Life	15 points
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- Supports health of communities
- Improves quality of life
- Enhances tax base
- Invests in community infrastructure
- Promotes community development efforts

4. Creates Distinctive Niches and Promotes Regionalism	15 points
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- Supports opportunities for collaboration
- Capitalizes on the region's resources and unique assets

C. Strategies, Projects and Initiatives

Five strategies were developed to achieve the Council's vision. They are "catalytic, collaborative, comprehensive and competitive."

The Southern Tier's strategies are based on the best use of the region's assets, and the ability to capitalize on opportunities and address critical

issues impeding growth. The projects and actions supporting each of the five strategies are designed to lead to an improved business climate, support sustainable economic growth, increased community vitality and quality of life, continued work force development, improved infrastructure, and other factors needed to resolve critical issues impeding growth and to advance critical economic development opportunities.

STRATEGY 1. The Southern Tier. . .New York's Leader in Energy Efficiency and Renewable Energy Technology

Action Item. Southern Tier Renewable Energy and Efficiency Initiative: Residential and Small Scale Commercial Retrofit

Action Item. Southern Tier Renewable Energy and Efficiency Initiative: Large Scale Institutional and Commercial Projects

Action Item. Energy Development Alliance for New York—EDANY

Action Item. Energy Workforce Development Initiative

STRATEGY 2. Southern Tier Transportation Alliance. . .Building Next Generation Technology and Manufacturing

Action Item. Next Generation Transportation Development Initiative

Action Item. Southern Tier Transportation Industry Cluster

STRATEGY 3. Health Care 2020. . .Integrating Health Care Providers, Higher Education and Cutting-Edge Technology

Action Item. Regional Health Information Exchange and Electronic Medical Record System

Action Item. Expand Rural Health Care

Action Item. Senior Living Communities

Action Item. Health Care Workforce Development

STRATEGY 4. Revitalize the Rural Farm- and Forest-Based Economy of the Southern Tier

Action Item. Rural Initiative Venture Fund

STRATEGY 5. Strengthen the Southern Tier's Economic Development Backbone

Action Item. Southern Tier Community Revitalization Project

Action Item. Regional Broadband Communications Project

Action Item. Shovel Ready Site Development Project

In the event the Southern Tier is selected as one of the four regions to receive a portion of the \$200 million being made available in the competition, the Council identified the following projects—the only ones eligible for funding in 2011–12—in priority order of importance.

1. Southern Tier Community Revitalization Project (Strategy 5)
2. Rural Initiative Venture Fund (Strategy 4)
3. Next Generation Transportation Development Initiative (Strategy 2)
4. Energy Development Alliance for New York—EDANY (Strategy 1)
5. Southern Tier Regional Broadband Communications Project (Strategy 5)
6. Shovel Ready Site Development Project (Strategy 5)
7. Regional Healthcare Information Exchange and Electronic Medical Records System (Strategy 3)
8. Southern Tier Renewable Energy and Energy Efficiency Program: Large Scale Institutional and Commercial Projects (Strategy 1)
9. Senior Living Communities (Strategy 3)

In future years funding eligibility may change.

Following is a detailed description of each strategy and the supporting projects and initiatives, together with the resources to be leveraged, expected impact, implementation plan and projected measureable outcome for each.

STRATEGY 1

THE SOUTHERN TIER...NEW YORK'S LEADER IN ENERGY EFFICIENCY AND RENEWABLE ENERGY TECHNOLOGY

This strategy includes a package of initiatives called the Southern Tier Energy Futures Initiative designed to reduce energy costs, create jobs, re-invest in the local economy, better use forest and agricultural land resources, reduce pollutants and greenhouse gas emissions, and transfer university-based research and development to create the energy solutions that the country and the world are racing to develop to create a more sustainable future. The Regional Economic Development Council of the Southern Tier is committed to utilizing the resources available in the region and promoting the use of technology, innovation and training to harness these resources for the benefit of its individual residents, institutions, businesses and major industrial centers. These initiatives will also bring outside investment into the region and create immediate benefits while also building capacity for long-term, sustainable innovation and growth. In addition, the initiative are consistent with and support the long-term sustainability goals outlined in New York State policy, such as the NYS Climate Action Plan and the 45x15 Initiative.

These initiatives represent an ambitious economic development vision that aims to utilize resources and capitalize on: Green Jobs Green NY, one of the most progressive state policies in the nation around energy efficiency. Regional resources and assets include:

- Proven consumer-based educational and marketing strategies around energy efficiency by Cornell Cooperative Extension Tompkins County (CCETC) that have driven exceptional market demand and job creation
- Nationally recognized research institutions at Binghamton University and Cornell University in solar and biomass respectively
- Private sector leaders in energy technology research and manufacture, from Corning Incorporated and Endicott Interconnect Technologies to New England Wood Pellet, LLC, the largest wood pellet manufacturer in the Northeast
- Some of the state's most forward-thinking energy curricula at Corning Community College, Broome Community College and Tompkins Cortland Community College
- Natural resources unique to our area, marginal agricultural land and natural gas deposits that can be sustainably and responsibly tapped to renew our region's economic competitiveness and vitality

Strategic Action Item 1A. Southern Tier Renewable Energy and Efficiency Program: Residential and Small Scale Commercial Retrofit

The Southern Tier Renewable Energy and Efficiency Program is a large-scale, region-wide program to promote residential and commercial building energy efficiency. The program will provide education and information to residential and building owners through a range of channels and set in motion a rapid expansion of the residential and commercial energy efficiency and renewable energy industry, including both solar and biomass technologies. This program is a collaborative effort among universities, local elected and business leaders, contractors and community-based organizations, including Cornell Cooperative Extension (CCE).

Opportunity. The Southern Tier region is uniquely positioned to immediately embark on a comprehensive effort to retrofit houses and small-scale commercial buildings for energy efficiency. In addition, there is opportunity to install biomass systems to replace higher cost oil and propane systems in the region. This phase of the initiative includes, among other components, the use of effective and efficient renewable energy sources, using woody biomass in combination with energy efficiency techniques in residential and commercial buildings that currently heat with the most expensive fossil fuels, LPG and heating oil. The result will be lower energy costs and creation of a regional market for woody biomass production, reduction in greenhouse gas emissions, and increases in comfort for homeowners.

Impact. The results will begin to accrue almost immediately, and extend over a six to ten year period, but the actual marketing project would last three years. In order for energy efficiency in residential and commercial buildings to be implemented on a large scale and achieve these results, three key components must be in place, including: (1) financing, (2) a knowledgeable workforce able to do quality work and (3) a market for the work itself.

- Financing is available through New York State's newly created financing options Green Jobs Green NY and On-Bill Financing that will soon be available to property owners. In combination, these financing options have the potential to generate over \$1 billion in private capital to be invested in the region for residential energy efficiency. There is a large potential for job growth and cost savings.
- A knowledgeable workforce will be created through the joint efforts of the three community colleges in the region using existing and proposed credit and non-credit programs, and working in collaboration with workforce development boards throughout the region, BOCES, trade union training efforts in the region, and private sector input.

- There is an opportunity to attract a market by building on the Retrofit Program Marketing Model successfully launched in Tompkins County and currently being adopted by Broome County. As a result of the education and marketing efforts in Tompkins County, the county has achieved the highest retrofit rate in the state.
- The initiative has a positive causal impact on agriculture and existing industries and capitalizes on our region's unused natural resources.

Cost. \$4 million over a three-year period

Leveraging Resources.

- NYSERDA's Energy Smart Communities program
- Beam New York, the Public Service Commission's energy efficiency marketing campaign
- CURBI, the Cornell University Renewable Bio-Energy Initiative
- NY-BEST, the New York Battery and Energy Storage Technology consortium
- Builds on tested efforts that have already produced large numbers of jobs and the highest residential energy efficiency retrofit rate in the state (more than nine times the statewide average) in Tompkins County. Those efforts are now being used in Broome County as well.
- Takes advantage of new funding mechanisms (Green Jobs Green NY and On-Bill Financing) that channel large-scale private investment into residential and small-scale commercial energy retrofits, providing an average of about \$8,000 per house, approximately \$1.2 billion for the 147,000 houses that will be retrofitted over the next six years.

Implementation. Pre-implementation: Recruit and train marketing campaign staff on topics including leadership, energy outreach best practices, management, and media relations.

- Step I (first six months): Expand on existing marketing strategies in use in Tompkins and Broome Counties. Use each county's Cooperative Extension agency to quickly replicate prior successes. Refine existing

print and web-based materials, recruit and train staff and begin outreach with other community-based organizations.

- Identify contractors in each community that can ramp up to meet expanded demand. Where necessary, work with local business leaders and economic development professionals to help small businesses grow (for example, hiring, finance, and organizational development). Link contractors with community colleges so that graduating students are quickly placed in jobs.
- Step II (six months): Continue coalition development and leadership education and begin community outreach with the launch of the website and outreach programs, such as events, presentations, media, tabling and energy teams. Engage coalition of leaders and organizations. Target early adopters and collect testimonials. Implement case management.
- Step III (two years): Conduct full-scale media campaign and expand outreach programs and case management.

Projected Five-Year Outcomes and Measureable Results.

- Creation of more than 4,000 new jobs in fields such as energy retrofit installers
- Creation of hundreds of jobs for loggers, biomass chippers and transporters, plumbers and electricians for commercial buildings, stove and pellet retailers, and in the manufacturing of stoves, pellets, and retrofit materials
- Leverage programs such as Green Jobs Green NY, On-Bill Financing and NYSEDA's Energy Smart Communities program
- Strengthening of biomass and solar-related construction and manufacturing businesses
 - Grow an estimated 75 existing energy efficiency contracting and pellet stove retail businesses
 - Promote the creation of at least 100 more ancillary businesses and

products in the region such as stoves and boilers, pellets, retrofit materials (insulation, furnaces, caulk) and timber

- Strengthen and expand the wood pellet manufacturing industry in the region with a projected \$30 million in new sales of regionally produced biomass (woodchips or pellets) for heating
- Long-term potential for \$100 million in revenue to the timber industry (\$50 per acre, per year, times two million acres)
- Benefit to owners of marginal agriculture land from use of land for dedicated crops to produce biomass fuel
- Potential for \$120 million per year in energy savings for households and small-scale businesses

Strategic Action Item 1B. Southern Tier Renewable Energy and Efficiency Program: Large Scale Institutional and Commercial Projects

A \$1 million revolving loan fund will be established to assist institutions and large businesses secure the financing to undertake the up front project development costs for large-scale energy efficiency retrofit projects. The loan fund will consist of \$500,000 for commercial energy efficiency upgrades and \$500,000 for commercial renewable energy. This effort would focus on airports, school systems, college and university campuses, hospitals, and local government, commercial and industrial buildings. Because these institutional customers have a long-term perspective over decades, they expect to invest in their energy systems and recognize the importance of long-term stability of energy costs. As large users of energy, institutional customers have the market pull to stimulate development of innovative products, which can then be commercialized for the broader market.

This project involves aggregating large-scale energy efficiency retrofit projects, such as building improvements and the utilization of solar, geothermal, wind and biomass technologies (including storage), and the development of a financing structure based on an innovative financing model that is being implemented in Pennsylvania.

The financing model channels external private equity into projects without affecting the debt/equity ratio to the building owners. This approach provides the building owner the opportunity to undertake energy efficiency upgrades without having to draw on any internal capital. With the promise of stable energy prices for the long term, there is usually a positive cash flow at the outset. These projects will also include an electrical energy storage component to enable more facile grid integration. Working with NY-BEST will facilitate ties to New York-based suppliers.

Under this model, an energy services contract is established between the institution and an energy service company (ESCO). The ESCO provides a broad range of energy solutions, including design and implementation of energy conservation projects, energy infrastructure, power generation and risk management. Following a detailed analysis of the property and design of an energy efficient solution, the ESCO installs the required elements and maintains the system to ensure energy savings during the payback period. The institution signs a ten-year contract paying stable energy costs while the ESCO provides the energy and realizes savings due to the installed energy upgrades. After ten years, the institution fully owns the upgrades and begins to realize the savings. The savings in energy costs is often used to pay back the capital investment of the project over a five- to twenty-year period, or is reinvested into the building to allow for capital upgrades that may otherwise not be feasible. If the project does not provide returns on the investment, the ESCO is often responsible to pay the difference.

Opportunity. There are several large organizations that are taking steps to invest in energy system conversion. For example, Cornell University has committed \$40 million over the next five years to perform energy conservation projects at their Ithaca campus.

There is opportunity to build on Cornell University's efforts, bringing private investment into the region to help other large institutions make these investments in their buildings. A new financing model that is used in Pennsylvania for these types of projects is successful and could be replicated in the Southern Tier. This financing model channels external

private equity into projects without affecting the debt/equity ratio of the building owners. In addition, there is an opportunity for major businesses and not-for-profit entities to leverage the benefits of the Recharge New York program.

Impact.

- Supports job creation in fields such as logging, biomass chipping and transporting, plumbing and electrical work for commercial buildings, energy retrofit installing, stove and pellet retail and manufacturing of stoves, pellets and retrofit materials
- Supports growth of biomass- and solar-related construction and manufacturing businesses
- Results in significant energy savings for large businesses and institutions

Cost. Revolving fund of \$1 million

Leveraging Resources.

- Introduces financing mechanisms with the potential to channel an additional \$200 million in private capital into commercial, academic and government building retrofits
- Capitalizes on the region's two million acres of forests that are well dispersed over every county in the region and have the potential to produce over one million tons of biomass per year
- Biomass from this land has the potential to be converted into wood pellets, to heat the 80,000 homes, and into woodchips for heating large buildings, such as schools, hospitals and commercial structures in the region that currently use LPG or heating oil. These fuels cost three times more than wood pellets. Conversion represents an environmentally friendly way to lower energy costs

Implementation. A revolving fund will be established through the Southern Tier Economic Development Corporation. It is recommended that Blue Hill

Partners and the EPA Green Power Partnership join hands to attract private capital. The loan fund would be used for the up front project development costs incurred by the institutions. Initial steps include:

- Step I Pre-implementation (Years 1–2): Aggregate projects and set up financing model
 - Convene key stakeholders.
 - Present the deployment model for each arena and explain the potential project.
 - Facilitate the completion of participants' blue-sky potential sites survey.
 - Conduct an initial, high-level feasibility triage on the participants' suggested sites.
 - Conduct a detailed economic and technical analysis on sites that clear the initial triage.
 - Perform a strategic bundling of final sites and conduct an RFP.
 - Help stakeholders analyze the RFP responses and make go/no-go decisions.
- Step II (Years 3–5): Implement retrofitting.

Projected Five-Year Outcomes and Measureable Results.

- Leverage \$200 million in private capital for commercial, academic and government building retrofits

Strategic Action Item 1C. Energy Development Alliance for New York—EDANY

The Energy Development Alliance for NY—EDANY (EDEN-ee), based and managed in the Southern Tier, will integrate two successful business development strategies based on industry/university partnerships. The result is one regionally focused program, dedicated to executing specific projects in the energy sector. EDANY will help bridge the gap between research and development and product development, plus add the missing

component: support for demonstration and deployment projects for more mature technologies. The initiative will follow a “market pull” strategy to efficiently productize energy technologies from industry and academia. In parallel, EDANY will help coordinate development of workforce needs for current and future opportunities in this sector. Finally, the Energy Development Alliance initiative will be a powerful model for other sectors and other regions in New York and beyond.

The EDANY initiative will apply the extensive experience and success of industry/university partnerships in the Southern Tier. It will focus its programs on the sector of energy technologies, which is already pursued actively and successfully by the region's global industry and university leaders. Moreover, this essential focus is informed by greater New York industry strengths in battery and energy storage, energy efficiency and renewable energy, flexible electronics, and hydrogen and fuel cells, plus the quickly growing global market opportunities for advanced energy products. EDANY's market pull will be strengthened by existing activities, such as New York's Renewable Portfolio Standard (RPS) net metering and new On-Bill Financing; industry led consortia, such as NY-BEST and NYH2; and clear regional leadership in roll-to-roll manufacturing (BU-CAMM). Applying this partnership expertise to this important sector will enable projects for near-term success and long-term economic growth.

Specific EDANY Joint Projects will be determined by a set of industry-informed roundtables, managed by EDANY teams, and reviewed by the initiative's board. Examples of likely projects include:

- Development of energy storage systems for electric medium duty commercial vehicles (buses, trains, etc.), distributed energy storage (community energy storage and industrial parks), and to allow renewable integration (wind, solar, biomass)
- Demonstration of hydrogen refueling technology and deployment of filling stations for forklifts, automobiles and fleet vehicles
- Development of flexible thin film solar modules for small devices such as cell phones and laptops

- Helping coordinate contributions of expertise, analytical equipment access, and/or personnel to the proposed New York BEST (NY-BEST) battery testing and prototyping center

The initiative will develop and maintain programs that encourage long-term partnerships between the region's world-renowned universities and industry leaders for the purpose of accelerating the development and adoption of innovative materials, processes, and systems into marketable solutions for advanced energy technologies. The three essential, integrated elements of the initiative are: (1) focused, industry-informed and university-moderated roundtables will be used to determine top-priority projects; (2) private-sector management of collaborative development or deployment projects ("Joint Projects"); and (3) coordinated demonstrations, public outreach and workforce development programs that focus on the industry's personnel needs. Best practices from implementation of these elements will be collected and used to not only improve the process regionally, but also to create a living blueprint for export to other industry sectors and regions.

The proposed actions to be taken upon launching EDANY are described here:

As a cornerstone of EDANY, regularly scheduled university/industry roundtables will encourage existing and new industry partners to engage in pre-competitive discussion of top industry needs. The roundtables will be designed to include all three tiers of regional industry partners: large, established companies likely to be Joint Project leads (see below); small and medium enterprises (SMEs) in position to supply components or materials to Joint Projects; and entrepreneurs interested in launching new ventures and exploring the highest risk ideas. The roundtables will benefit universities by keeping interested researchers informed of how their work can accelerate commercialization in this sector. Beyond information exchange, a primary goal of these roundtables will be to define Joint Projects and identify EDANY Teams (see below) to execute them. Topics for roundtables include exploration of Joint Project topics; overcoming hurdles in technology

transfer and the development pipeline; description of, and access to, resources in the university centers; developing of funding vehicles; and others.

EDANY will also host Entrepreneurial Mentoring Forums. These will build upon the discussions of the roundtables and complement, without duplicating, workshops currently offered at the university and state level (e.g., at CCTEC, Pre-Seed Workshop, etc.). The goal will be to offer a structured format for sharing best practices between more seasoned entrepreneurs and those new to the region, field or startup world. In later years, these forums may evolve into a physical facility where new startups can be housed together, provide a home for the forums, and offer the advantages of co-location with peers. These Mentoring Forums will provide EDANY the perfect opportunity to bring investors to the table. It is well known that the Southern Tier suffers from lack of investment capital. The forums and EDANY's other sets of programs focused on this technology sector will enable us to expose regional projects, ventures and entrepreneurs to private capital, thereby increasing their opportunities for outside investment.

The primary work of the EDANY initiative will be the planning and execution of highly visible Joint Projects. Examples of potential Joint Projects are described below. The most promising projects (from this list and other proposals) will be selected during one or more roundtable discussions. More than one round of Joint Projects is expected during EDANY's first five years. The project itself will be planned and executed by an EDANY team formed by interested and able industry and university partners. The pre-competitive discussions at the roundtables and forums will reveal opportunities and suggest effective partnerships. The EDANY teams that emerge will be designed to capitalize on specific opportunities and engage in collaborative research and development, prototype development and demonstration/deployment projects. EDANY will have the resources to support the formation and administration of these teams. The management of the EDANY teams will be the responsibility of individual champions

from the respective organizations. EDANY resource support will be critical throughout the life of the Joint Project, and especially at the early stages as teams are formed and work commences. In addition to bridging this critical gap of team building and administrative support, financial assistance for projects will also be crucial.

EDANY plans to offer the following financial assistance programs to enable Joint Projects and broadly accelerate commercialization of energy technologies:

- **Joint Project Funding.** EDANY plans a flexible and versatile project-funding program to efficiently apply resources to critical areas not supported by other programs. For example, for early-stage concept proving or feasibility studies, or to help a new EDANY team to get off the ground, EDANY will offer short-term (up to one year) seed grants. Additionally, for later-stage, pre-commercial projects where costs can much higher, EDANY expects to offer low-interest critical gap loans to enable prototyping, system integration or other pilot-scale development necessary to decrease risk to outside investors. The low interest loan program run by Tompkins County Area Development (TCAD) offers a successful model for a potential financial structure. For both types of funding, cost sharing from partner companies will be required to keep recipients engaged and to most efficiently use EDANY resources.
- **Award Matching Funds.** Many regional companies already make use of federally funded and other state or regionally funded business development programs, such as Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR), Grants for Growth, and more. EDANY will leverage the work of the evaluation committees for these federal and state awards and augment winning proposals in appropriate target areas with award matching funds. Smaller awards can be made as grants, and not require any repayment, while larger, later-stage matching awards (e.g., for Phase II awards) can be offered as convertible debt instruments, or other vehicles that allow some form of

financial return to EDANY for successful projects. In both cases, EDANY will make these funds available for uses not allowed by some primary federal grants (e.g., equipment, facility upgrades, some consulting contracts, etc.). This low overhead program will quickly accelerate, promising product development and deployment projects in the Southern Tier and beyond.

Opportunity. The large majority of business and research leaders in the Southern Tier are already collaboratively working on projects described elsewhere, giving EDANY an excellent foundation from which to build.

EDANY partners include:

- Business sector partners: AM&T, Binghamton BAE Systems, Endicott Interconnect Technologies, Lockheed Martin, MicroGen Systems, Primet Precision Materials, and Raymond Corporation
- Cornell University: Energy Materials Center at Cornell (emc2), Cornell Center for Materials Research (CCMR), Cornell Nanoscale Science and Technology Facility (CNF), Cornell Center for Nanoscale Systems (CNS), Atkinson Center for a Sustainable Future (ACSF), and the Cornell Center for Technology, Enterprise and Commercialization (CCTEC)
- Binghamton University: Center for Advanced Microelectronics Manufacturing (CAMM), Center for Autonomous Solar Power (CASP), Integrated Electronics Engineering Center (IEEC), New York State Center of Excellence in Small Scale Systems Integration and Packaging (S3IP), Northeast Center for Chemical Energy Storage (NECCES), and the Institute for Materials Research (IMR)
- Area Colleges: SUNY Delhi, the Norwich Campus of Morrisville State College, Broome Community College, Tompkins Cortland Community College, and Corning Community College

Cost. Based on experience with operations requirements for current state-funded technology development assistance programs that focus on the first lab-to-market transition, the administrative structure suggested, and

knowing that moving one step further along the technology maturation pipeline often requires a seven- to ten-fold increase in budget, it is expected that EDANY will flourish with an investment of \$6 million to \$9 million annually. The majority of the budget is intended to be allocated toward Joint Projects to support energy technology development and deployment. A probable breakdown of the annual budget is 65% Joint Project support, 20% financial assistance programs and 15% EDANY personnel.

Leveraging Resources.

- The Innovate NY bill has amended New York State's Capital Access Program and established the Innovate NY Fund. This fund makes resources available to support emerging business ideas and products that result in the growth of business within New York. Like the proposed EDANY initiative, some Innovate NY funding will focus on program activities to productize technologies rather than build additional capital structures.
- The region hosts two Energy Frontier Research Centers (EFRCs) for which the U.S. Department of Energy invests between \$3.2 million and \$5 million annually through 2014.
- Existing programs funded by New York State represent an additional investment of over \$2 million annually.
- Large investment in regional startup and established companies, plus other relevant activity at Binghamton University, Cornell University and the community colleges.

EDANY Structure.

EDANY Full Time Staff: EDANY will require a staff of four or five full time employees to optimally achieve its goals. These employees are the Executive Director; Director of Innovation; Contracts and IP Manager; Finance Manager; and one or two administrative assistants.

EDANY Governing Board: The ultimate oversight of the EDANY will be the responsibility of the Board of Directors. This board will include lead

EDANY staff plus representatives from selected academic and commercial partners. It will meet quarterly to oversee the activities and progress in implementation of plans to achieve the initiative's objectives. The board will review and approve an annual operating plan and budget, the technical progress made each quarter, as well as the financial and commercialization performance of the program. This body will also be responsible for the facilitation of contacts with potential strategic partners in order to enhance commercialization of intellectual property that will be forthcoming from the center. The EDANY executive director will chair the Board of Directors. The appointment of the six additional members of this board will be decided jointly by partner members when EDANY is launched.

Operating Committees: Four operating committees will be responsible for oversight of EDANY activities along the technology maturation pipeline: (1) technology identification and synthesis, (2) transfer management and product development, (3) commercialization and deployment and (4) administration activities. These committees will report to the Board of Directors. Each operating committee will meet at least quarterly, issue minutes, develop an annual plan and assess the budget required for achieving the objectives in stated plan. Budgets will be submitted to the Board of Directors for approval.

Innovation Advisory Board (IAB): EDANY commercialization efforts will be managed by the director of innovation, who will guide the commercial activities of the program. An Innovation Advisory Board will be convened and chaired by an energy technology investor, to be determined, preferably from a top-tier venture capital firm. This IAB will include nine members, primarily from industry, but will also include entrepreneurial academic representation, and will meet on a quarterly basis. The role of the IAB will be to review the demonstration and deployment projects proposed and underway in EDANY. It will be the responsibility of this Innovation Advisory Board to guide EDANY to its most efficient market success, especially for impact beyond the Southern Tier. Additionally, the IAB will help optimize translation of new discoveries, develop new industry partnerships beyond the region, and help inform plans for future development.

Scientific Advisory Board (SAB): The Board of Directors will have, as one of its initial functions, the establishment of a Scientific Advisory Board. This Scientific Advisory Board will include two internationally known energy scientists and one other representative from academia or industry. Together, they will provide the board with an annual external review of EDANY's technical progress.

Impact. The common goals among EDANY partners are to encourage innovation, facilitate energy technology productization, diversify and grow businesses, create sustainable jobs, and train a qualified workforce in the Southern Tier region's key industry clusters. The partners will aim to support and sustain a dynamic, interconnected growing industry sector that helps retain local talent, recruit new talent to the region, and capitalize on regional strengths through productization and sales. EDANY is expected to deliver tangible results within the first three to five years, listed below, plus continuing ongoing benefits thereafter.

- Strengthen existing businesses through the long-term sale of energy related products.
- Productize regional energy technologies that are practical, manufacturable, and readily integrated into new or existing products, and for which there is a clear market pull. More than just commercializing existing technology prototypes, planned activities include capturing monetary value by creating products from concepts, expertise, services, and more. EDANY's dynamic team-based approach will focus on discoveries and/or expertise at universities in a broad range of energy technologies that can be successfully transferred and incorporated into marketable innovations following the input of market-knowledgeable industry partners.
- Enhance the synergy between the universities and world-class companies in the region, and attract other industrial firms located in New York State that are involved in energy technology including GE, IBM, Ephesus Technologies, and IOXUS.

- Attract vendor companies and other product related firms to establish the manufacturing supply chain in our region.
- Integrate education, training, and public outreach at all levels including universities, four-year colleges and community colleges in order to support the continued growth of a highly-skilled manufacturing workforce, draw excitement to the innovations of the region, and demonstrate the benefits of advanced energy technologies.
- Create a living blueprint of best practices for connecting all stations along the technology maturation pipeline and actively shepherding technologies along its path. This powerful model can then be exported to other regions and industry sectors.
- Facilitate the natural integration of the living laboratory concept to accelerate maturation of promising technologies from academic labs and industry drawing boards to the market. Replicating this model elsewhere will broadly benefit New York State, plus return value to the Southern Tier.
- Attract new talent and spinoff companies in the region and, in particular, retain university students involved in technology development

Projected Five-Year Outcomes and Measureable Results.

- Industry Participation
Percentage of partner companies' investment in energy productization activities
Company investment can be cash or in-kind expenditures toward EDANY projects, e.g. equipment purchased, research and development expenditures, expanded payroll (specific to new product development), etc.
TARGET: After the first year, 1:1 match with New York State-provided funds, growing to 3:1 by year five.

- **Energy-Related Development**
Increased production and transfer of intellectual property
Measured by quantifying IP captured, licensed, or commercialized in the area of energy technologies supported by EDANY
TARGET: A 200% increase in the first two years, improving to a 500% increase by the end of year five.
- **Jobs Created/Refocused on Product Development**
Measures growth of new and retained or repurposed jobs in energy product-development activities.
TARGET, Years 1–3: 150–200% increase in positions dealing with energy projects, including refocus of existing positions from other, non-energy projects. Reflects business repositioning to focus product lines on more efficient, smarter energy products and services to meet consumer demand.
TARGET, Years 4–5: 200% new jobs created by startups and existing companies moving to or expanding in New York State.
- **Exports of Energy-Related Products**
Measured by sales to entities outside of New York State
TARGET: 150% increase by year four; 200% increase by the end of year five.
- **Revenues**
Expected to increase as a final result of the other growth experienced in the early years of the program. Therefore, significant increased revenues from these development projects are expected in the seven-to ten-year timeframe, not before. The expected increase of revenues depends greatly on the products introduced. EDANY will work with company partners to define expected outcomes at the start of our specific development projects.

Implementation. Dedicated champions and managers will be needed to operate the elements of these programs and to shepherd technology demonstration projects through their growth pipeline. To that end, an

efficient administrative structure is described that leverages regional talent, draws advice from subject matter experts, and uses full time support as efficiently as possible. (See EDANY Structure above.)

Examples of Potential Projects. Researchers at Cornell University and Binghamton University are focusing on research and development of materials to improve energy technologies. In addition, example demonstration projects have been discussed with some industry partners. The following are examples of potential projects and description of technologies that are expected to be developed by this initiative.

- Energy storage systems for deployment in several applications
 - BAE Systems and Raymond Corporation are experts in adapting different electrical power modules for specific applications. BAE's experience has been applied to medium-duty commercial vehicles (e.g., buses) whereas Raymond Corporation is focused on electric lift trucks. The needs of electrical power modules to enable renewable integration projects (e.g., solar PV and/or wind turbine installations), community-based energy storage projects, or power-augmentation packs for industrial parks all present related challenges and offer exciting new markets. An example joint development project involving BAE, Raymond Corporation and Cornell and Binghamton Universities would be to assess specific needs of these applications, determining off-the-shelf battery solutions, and interest and ability in packaging these batteries for specific application. The successful project could result in deployment of demonstration-only power packs for one or multiple applications and for public awareness, marketing, and workforce development of either, or both, industry partners expanding into a new product opportunity.
- Hydrogen filling stations powered by diverse fuel inputs and designed to service fuel cell automobiles, buses, and fleet vehicles
 - It is now clear that fuel cell automobiles will be commercialized in the next five years. Six major auto manufacturers have all targeted 2015

or earlier as the date for introduction of fuel cell passenger vehicles. The open question is which markets will support the sale of these vehicles by establishing the necessary hydrogen infrastructure. At present, Germany, Japan, and Korea are all pursuing aggressive plans for H2 station deployment. In the United States, there is no federal plan for hydrogen infrastructure. New York is second to California for existing hydrogen refueling stations, but has no plans for expanding this network. In fact, it is shrinking. The successful homes of hydrogen station networks will stand to attract fuel cell industry leaders as well as refueling technology leaders.

- New York is in an ideal position to support hydrogen refueling infrastructure. There is clear industry strength in the state (e.g., GM in Honeoye Falls, Plug Power in Latham, Delphi in Rochester, Raymond Corporation in Greene, and BAE Systems in Johnson City). Therefore, there is much to gain by supporting the growth of these companies and a great deal to lose by risking their exodus to other states or countries.
- NYH2 is an industry-led initiative, supported by New York State Assemblyman Joseph D. Morelle, dedicated to establishing a network of more than 70 stations across the state. This activity focuses on off-the-shelf technology for deployment in the near term. Most of these focus on water electrolysis or steam reformation of natural gas for hydrogen production.
- Cornell University and partners are in an ideal position to support the NYH2 activity with research and development of next generation hydrogen production technology. As hydrogen is the second most abundant element on earth, the resources from which it can be generated are endless. The Cornell Fuel Cell Institute and Cornell's College of Agriculture and Life Sciences have been exploring concepts of hydrogen generation by direct gasification of biomass. A research and development project exploring this, and other methods for hydrogen generation, would result in a portfolio of technologies to be deployed based on a region's own recourses. Later stage deployment of commercial units can be exported to other regions of New York or the world, following the developing market of hydrogen refueling stations.
- The region is positioned to create a national testing center for battery and other energy storage systems that would be branded with a "Southern Tier Certified" logo. This center would be established at currently existing space (for example, Binghamton University) and leverage current technology development and existing technical expertise at regional universities. Planning of specific needs would be informed by NY-BEST's efforts.
- There is opportunity to manufacture advanced computer chips for low-power energy consumption.
- Thin film solar photovoltaic (PV) modules, roll-to-roll electronics manufacturing and related thin film energy devices are expected to make the Southern Tier a leader in solar energy technology. It provides an opportunity to focus on a technology that is centralized in the Southern Tier region beginning with research at Binghamton University, to material development and manufacturing at firms such as Corning Incorporated, Endicott Interconnect Technologies, Electronic Coil, and Lockheed Martin. The thin film devices include photovoltaic, thermoelectric battery and ultra-capacitor devices. An integral part of the program will include Binghamton University's roll-to-roll manufacturing facility located at Endicott Interconnect Technologies, as well as leveraging existing federal funding and private investment to expand intellectual capacity. Coupling with energy/industry networks at Cornell University's Energy Materials Center (emc2), mature technologies emerging from this effort can be quickly marketed and exported to businesses and other customers around New York State and beyond.

Strategic Action Item 1D. Energy Workforce Development Initiative

The Energy Workforce Development Initiative will develop a highly qualified and vibrant workforce prepared to respond to the opportunities resulting from the emergence of the energy industry in the Southern Tier for projects such as wind farm construction and maintenance; weatherization of homes, businesses, and public buildings for maximum efficiency; retrofit of residential and commercial facilities for efficiency improvements and installation of biomass heating systems; expanded research and manufacturing of existing and new solar energy technology products; increasing energy efficiency use in buildings through improved weatherization and application of electricity-saving technologies; and natural gas extraction and operations.

The project will draw on the education and training resources of Broome, Corning, and Tompkins Cortland Community Colleges. The colleges will work collaboratively and creatively to deliver education and training using multiple modes of instruction, ranging from traditional classroom, hybrid, industry-supported laboratory settings for project-based learning, and online instruction. They will also partner with regional businesses, industry, BOCES, Cornell Cooperative Extension, building trades, and service organizations.

Opportunity. Community colleges are well positioned to take the lead in delivering the education and training necessary for the development of the local energy workforce. Essential to the mission of community colleges is the fostering of partnerships to enhance the economic vitality and quality of life for its citizens. The initiative supports sustainable economic development, retains and attracts talent to the region, leverages public and private sector investment, and promotes opportunities for joint initiatives among academic institutions and the private sector.

Impact. The State University of New York (SUNY) encourages shared services throughout its system. To this end, the three community colleges in the

region will work collaboratively and creatively to support and enhance each other's efforts to maximize workforce development for a new energy future and to engage in shared marketing. The delivery of a regionally coordinated workforce development program designed for the energy industries will provide a career ladder for a wide range of skilled workers in many fields, including construction, operations, maintenance, data acquisition, analysis, communications welders, lab technicians, heavy equipment operators, electricians, carpenters, hydraulics, rigging, rough terrain forklift operators, and BPI-certified workers. The intention is to offer skills that will be adaptable as the energy industry evolves in future years, building long-term sustainability in the workforce.

Cost. \$4 million over five years to build on existing curriculum for course development at the community colleges, tuition subsidies, marketing, new laboratory equipment, and course delivery by qualified instructors

Leveraging Resources.

- Investment by energy companies in training in the form of tuition, program development funds, and contribution of equipment
- NYSERDA's efforts in working with SUNY institutions to become Energy Smart Learning Centers, and the three community colleges in the Southern Tier Region would be appropriate sites
- Grant programs such as Federal Perkins IV Funding, which provides additional energy-related training and education. The funding provides support for upgrades in career and technical programs through purchasing a solar/wind energy training system and provides funding for faculty to be trained on the equipment.
- Broome Community College's CEEBS (Center for Energy Efficiency and Building Sciences), offering contractors the BPI-certification trainings required by NYSERDA to carry out energy efficiency work funded with state dollars
- Corning Community College's career pathway program that includes three non-credit certificate programs: a 72-hour natural gas industry

training program; a PEC-Basic SafeGulf/SafeLand Certification program course; and a pending welding certificate program

- Corning Community College's \$300,000 grant application pending with the National Science Foundation to support STEM scholars in Energy Process Technology (EPT)
- Tompkins Cortland Community College (TC3) "green jobs" training for skills in weatherization and installation of renewable systems (solar, biofuel, and geothermal)
- TC3 SUNY GREENS NY Program's plan to develop a curriculum in biomass using USDA grant funding
- The Tioga County Stronger Economies Together (SET) training program with a special emphasis on bio-energy business developments

Implementation. In January 2012, the presidents of Broome Community College (BCC), Corning Community College (CCC), and Tompkins Cortland Community College (TC3) will convene the newly created Energy Workforce Advisory Board (EWAB). The Energy Workforce Advisory Board will establish a regional identity and transform the energy workforce talent pipeline. The Advisory Board will develop an innovative regional infrastructure to link the entire energy workforce talent development process together. Membership of the Energy Workforce Advisory Board will be composed of leaders from:

- K-14 Education
- Economic Development
- Regional Business and Industries
- Cornell Cooperative Extension
- Building Trades and Service Organizations
- Workforce Development Agencies

The Energy Workforce Advisory Board will be charged with developing transformational strategies and an operational plan, which meets the educational and training demand of the energy-related sector in the

Southern Tier. The Advisory Board will establish work plan groups to:

- Update energy workforce intelligence data for emerging energy industry jobs to align education and training opportunities with needed workforce skills and compile an inventory of existing energy-related, regional credit and non-credit education and training opportunities.
- Develop transformational strategies to provide comprehensive regional education and training opportunities resulting in a competitive workforce.
- Develop a comprehensive list of current public/private energy-related partnerships/initiatives to avoid duplication and align regional efforts.
- Forge new public/private partnerships to leverage funding and create dynamic and responsive programs and services.
- Develop a regional cohesive marketing strategy.
- Create a regional assessment plan and review current workforce and economic development systems to measure effectiveness.

The timeline for this project is five years. However, occurring simultaneously, a dynamic array of new and currently existing regional energy education and training programs and services will be offered throughout the eight-county region.

It is anticipated that the Energy Workforce Advisory Board will meet regularly in the first four quarters to build the necessary infrastructure, establish the work plan groups, collect workforce intelligence data, compile the inventory, and develop transformational strategies and the operational plan.

Year 1

Q1 and Q2: Build infrastructure, establish workgroups, collect workforce intelligence data, compile inventory

Q3 and Q4: Develop transformational strategies, operational plan, assessment plan, and marketing strategies

Years 2–5

The Advisory Board and workgroups will meet quarterly to report outcomes based on the regional operational plan, collaborate on new initiatives, forge new public/private partnerships, evaluate and create new curriculum, and research new funding opportunities.

Projected Five-Year Outcomes and Measureable Results.

- Prepare workers for jobs across 150 different occupations created in the natural gas industry
- Train 1,000 workers for energy efficiency jobs (energy retrofit installers)
- Prepare workers for employment opportunities in the management, development, operation and maintenance of complex energy and industrial processes
- Prepare workers with new skills that are transferable from the energy sector to other industries in the region in areas such as construction, water testing, gas monitoring, industrial control systems, equipment maintenance, and data collection that are common to operations processes for solar, wind, biomass, and natural gas energy

STRATEGY 2

SOUTHERN TIER TRANSPORTATION ALLIANCE...BUILDING NEXT GENERATION TRANSPORTATION TECHNOLOGY AND MANUFACTURING

The Southern Tier Transportation Alliance is designed to grow the region's existing transportation industry, consisting of more than 50 businesses, into a technological hub for next generation transportation developments. This will be accomplished by leveraging academic resources together with

the region's mass transit, defense transport, hybrid vehicle, and simulation expertise, along with regional transportation agencies, to form a regional consortium of transportation industry leaders, which, in leading the nation in the development of next generation transportation technologies, will also drive the economic revitalization of the Southern Tier. The Alliance will develop and promote innovation in transportation technology and applications in key transportation sectors, by convening leaders in the Southern Tier transportation manufacturing and service industries to identify opportunities for innovation with high likelihood of large impacts within and beyond the Southern Tier region. The Alliance will engage the region's technology centers, businesses and concerned agencies in a focused pursuit of next generation, sustainable, transportation technologies and services.

The strategy for the next five years involves two initiatives. The first is focused on growing the number of transportation businesses in the region primarily through the launch of new ventures focused on next generation transportation technologies and a set of directed research and development and engineering efforts to establish new intercity transportation modalities for upstate New York that are faster, more convenient, more energy efficient, and have less environmental impact. The second is focused on growing revenues and employment in existing transportation companies by leveraging their under-utilized capacity and providing cost-effective strategies to capture a large portion of the mass transportation and military helicopter market.

Strategic Action Item 2A. Next Generation Transportation Development Initiative

The Southern Tier Transportation Alliance will guide the development of the Next Generation Transportation Development Initiative, which will result in a transformation of the regional economy over the next two decades. The initiative involves directing a focused set of capital investments to the advanced infrastructure required to launch new ventures in the

transportation technological arena, and to help existing companies obtain a foothold in these technologies. In addition, a set of directed engineering efforts will be initiated to establish high-speed intercity transportation research and development in upstate New York.

The primary objective of the Next Generation Transportation Development Initiative is to provide existing companies and new ventures with the critical resources needed to allow them to move into next generation transportation engineering, design, and construction in as short a time period as possible. The goal is to obtain sufficient success over the next five years (by 2016) using state, industry, and venture capital funds, to set the stage for a Transportation Equity Act funding request in 2016 to establish a private/public partnership to complete the development and undertake the first next generation transportation installations.

More specifically, the initiative involves funding of three new facilities (a quarter scale wind tunnel, simulation facility, and quarter-scale system test facility), which will permit the engineering and testing of the components and integration of high-speed transportation systems. These facilities will require an estimated capital investment of \$14 million. In addition, the immediate formation of six corporate/university collaborations will jumpstart the design effort that is expected to lead to multiple high-technology spin-off companies in the region.

Opportunity. The current intercity transportation system in much of the United States, and all of upstate New York, is not only out of date, but is neither efficient nor sustainable. A critical first step in revitalizing upstate New York will be to move aggressively in developing new intercity transportation modalities which are faster, more convenient, more energy efficient, and have less environmental impact than the 100–200 year old technologies we currently rely upon.

While there has been much discussion regarding the possibility of implementing high-speed heavy rail in the region, the expanse of this region, and sparse population distribution, preclude economically viable use of such technology in upstate New York, if not most of the United States.

Recognizing this fact, for more than 20 years NASA has been involved in developing the foundational technologies necessary for a more practical, modern, sustainable, high-speed transportation system which could cost-effectively link widely distributed communities, such as those in upstate New York, into economically dynamic, interactive networks with close ties (i.e., short travel times) to major urban centers (New York City and Toronto for the upstate region). Using this knowledge, coupled with the region's powerful expertise and understanding of other globally demonstrated projects, a system can be designed with a high rate of return and link all upstate New York communities into an economically dynamic and effective interactive network.

This project also takes advantage of the federal government's strong interest in the development of new transportation technologies, which improve the safety, reliability and efficiency of transportation (both freight and passenger) throughout the country. The primary means of funding transportation development is through Transportation Equity Act (TEA) allocations. TEA funds are allocated every six years. The goal will be to advance the technology through a proof of concept stage within a five year period. Once a prototype of installations exists, it is expected that companies and organizations dependent on high-speed and cost-effective transportation will step forward to fund subsequent developments.

As the essential technologies have already been developed, it will take the desire and drive of a region to initiate the engineering and construction of such a system. No region is better positioned, from a resource and economic need perspective, to undertake such an initiative as the Southern Tier of New York.

Impact.

- Within 20 years, the Southern Tier of New York is expected to be at the center of cutting-edge transportation technology in North America.
- Establish the Southern Tier as a "bedroom community" of New York City, i.e., within a one-hour commute time. Despite the geographical

proximity to the financial capital of the world, the Southern Tier has vastly insufficient ground transportation infrastructure connecting it with the more dynamic economy downstate. Moreover, the social and economic disconnect between upstate and downstate New York is facilitated by meager transportation links between the two.

- Showcase the Southern Tier region's capacity to design and build an innovative transportation system model that is convenient, cost effective, and sustainable—a transportation system that can connect the regions of the state.
- Demonstrate growth in other business sectors within the region as a new regional transportation system increases access to markets for products and services developed and/or produced in the Southern Tier.
- Leverage industry expertise to reduce workforce commuting costs.
- Increase new engineering jobs in the region, and as system installations begin, transfer job growth to the manufacturing, maintenance, and the innumerable support services associated with the transportation system.
- Attract young, technical talent to the region.
- Increase private sector investment in workforce development.
- Establish joint ventures between academic institutions and the private sector.
- Break the boom-bust cycle in the transportation manufacturing industry associated with strong dependence on government/defense spending that leads to a loss of engineering talent and manufacturing skills from the region.

Cost. Three capital projects are proposed with a total cost of \$14 million.

- Construction of a quarter-scale wind tunnel facility capable of high-speed flows, boundary layer removal, and balance—\$9 million

- Construction of a quarter-scale test track facility capable of testing system integration, control, and navigation electronic systems—\$4 million
- Construction of a simulation facility to permit physiologic/psychological testing that is required to extend the system capabilities beyond freight hauling to passenger transportation—\$1 million

Leveraging Resources.

- Obtain \$50 million in venture capital financing and \$100 million in Transportation Equity Act (TEA) funds by 2016.
- Launch nine new ventures.
- Leverage the extensive resources and expertise of the region's transportation industry cluster consisting of more than 50 businesses involved in a wide range of transportation technologies, including mass transit, defense transport, simulation, and hybrid vehicle development. Specific examples include:
 - Avionics/vehtronics expertise at BAE and Amphenol Aerospace
 - Power train expertise at Borg Warner and Sikorsky
 - Advanced materials expertise at Corning Incorporated and Cornell University
 - Simulation expertise at more than 12 companies, including Rockwell-Collins, L3, Binghamton Simulator, Diamond Visionics, etc.
 - Autonomous vehicle control expertise at Lockheed Martin and Binghamton University
 - Sustainable/environmental engineering expertise at Cornell University
 - Logistics expertise at Raymond Corporation, Maines, Inc. and Binghamton University
 - Vehicle manufacturing of CAF USA and Alstom Transportation

Implementation Plan. The Southern Tier Transportation Alliance, with the support of the Southern Tier Region Economic Development Corporation, will guide the development of the above three facilities, which will be operated by three new ventures. These ventures will be responsible for funding, operating, and maintaining these facilities so they do not become a burden on the state.

To achieve its goals and potential, the Transportation Alliance will work closely with the Southern Tier Region Economic Development Corporation to make certain key resources are available for growth of the industry, such as shovel-ready sites. In addition, the Alliance has the opportunity to collaborate with the Energy Development Alliance for New York—EDANY (Strategic Action Item #1C) to develop strategies related to use of energy in products.

Projected Five-Year Outcomes and Measureable Results.

- Joint ventures between academic institutions and the private sector
- Doubling in revenue in the existing transportation industry cluster over five years
- Creation of 400–500 jobs
- A minimum of nine spin-off companies that are created
- At least six additional new ventures are expected to arise from six engineering initiatives that will be launched as seed sites for creating transportation industry collaborations throughout the Southern Tier. Specifically:
 - Advanced vehicle body and surface engineering
 - Autonomous vehicle control and navigation
 - Advanced vehicle power trains (electric)
 - Advanced guideway engineering for very high speed vehicle travel
 - Transportation power distribution systems
 - Infrastructure engineering for high-speed systems/multi-modal interface

- Increase corporate, worker and consumer confidence. Upstate New York was once a hotbed of innovative activity. This can-do spirit can be revived by tackling and succeeding in a “big challenge,” and the region will regain confidence in itself, resulting in many more successful projects of similar importance and equal success.

Strategic Action Item 2B. Southern Tier Transportation Industry Cluster

Under the umbrella of the Southern Tier Transportation Alliance will be the formation of a consortium of Southern Tier businesses and academic institutions dedicated to the mass transportation and military helicopter industry. This consortium will become known as the Southern Tier Transportation Industry Cluster, with the objective of developing an innovation culture and structure, as well as an aggressive marketing strategy, to build this niche of the transportation industry.

The consortium will capitalize on upcoming New York Metropolitan Transit Authority (NYMTA) project spending while developing industry and academic collaboration to drive an innovation culture and structure designed to mitigate the boom and bust cycle that characterizes both the mass transit and military helicopter industries. Through innovation, the cluster can continue to be both the high employment/high wage sector that it now is with the addition of the consistency required to become sustainable.

The Southern Tier has the majority of the assets and skills in place for pursuit of the pending NYMTA work. These resources will be augmented with incentive funding to maximize the portion of the NYMTA bids garnered. The incentive funding will be in the form of value-added based grants, asset based loan guarantees, and workforce training. Additional grant-based funding is anticipated to be pursued in the future for industry/academic development of specific areas of innovation.

The consortium also will work with the academic institutions to develop workforce strategies to assure an adequate supply of personnel and associated training.

Opportunity. There is an established and immediate demand from New York transit agencies to reduce costs. This demand extends to 40% of the top ten transit authorities all of which are located in the northeast corridor.

There is a high level of projected growth for ground transportation resources throughout the country. Specifically, the NYMTA has stated that it is issuing bids for work exceeding \$1 billion in value. In addition, the NYMTA has expressed a desire to see as much funding as possible spent in upstate New York. The region has the opportunity to focus the mass transit industry cluster and provide the NYMTA with savings while generating industry momentum. This, coupled with concentrated efforts to build collaboration between industry and academic resources, will provide the foundation for bringing an innovation culture to both the mass transit and helicopter industries. This strategy takes advantage of the region's underused transportation development and manufacturing capacity and the opportunity to capture a significant portion of the NYMTA market.

This project also takes advantage of the potential use of the research at the region's outstanding universities, Cornell and Binghamton. For example, BAE Systems is an industry leader in hybrid transportation power system development and vehtronics, while Lockheed Martin, in collaboration with Cornell and Binghamton Universities, has become an industry leader in remotely controlled and autonomous vehicles. Corning Incorporated is actively involved in emission control, and Rockwell-Collins is an industry leader in the development and manufacturing of transportation simulators.

Examples of initial innovation projects to be undertaken include:

- Propulsion and drive-train systems—Cornell University and Alstom
- Manufacturing methods—CAF USA and Corning Community College
- Logistics and transportation system management—Binghamton University and BAE Systems

- Innovative electrical improvements—Amphenol Inc. and SUNY Delhi
- Ceramic applications for brakes and power—Ceramic Corridor Alfred University and Corning Incorporated

Impact.

- Increases new engineering jobs in the region, but as system installations begin, job growth will transfer to the manufacturing, maintenance, and support services associated with any transportation system
- Attracts technical talent to the region
- Increases private sector investment
- Opportunity for spin-off companies
- Joint ventures between academic institutions and the private sector

Cost. The initial (NYMTA bid) phase of the project would impact New York State fiscal years beginning April 1, 2012, and thereafter for five years ending March 31, 2017, and totals \$5,325,000. Following is a chart of impacts by fiscal year:

The innovation phase of the project is anticipated to consist of the pursuit of competitive grants for innovation projects. Total funding requested for the

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	TOTAL	Note
Consortium development funds	\$25						1
Value Added Grant Programs	\$225	\$675	\$675	\$450	\$225	\$2,250	2
Loan Guarantees	\$175	\$350	\$350	\$350	\$350	\$1,575	3
Workforce Training	\$750	\$188	\$188	\$188	\$188	\$1,500	4
TOTAL	\$1,175	\$1,213	\$1,213	\$988	\$763	\$5,325	

- Notes: 1. Miscellaneous consortium startup funds
 2. Basis of 1% of \$225 million in value added
 3. 35 basis points for loan guarantees totaling \$100 million
 4. Training for 1,000 workers at \$1,500 each

innovation project phase is \$5 million spread equally between year one (SFY ended 3/31/13) and year five.

Leveraging Resources.

- Leverage nearly \$100 million in private sector resources.
- There are upcoming bids for mass transit projects exceeding \$1 billion. The region already has the assets and skills to compete for this work, but needs incentives to assure provision of the least cost alternatives to the NYMTA.
- An estimated \$4 million in private sector training funds will be invested. In addition, the consortium will work closely with the academic institutions in the region to create the necessary workforce development programs.

Implementation.

- Name STTIC consortium structure and constituents
- Hold initial meeting to determine immediate requirements for NYMTA bid incentives
- Aggregate proposals from constituents for NYMTA bid incentives
- Allocate incentive funds for NYMTA bids
- Determine innovation focus areas and responsibilities
- Launch funding applications for innovation projects

Projected Five-Year Outcomes and Measureable Results.

- 1,000 workers trained and 3,000 jobs retained
- 30% reduction in unemployment weeks for primary consortium members
- \$100 million private sector investment
- Commercialize at least five innovative products/applications for mass transit and/or helicopter industries

STRATEGY 3

HEALTH CARE 2020...INTEGRATING HEALTH CARE PROVIDERS, HIGHER EDUCATION AND CUTTING-EDGE TECHNOLOGY

Southern Tier Health Care 2020 will build on recognized regional strengths and resources to integrate the region's health care providers, higher education, and cutting-edge technology in a comprehensive initiative that will strengthen the health care industry's long-term sustainability and leverage the technology development and education provided by the academic institutions. The initiative also will provide essential tools necessary for enhancing care management techniques and improving the health status of individuals, communities and the collective workforce throughout the eight-county Southern Tier region. Elements of the initiative include:

- Develop a Regional Health Information Exchange and Electronic Medical Record System that will facilitate effective care management and support the expanded use of health care technology in the region.
- Develop and expand care coordination and chronic-condition management in rural areas and home settings by employing telemedicine and mobile health care.
- Leverage local municipal and private investment for development of senior living communities built using publicly-owned properties that are unused or underused to meet the future housing needs of the seniors who live in the region. Communities will be attractive to persons currently living in the nearby metropolitan area.
- Expand workforce training, retention, and development.

Impact.

- Enhance the health care industry's sustainability as a major regional industry cluster and provider of essential services.
- Implement a regional workforce development strategy in which health care providers and academic institutions engage in collaborative efforts to recruit, educate, and train health care workers with a particular emphasis on registered nurses, nurse practitioners, physician assistants, skilled technicians, and IT professionals.
- Maintain a stable and healthy workforce throughout the Southern Tier.
- Maximize effective and efficient care management and coordination, with a focus on regional residents with chronic and/or co-existing conditions.
- Integrate new technology with regional health care services to increase access, with an emphasis on rural areas, and assure cost-effective service delivery.
- Effectively respond to the needs and expectations of a rapidly aging population.

Strategic Action Item 3A. Regional Health Information Exchange and Electronic Medical Record System

A comprehensive Regional Health Information Exchange and Electronic Medical Record System will be created that will facilitate effective care management and support the expanded use of health care technology in the region, using Cornell University's and Binghamton University's capabilities in informatics.

This will become a model system for other regions of New York State. The initiative will allow the electronic medical record systems of all the health care providers and service delivery locations (hospitals, physicians, clinics, county health departments, etc.) throughout the Southern Tier region to communicate, regardless of the IT systems and proprietary electronic medical record applications used by the different health care systems.

Opportunity. The Southern Tier Health Link, a regional health information organization (RHIO) has been established to facilitate sharing medical records. The Southern Tier Health Link is the most fully developed RHIO in New York State. However, the providers in the region are developing electronic medical record systems in silos using different proprietary IT applications. This project takes the Southern Tier Health Link to the ultimate level of information exchange by drawing on the informatics expertise at Binghamton and Cornell Universities to develop a model that will allow all of the IT applications and vendor packages to communicate. The result will be a technology system developed in the Southern Tier Health Link that could be used as a model for the balance of the RHIOs in New York State, in support of New York State's goals to support the RHIOs.

Impact.

- Coordination of care
- Availability of pertinent medical information
- Ability to sign on to a system and obtain medical records regardless of the patient's geographic location

Cost. \$5 million

Leveraging Resources.

- Leveraging the initial investment of a \$750,000 Health Care Efficiency and Affordability Law (HEAL) grant that was used to create the Southern Tier Health Link
- \$100 million investment by providers—health care systems, independent physicians, dental clinics, hospitals, etc.

Implementation.

- The Southern Tier Health Link will be the lead agency and will work with universities to define the ideal state, perform a gap analysis to identify technical barriers, and develop the informatics solution to allow communication among the various networks.

- The other RHIOs represented in the eight-county region will be engaged.
- Develop an implementation plan.
- Develop a provider and public education plan to ensure compliance.

Projected Five-Year Outcomes and Measurable Results.

- Access to medical records throughout the region to and from providers
- Reduction in the redundancy of testing and related costs
- Improved health management
- Quicker response and better care
- Support of New York State's goal to reform its Medicaid program

Strategic Action Item 3B. Expand Rural Health Care

This initiative will develop and expand the use of sophisticated diagnostic tools and care methods using telemedicine and mobile health care technology, together with training and deployment of mid-level health care providers and IT personnel, to provide care to persons living in the remote areas of the Southern Tier region.

Opportunity. The Federal Patient Protection and Affordable Care Act of 2010 includes numerous chronic condition and care management provisions, encouraging the use of best practices and measurement of outcomes to universally improve the quality of care as measured qualitatively among specific patient populations. The Health Sciences Institute reports approximately 75% of all U.S. health care spending is attributed to chronic conditions, for which there are accepted standards of care. Using telemedicine and mobile health care technology, there is the opportunity to develop and expand care coordination and chronic condition management in rural areas and home settings, using a shared IT base to compare outcomes and explore best practices in managing patients with specific chronic disease diagnoses.

In addition, public investment in cutting-edge telemedicine and mobile technology, together with creative collaborations, will help New York State and the Southern Tier address a growing health care workforce shortage and meet recruitment and retention challenges confronting health systems and individual providers throughout the region.

Impact.

- Improved access for persons living in rural areas.
- Eliminate transportation issues for the elderly and low-income persons.
- Reduce hospital admissions and create savings for Medicaid and Medicare.
- Create a healthier population and workforce.
- Support New York State goals of disease management, population health and prevention and avoiding expensive hospitalizations.

Cost. \$5 million

Leveraging Resources.

- \$500,000 contribution by the regional health care providers that has been invested in limited telemedicine to date

Implementation. A fund will be established for loans and grants to health care providers and systems to acquire telemedicine monitoring systems and mobile health care vans to serve the region. The fund will be established and managed through a collaborative arrangement between the Southern Tier Health Link and the Southern Tier Region Economic Development Corporation.

Projected Five-Year Outcomes and Measurable Results.

- Maximize the potential of New York State and federal policies aimed at constraining health care costs and improving quality through a greater reliance on information technology and chronic condition case management.

- Significantly expand the proven effectiveness of the program that currently has limited telemedicine monitoring systems and mobile health care vans in the region.
- Provide cost effective alternatives to hospital-based services.
- Develop and expand care coordination and chronic condition management in rural areas and home settings.
- Improve the metric of lost productivity for businesses.
- Improve the region's "healthy" statistics and reduce "community rated" health insurance premiums, which have the largest impact on the cost of these plans for small- to medium-sized businesses.
- Reducing health insurance premiums can, and will, lead to growth of new positions for businesses with under 200 insured staff.

Strategic Action Item 3C. Senior Living Communities

New York State "gap financing" will be used to leverage local municipal and private investment for development of senior living communities built using publicly owned, but unused or underused, properties. The communities will consist of small housing for independent living, assisted care, and long term skilled nursing care, thereby allowing residents to "age in place" and transition to different levels of housing without leaving their community. The objective is to create "villages" for people with different abilities and needs, and improve the quality of life of the aging population. Instead of antiquated nursing home care, the aging will be better housed and cared for in an emotionally healthier environment. A prototype project will be developed using vacant and underused property at the Binghamton Psychiatric Center.

It is anticipated that development of senior communities would include housing, such as Greenhouse Project residences, that would allow seniors to have a better quality of assisted care and lower health care costs; thereby, assisting in the containment of government health care costs for that population.

Opportunity. Many nursing homes are antiquated and have been demonstrated as less than ideal for both the residents' and caregivers' physical and emotional needs. As baby-boomers age many may seek housing in age-friendly communities where transitions from levels of need are not accompanied by relocation from known communities and friends. Studies suggest that the trend will be one-floor buildings that house 15–30 residents and are grouped in campus settings. The region's cost of living and open available spaces, compared to metropolitan areas, suggest that senior living communities in the region could be developed and offered at an attractive price difference while being easily and quickly accessible to such metropolitan areas.

It is recommended that a prototype project be developed using vacant and underused property at the Binghamton Psychiatric Center. This project would serve as a model for future development in the region. The project leverages state and local funding, use of technology developed by Binghamton and Cornell Universities, underused property, existing programs such as New Markets Tax Credits, and not-for-profit developer investment. It is also intended that the project would benefit from the high quality of health care in the region and the proximity to Binghamton University and other cultural resources such as music and theatre.

The project would use the lessons learned by three models in Ithaca, New York, including the Kendall Life Care Community model and the proposed West Hill project, which is located adjacent to Cayuga Medical Center at Ithaca. This latter project is a "neighborhood model" that is being designed as a community node around the Cayuga Medical Center at Ithaca health care facilities with an emphasis on a healthy and active lifestyle that will reduce long-term health care costs. The third model is a partnership between Ithaca College's (IC) Gerontology Institute and the life care facility, Longview. IC students participate actively in programs with Longview residents, who regularly attend events on campus. Both the academic program of the college and the life care environment of Longview are models of care that can be replicated across the region.

It is anticipated that a number of factors would encourage seniors to relocate to the region, such as lower costs, ready access to high quality health care, safe community living, cultural and recreational opportunities throughout the region, ease of travel within the region, and the established highway systems for ease of access to and from major metropolitan areas.

This project also provides opportunities for joint initiatives with SUNY Upstate Medical University and the various academic programs that educate nurses and other primary care providers.

Cost. \$5 million for preliminary engineering and design and infrastructure development, such as roads, water, sewer, and utilities.

Leveraging Resources.

- Leverage private sector investment at an estimated rate of 5:1 for each major project
- \$13 million in funding from Broome County
- Public sector investment through the lease of unused public properties to private sector developers, thus, generating revenues for public entities while allowing developers to cost-efficiently optimize the sites for senior housing
- Programs such as New Markets Tax Credits
- Regional health care providers
- Technology development generated by universities
- SUNY Upstate Medical University

Impact.

- Addresses two critical needs of the Southern Tier: (1) improvement of senior care and reduction in future health care costs to individuals and governmental entities; and (2) the commercial development of senior multi-age communities that would attract residents from metropolitan areas and provide employment opportunities within the region for both skilled and unskilled workers

- Facilitates the commercial use of currently unused/underused public properties and creates revenue streams for counties and municipalities as well as the surrounding communities
- Helps the region retain its older residents and attract new residents looking for a safe and affordable retirement destination

Implementation.

- Confirm commitment of Broome County to use land associated with the Binghamton Psychiatric Center as a prototype.
- Issue an RFP to private developers. Proposals would be considered that best meet the objective as well as leverage financial resources.

Projected Five-Year Outcomes and Measurable Results.

- Leverages public sector investment through the lease of unused public properties to private sector developers, thus, generating revenues for public entities while allowing developers to cost-efficiently optimize the sites for senior housing
- Leverages programs such as New Markets Tax Credits and low-income housing tax credits, not-for-profit grant funding from a source such as “Generations of Hope,” and Broome County funding
- Uses technology developed by Binghamton and Cornell Universities
- Creates jobs to support the new facilities and related services

Strategic Action Item 3D. Health Care Workforce Development

Professional workforce resources, together with the integration of new technology, are essential elements of maintaining an effective and efficient delivery of health care services in the region. Southern Tier Health Care 2020 addresses critical workforce training, retention and development issues in public and private health care, education, business, and industry. It also creates targeted public investment opportunities in health care and higher education collaborations that focus on IT professionals, nursing education and other health care related faculty positions.

This initiative includes two elements:

- Recruit faculty at the community colleges, four-year colleges and universities to expand the number of accessible academic programs, with an emphasis on programs that prepare advanced practice or master's-prepared nurses.
- Expand the current programs involving health care systems and academic centers using a practical collaborative model to address workforce training. This involves streamlining the coordination between the health care providers and education institutions to implement a hospital-based recruitment and training program. This will need to be done while adhering to academic accreditation standards.

Opportunity. Both the National Academies of Sciences Institute of Medicine and the World Health Organization have concluded that the current health care workforce is not prepared for a new health care environment, where chronic, rather than acute or episodic conditions, predominate. Health care policy experts believe that chronic disease prevention and chronic care improvement will be two of the fastest growing fields in health care and there is an inadequate supply of mid-level providers. The community colleges, four-year colleges and universities in the region provide outstanding education for workers in the health care field, particularly registered nurses, nurse practitioners, physician assistants and other mid-level providers; however, there is a lack of qualified faculty to meet the demand in the region's immediate and long-term future.

Impact. Having an adequate number of well-trained, mid-level health care providers will have a significant impact on the ability of the health care systems to respond to the needs of the aging population and those in the remote areas of the region, particularly persons with chronic diseases.

Cost. \$1.5 million per year for five years for faculty recruitment and equipment and technology for workforce training, with emphasis on training registered nurses, nurse practitioners and physician assistants.

Leveraging Resources.

- Leverage the high quality health care education and training programs at the region's community colleges, four-year colleges and universities.
- Utilize SUNY Upstate Medical University.
- Work with the academic institutions to draw on the in-house training expertise in the health care systems of the region.

Implementation.

- Work with the region's academic institutions and health care systems to recruit or share faculty to lead educational programs required to meet staffing needs of the future.
- Initiate a platform for collaboration in the development of health care training ventures and accelerated, affordable curricula, designed to allow unskilled health care employees to advance to licensed and certified positions, while attracting aspiring health care professionals and career-changers to the same programs.
- Develop curricula for entry-level health care employees and reach out to targeted market segments.
- Develop a robust and targeted marketing initiative to attract prospective students to the programs in coordination with health care systems and educational institutions in the region.

Projected Five-Year Outcomes and Measurable Results.

- Train a minimum of 1,450 new and replacement health care workers within five years, with emphasis on registered nurses, nurse practitioners, physician assistants, technicians, technologists, and health care IT workers.
- Maintain and grow an essential labor force to address critical needs today and to meet the challenges of an aging population and high-volume service demands for decades to come.

- Address a growing health care workforce shortage, particularly the deficit in nursing faculty.
- Return on investment will be realized through a stable, skilled and healthy workforce paying taxes, buying goods and services and meeting essential service demands from the Baby Boom Generation for decades to come.

STRATEGY 4

REVITALIZE THE RURAL FARM- AND FOREST-BASED ECONOMY OF THE SOUTHERN TIER

Strategic Action Item 4A. Rural Initiative Venture Fund

The Rural Initiative Venture Fund is a regional program designed to reduce financial risk and increase sustainability of agriculture and forestry ventures through product development and promotion, business infrastructure development and the use of new technology. The Rural Initiative Fund will provide startup and expansion capital through a revolving loan fund and grants. Examples of projects to be funded:

- Processing facilities for value-added agricultural products, including facilities that could accommodate multiple producers such as commercial kitchens and mobile USDA-certified meat processing facilities
- Regional farmers markets
- Regional marketing initiatives, including wholesale markets and distribution businesses
- New farm startups and transfers to the next generation of farmers
- Investment in new technologies such as high tunnels to extend the growing season
- Renewable energy including biomass production and processing
- Production of sustainably certified forest products

Opportunity. The Southern Tier has the opportunity to grow and diversify the agricultural industry in a variety of ways, ranging from implementation of new technology to extend the growing season, promotion of regional products, creation of value-added products, to supporting renewable energy and enhancing other regional industries such as agri-tourism. In addition, there are numerous resources available to support this initiative, including Cornell's College of Agriculture and Life Sciences with its nationally recognized research and technology and effective relationships with farm cooperatives and marketing associations, and the Cornell Cooperative Extension. And finally, the national movement to consume locally made products and fresh foods is providing a new and powerful driver for growing our value-added regional agricultural sector.

The single largest barrier preventing farmers from harnessing agricultural resources and taking advantage of emerging opportunities is their inability to secure bank financing. Funding through the Rural Initiative Venture Fund will accelerate diversification, new product development, and efficiency improvements through the application of modern, appropriate technology. Access to such venture capital will allow the farmers to leverage other sources of funding for capital investment and reduce the risk of traditional financing sources.

Impact.

- Accelerate diversification, new product development and efficiency improvements.
- Increase employment in agriculture and related sectors.
- Increase revenue and long-term sustainability of agriculture and forestry businesses.
- Support regional efforts of energy efficiency and renewable energy programs.

Cost. Create a fund that would include \$8 million to seed a revolving loan fund and \$2 million in grants

Leveraging Resources.

- 3:1 ratio of private investment to loan/grant
- Funding available through programs such as Governor Cuomo's Farmers' Market Initiative, USDA programs, NYSEDA programs, U. S. Department of Energy programs, and the Southern Tier Opportunity Coalition (STOC)
- Ready availability of agricultural land and biomass in support of energy programs and initiatives
- Training and technical resources available through entities such as Stronger Economies Together (SET) and the Cornell Cooperative Extension offices throughout the region
- Technology development and agricultural outreach (e.g., FarmNet, Pro-Dairy, Milk Quality Improvement Program, Farmworkers' Program, the Small Farms Program, and more) at Cornell University's College of Agriculture and Life Sciences

Implementation. The Southern Tier Region Economic Development Corporation (STREC) will establish the loan/grant fund and use the Regional Council's Agriculture Work Plan Group to develop criteria and guidelines for the fund. In addition, the STREC will consider the Work Plan Group a review committee for applications.

Projected Five-Year Outcomes and Measurable Results.

- Leveraging of \$24 million in private investment (rate of 3:1) against the region's loan and funding available through programs, such as the Farmers' Market Initiative, to create new wholesale and marketing businesses, new processing facilities for value-added agricultural products, reinvestment in existing infrastructure, and increase revenue and long-term sustainability of agriculture and forestry businesses
- Creation of 2,000 jobs over five years

- Creation of startup farm operations and other agri-businesses such as wholesale distribution
- Creation of one major new farm market
- Applied technology developed at Cornell University to add value to agricultural and forest products

STRATEGY 5

STRENGTHEN THE SOUTHERN TIER'S ECONOMIC DEVELOPMENT BACKBONE

Strategic Action Item 5A. Southern Tier Community Revitalization Project

The Southern Tier Community Revitalization Project will provide "gap financing" for private sector redevelopment of key buildings, infill of new buildings, and development of our region's downtowns, neighborhoods and rural population centers, which will particularly benefit those communities damaged by recent storms and flooding in 2011. The project will allow each community to identify its own priorities and to structure projects to support unique local needs and marketing strategies in targeted areas.

The initiative will fund projects that use a collaborative approach to provide improved and diverse downtowns, housing options, commercial and retail opportunities linked to the population, and public space (e.g. sidewalks, parks, river trails, and gathering spaces) that create a sense of neighborhood.

The objective is to use both state and federal public investments as "gap financing" for specific downtown and community neighborhood revitalization projects that have a financing strategy and can demonstrate the greatest potential to leverage public funds and non-profit resources (such as housing authorities and local development corporations) to attract and sustain both short-term and long-term private capital and to act as a

catalyst for further development. The funding is not intended to be the primary source of financial support for downtown and neighborhood revitalization. Project funding is intended to offset the high redevelopment costs of urban construction or rebuilding of severely impacted businesses that are the backbone of population centers and to fill funding gaps preventing projects from advancing.

There is substantial demand for downtown and neighborhood revitalization initiatives throughout the entire region that would help meet the growing demand for urban apartments and commercial development while stimulating the local economy. There is also substantial need for rebuilding local businesses damaged or destroyed by recent flooding that support the families that live in the population centers. There are many developers prepared to move forward with significant financial investment if they can secure the needed gap financing that allows many projects to become reality. An example is the War Memorial Library building project in Corning, NY. An investment of \$1.5 million would renovate this vacant building that is listed on the National Register of Historic Places into a mixed-use building with affordable middle-income apartments and first floor retail spaces.

Impact.

- Creation of quality commercial space for business development and entrepreneurial enterprises
- Creation of residential housing options
- Enhanced tax base
- Responds to recent natural disasters that have severely impacted the sustainability of many downtowns
- Supports New York State and local smart-growth principles
- Supports recruitment and retention of a talent-based workforce
- Builds on the existing infrastructure and housing stock by upgrading or replacing outmoded styles with new construction designed to meet changing needs and blend into the downtown and neighborhood character

- Recaptures value of neighborhoods that have underused or deteriorated public assets

Cost. \$60 million over three years

Leveraging Resources.

- Local, state and federal funding (NY Main Street, CDBG, HOME, New Markets Tax Credits, etc.)
- Private investment—philanthropic, corporate and individual

Projected Five-Year Outcomes and Measurable Results.

- Funding in the amount of \$60 million over three years will leverage a minimum of \$60 million in additional investment
- A minimum of 60 downtown and neighborhood revitalization projects

Strategic Action Item 5B. Regional Broadband Communications Project

Broadband service needs will be addressed, ranging from sophisticated technology transfer projects taking place between universities and large businesses, to the home-based entrepreneurs in the more remote, rural areas of the region. The region will have enhanced ability to achieve a higher level of global competitiveness, while simultaneously promoting urban revitalization and smart growth. Components include:

- Extend and Strengthen the “Middle Mile.” Extend broadband backbone to all eight counties in the Southern Tier to increase both the region’s global competitiveness and support several strategic economic development initiatives.
- Connection for the “Last Mile.” Extend broadband to the “last mile” via fiber and wireless service that will benefit small businesses, home based businesses, and residents.
- Partnering with community colleges and libraries. Provide training

in popular new technologies and applications to residents and small business owners.

Opportunity. There is the opportunity to extend dark fiber while also leveraging the existing fiber to bring sufficient capacity to un-served and underserved areas. In addition, there will be partnerships with the local community college and libraries to provide training in “hot” new technologies and applications such as blogging, Twitter, Facebook, Google+, etc.

A good example of success is the Southern Tier Network (STN), a not-for-profit entity that was formed to finance and facilitate the extension of the “middle mile” to Chemung, Schuyler, and Steuben Counties. It has demonstrated that such a network of municipalities and users can facilitate the delivery of broadband throughout the region.

Impact.

- Health Care 2020 that involves digital transmission of patient records, telemedicine, and creation of virtual rural clinics
- Entrepreneurial business development, including the initiative to retain university student talent in the region
- Strengthening of the tourism industry throughout the entire region, particularly those initiatives linked to moving auto travelers to tourism venues and destinations in the more rural areas of the region
- Attraction of new business development, especially those reliant on data processing and transmission, with a key infrastructure in the form of Open Access Fiber
- Support the Energy Development Alliance for New York—EDANY, strategic action item 1C, that involves partnerships between universities and the private sector to bring about productization of energy technology
- Research and development collaboration between the centers at Binghamton University and Cornell University

- Increase the desirability of the region as a tourism destination, and particularly support bed and breakfasts, artisans and related businesses in the more rural areas
- Telecommuting for employees living in the rural areas
- Utilization of “dark fiber,” an integral part of the initiative to develop the infrastructure for competitive shovel ready sites

Cost. \$5–7 million

Leveraging Resources.

- Leverages a \$3–5 million investment by municipalities, major users, and the service providers
- Builds on the existing fiber network (STN) to extend high-speed internet access to “the last mile” of businesses and households
- Training resources provided by the community colleges

Implementation.

- Complete the research necessary to identify the underserved population/businesses.
- Determine the mix of technologies (wireless and fiber).
- Develop the financing model for wireless and/or fiber-to-the-home build out, which could be either a low/no-interest loan or user subsidy.
- Issue RFP through the Southern Tier Region Economic Development Corporation and receive competitive applications for entities to provide service.
- Obtain buy-in from the affected communities by simplifying zoning applications and waiving permitting fees.
- Establish leases or rights-of-way.
- Build relationships with the libraries and community colleges to develop training programs.

Projected Five-Year Outcomes and Measurable Results.

- Reduce underserved residents and businesses in the region from 15% to 2%.
- Gain high-speed Internet connection for an estimated 26,000 rural households and businesses.
- Establish broadband access to help health care providers exchange information and establish remote health care clinics.

Strategic Action Item 5C. Shovel Ready Site Development Project

The Regional Infrastructure Fund for Shovel ready Sites will be established and used as matching funding to leverage federal, state, municipal, local development corporations, economic development agencies and private sector financing to gain a competitive edge and grow and attract businesses to the Southern Tier region. Sites might include an existing building, former brownfield, location, or combination of all that has been prepared for development.

The fund will be flexible and include funding for projects that have infrastructure and/or soft costs to complete SEQRA and engineering. Further, the fund will be used for both grants and loans, similar to the NYS DOT IAP fund, which was 60/40 split with a minimal interest fee. In the case of loans, it is recommended that the agency would make interest-only payments on a loan, and payment of the principal would be extended for a reasonable period of time or until the site attracted its first project. For example, frame the loan for a ten-year window so after ten years, repayments would begin automatically regardless of whether development has taken place.

Opportunity. There is a minimum of 16 sites with a required investment of \$30 million throughout the Southern Tier region that have the potential to become shovel ready sites.

In today's global economy the amount of time it takes to bring a product or service to market in many cases is more important than the location of a facility. The uncertainty of whether a site can physically meet the demands of a project and can get all the necessary regulatory approvals often presents too much risk for companies looking to expand or relocate and most times the site will not even be considered. A shovel ready site will provide a community a competitive advantage by not only demonstrating to a company that the site can be developed quickly, but also that the community has planned for the future development and growth of its business base.

Having an economic development site certified as a "Shovel Ready Site" means that the local developer has worked proactively with the state to address all major permitting issues, prior to a business expressing interest in the location. This advance work creates a site where construction can begin rapidly, once a prospective business decides to develop a facility there. By reducing the time it takes a company to begin construction of a new facility, New York State and its local partners are able to provide valuable savings to the business as well as job opportunities for local residents.

This project also provides the opportunity to redevelop existing buildings, former brownfields, and underused land.

Impact.

- Eliminates a significant barrier to economic development by having a site certified as shovel ready
- Has the potential to use brownfields, underused and vacant land, and vacant buildings
- Leverages investment in an industrial/technology site by private developers, municipalities and economic development agencies

Cost. \$15 million over three years

Leveraging Resources.

- Investment in the site by private developers, municipalities and economic development agencies
- Federal and state funding programs such as ARC and Environmental Facilities for water and sewer extension from the municipalities
- New York's Shovel Ready Certification, the premier designation available through the Build Now-NY Program.

Implementation.

- The fund will be established and overseen by the Southern Tier Region Economic Development Corporation.
- Guidelines will be established and competitive applications for grants and loans will be received.
- Projects selected for investment in infrastructure must demonstrate leveraging of local dollars, creation of businesses, job creation, and private sector investment.

Projected Five-Year Outcomes and Measureable Results.

- Leverage \$15 million in investment by municipalities and economic development agencies
- Leverage at least \$1 million in federal and state funding programs such as ARC and Environmental Facilities for water and sewer extension from the municipalities
- 8–10 sites secure New York Shovel Ready Certification and will be prepared to receive tenants over the next five years
- 35–40 new businesses
- 4,500+ new jobs created

SECTION V: IMPLEMENTATION AGENDA

"It is clear to me that we need to 'do business' differently to transform the Southern Tier back into a financially vibrant region with obvious job opportunities, especially for our young people. At a professional level, I would like to see the Southern Tier become a place where my college's graduates decide to stay, to start businesses, and to raise their families. At a very personal level, my family has made its home in the Southern Tier since 1926. My sons have expressed interest in making their homes here, too. I am deeply, personally, committed to the region."

— Kathryn Boor, PhD

The Ronald P. Lynch Dean
Cornell University College of Agriculture and Life Sciences
Professor, Food Science Department
Ithaca, NY

SOUTHERN TIER

The Cornell University Agricultural Experiment Station (CUAES) has adopted a culture of sustainability that supports the university's effort to reach zero carbon emissions by 2050. The CUAES has already begun retrofitting greenhouses with energy-saving light fixtures, among other measures. CUAES is set to complete a feasibility study for the Cornell University Renewable Bioenergy Initiative (CURBI), a \$9 million plan to harness 57 campus waste streams and other biomass resources for generating bioenergy for use at Cornell. The CURBI facility plan is shown at right.



SECTION V. IMPLEMENTATION AGENDA

Part 1. Implementation Schedule

The Regional Council has identified the necessary steps, timeframes, resources and responsibilities for implementation of the plan. Below is a project implementation matrix to track progress.

Strategic Actions/Projects	Lead Agency and Partners	Resources	Timeline				
			Year 1	Year 2	Year 3	Year 4	Year 5
Strategy 1. The Southern Tier...New York’s Leader in Energy Efficiency and Renewable Energy Technology							
Strategic Action Item 1A. Southern Tier Renewable Energy and Efficiency Initiative—Residential and Small Scale Commercial Retrofit	Lead Agency: Cornell Cooperative Extension of Tompkins County Partners: Cornell Cooperative Extension offices throughout the region; counties and local municipal government agencies; Southern Tier Region Economic Development Corporation	Resources: Green Jobs Green NY; On-Bill Financing; NYSERDA’s Energy Smart Communities; biomass and solar-related construction and manufacturing businesses; agricultural land for biomass; Cornell University College of Agriculture and Life Sciences	X	X	X		
Strategic Action Item 1B. Southern Tier Renewable Energy and Efficiency Initiative—Large Scale Institutional and Commercial Projects	Lead Agencies: Blue Hill; Southern Tier Region Economic Development Corporation Partners: EPA; municipalities; authorities; large institutions; economic development agencies	Resources: NYSERDA; solar and biomass technology developed at Cornell and Binghamton Universities; biomass and solar-related construction and manufacturing businesses; agricultural land for biomass; Cornell University College of Agriculture and Life Sciences		X	X	X	X

Strategic Actions/Projects	Lead Agency and Partners	Resources	Timeline				
			Year 1	Year 2	Year 3	Year 4	Year 5
STRATEGY 1. The Southern Tier...Neww York’s Leader in Energy Efficiency and Renewable Energy Technology							
Strategic Action Item 1C. Energy Development Alliance for New York—EDANY	Lead Agencies: Southern Tier Region Economic Development Corporation and the Energy Development Alliance for New York—EDANY Partners: Business sector: AM&T; BAE Systems; Corning Inc.; Electron Coil Inc.; Endicott Interconnect Technologies; Lockheed Martin; MicroGen Systems; Primet Precision Materials; Raymond Corporation Cornell University: Energy Materials Center; Center for Materials Research; Nanoscale Science and Technology Facility; Center for Nanoscale Systems; Atkinson Center for a Sustainable Future; Center for Technology, Enterprise and Commercialization Binghamton University: Center for Advanced Microelectronics Manufacturing; Center for Autonomous Solar Power; Integrated Electronics Engineering Center; New York State Center of Excellence in Small Scale Systems Integration and Packaging; Northeast Center for Chemical Energy Storage; Institute for Materials Research	Resources: Community colleges; NYSTAR Center for Future; Cornell University Renewable Bio-Energy Initiative Energy Systems; funding and support from NYSERDA, NSF and DOE programs; BEAM NY, Public Service Commission’s Energy Efficiency Marketing campaign; U.S. Economic Development Administration; NY-BEST; Innovate NY Fund; Energy Frontier Research Centers funded by the U.S. Department of Energy; Southern Tier Opportunity Coalition (STOC)	X	X	X	X	X

Strategic Actions/Projects	Lead Agency and Partners	Resources	Timeline				
			Year 1	Year 2	Year 3	Year 4	Year 5
STRATEGY 1. The Southern Tier...New York’s Leader in Energy Efficiency and Renewable Energy Technology							
Strategic Action Item 1D. Energy Workforce Development Initiative	Lead Agencies: Southern Tier Region Economic Development Corporation and community colleges: Broome, Corning, Tompkins Cortland Partners: Regional businesses; BOCES; Cornell Cooperative Extension; building trades and service organizations; SUNY Delhi; Norwich Campus of Morrisville State	Resources: Workforce Development Agencies; private businesses	X	X	X	X	X
STRATEGY 2. Southern Tier Transportation Alliance... Next Generation Transportation Technology And Manufacturing							
Strategic Action Item 2A. Next Generation Transportation Development Initiative	Lead Agencies: Southern Tier Transportation Alliance; Southern Tier Region Economic Development Corporation Partners: Cornell University; Binghamton University; regional consortium of transportation industry: mass transit, defense transport, hybrid vehicle and simulation expertise, and the regional transportation agencies; and spin off companies	Resources: Southern Tier Opportunity Coalition (STOC); Energy Development Alliance for New York—EDANY		X	X	X	X
Strategic Action Item 2B. Southern Tier Transportation Industry Cluster	Lead Agencies: Southern Tier Transportation Alliance; Consortium of Southern Tier Partners: Businesses dedicated to the mass transportation and military helicopter sector; Binghamton and Cornell Universities; Southern Tier Region Economic Development Corporation	Resources: Workforce development agencies; colleges; BOCES; trades and service organizations	X	X	X	X	X

Strategic Actions/Projects	Lead Agency and Partners	Resources	Timeline				
			Year 1	Year 2	Year 3	Year 4	Year 5
STRATEGY 3. Health Care 2020...Integrating Health Care Providers, Higher Education and Cutting-Edge Technology							
Strategic Action Item 3A. Regional Health Information Exchange and Electronic Medical Record System	Lead Agency: Southern Tier Health Link (RHIO) Partners: Binghamton University and Cornell University; other RHIOs in the Southern Tier region	Resources: IT vendors	X	X	X	X	X
Strategic Action Item 3B. Expand Rural Health Care	Lead Agencies: Southern Tier Health Link and Southern Tier Region Economic Development Corporation Partners: Region's health care provider systems			X	X	X	X
Strategic Action Item 3C. Senior Living Communities	Lead Agencies: Southern Tier Health Link and Southern Tier Region Economic Development Corporation Partners: State agencies; municipalities; private not-for-profit developers; health care providers; universities	Resources: Generations of Hope grant program; Broome County; low-income housing tax credits; New Markets Tax Credits; and not-for-profit investment		X	X	X	X
Strategic Action Item 3D. Health Care Workforce Development	Lead agencies: Colleges; community colleges and universities; health care providers	Resources: Workforce Development Agencies		X	X	X	X

Strategic Actions/Projects	Lead Agency and Partners	Resources	Timeline				
			Year 1	Year 2	Year 3	Year 4	Year 5
STRATEGY 4. Revitalize the Rural Farm- and Forest-Based Economy of the Southern Tier							
Strategic Action Item 4A. Rural Initiative Venture Fund	Lead Agency: Southern Tier Region Economic Development Corporation Partners: Fund Advisory Board; Cornell Cooperative Extension Offices; farm and agriculture cooperatives and associations; REDEC	Resources: Cornell Cooperative Extension offices; Cornell University College of Agriculture and Life Sciences; SUNY Delhi; Regional Planning and Development Boards; USDA programs; NYSERDA programs; U.S. Dept. of Energy programs; Finger Lakes Farm Initiative; Southern Tier Opportunity Coalition (STOC)	X	X	X	X	X
STRATEGY 5. Strengthen The Southern Tier’s Economic Development Backbone							
Strategic Action Item 5A. Southern Tier Community Revitalization Project	Lead Agency: Southern Tier Region Economic Development Corporation Partners: Property owners; developers; municipalities; housing authorities; local development corporations; banking institutions	Resources: Historic districts and commissions; housing authorities; local development corporations; NY Main Street; CDBG; HOME; New Markets Tax Credits		X	X	X	X
Strategic Action Item 5B. Regional Broadband Communications Project	Lead Agency: Southern Tier Region Economic Development Corporation Partners: Broadband providers; municipalities; colleges; universities; large institutions; businesses	Resources: Regional planning and development boards; Southern Tier Network (STN); broadband providers; NTIA; FCC		X	X	X	X

Strategic Actions/Projects	Lead Agency and Partners	Resources	Timeline				
			Year 1	Year 2	Year 3	Year 4	Year 5
STRATEGY 5. Strengthen The Southern Tier’s Economic Development Backbone							
Strategic Action Item 5C. Shovel Ready Site Development Project	Lead Agency: Southern Tier Region Economic Development Corporation Partners: Municipalities; economic development agencies; IDA’s; LDC’s; utility companies; short line rail companies; broadband service providers	Resources: ARC; U.S. EDA; NYS ESDC; NYS Environmental Facilities Corporation		X	X	X	X

Part 2. Organizational Structure to Ensure Plan Implementation and Ongoing Public Participation

The Council has developed an organizational structure and operational arrangements to ensure implementation, including meaningful and timely public participation on an on-going basis.

Regional Economic Development Council of the Southern Tier. The Regional Council will meet quarterly, and more frequently as needed, and will be responsible for:

- Soliciting and receiving public input
- Monitoring and evaluating progress of the strategies, projects and initiatives
- Reviewing and recommending projects submitted through the CFA process
- Receiving input and recommendations from the work plan groups
- Referring statewide or inter-regional issues to the Chairman's Committee

The Regional Council's staff will continue to be the Empire State Development Corporation Southern Tier Regional Office.

Organizational Structure to Advance Projects. The Southern Tier Region Economic Development Corporation (STREDC) has been retooled and strengthened to take the lead in acquiring commitments to action, ensuring that the strategies to advance the projects are implemented within the targeted timeframe, and monitoring progress against the plan.

The role of the STREDC is to:

- Take on the task of planning, management, and coordination among the different sectors and alliances that are formed as a result of implemented strategies
- Administer loan and grant funds for projects/initiatives as identified in the Regional Council's strategic plan
- Use the Council's work plan groups as sources of technical information and develop committees for creating criteria for loans/grants, which will subsequently serve as the loan/grant review committees
- Link projects and activities named in the strategic plan with resources

- Assist with identification of funding opportunities for regional projects
- Strategize regional economic development projects and initiatives for consideration by the Regional Council as it monitors and adjusts its strategic plan
- Identify statewide issues and barriers to economic development and refer them to the Regional Council
- Recommend regional policies for consideration by the Regional Council
- Submit a quarterly report of activities to the Regional Council

Minority- and Women-Owned Businesses. The Council will encourage involvement of women- and minority-owned businesses in the implementation and on-going planning process. An example is ETM, a well-established and successful woman-owned business that has operated in the Binghamton area for 23 years. ETM, owned by Dr. Gay Canough, specializes in installation of solar energy systems and has installed over a megawatt of photovoltaics in residences, institutions and large scale commercial facilities New York State and New Jersey.

Ongoing Stakeholder and Public Participation. While the Council has engaged the public in a meaningful and transparent way during the strategic planning process, it will be important to continue public outreach efforts, particularly as the Council refines strategies to advance economic growth and begins to implement the region's vision. The Council will solicit public input on emerging, critical issues and opportunities and the strategies to address them and will enlist the community in evaluating the effectiveness of the plan and implementation activities.

The Council will use an array of public engagement methods and techniques to solicit on-going input, including, but not limited to the following:

- **Governor Cuomo's Regional Council Website** (<http://nyworks.ny.gov/content/southern-tier>). It is anticipated that the public website will

remain an important source for on-going information about Governor Cuomo's Statewide Regional Council initiative, as well as a repository for all Southern Tier Council documents and public notices. The Council will continue to solicit comments and suggestions through the website as the plan is updated and implemented.

- **Public Forums.** The Council will use public forums as appropriate to inform and update community members on future strategic planning and implementation efforts. When public forums are held, the Council will continue to employ a table discussion format, which was highly successful in engaging the public during the initial planning process.
- **Council Meetings and Work Sessions.** The Council will continue to meet, at minimum, on a quarterly basis. As with previous Council meetings, it is expected that at least a portion of each Council meeting will be open to the public. The open portion of the meetings will be used to inform the public of decisions made during the Council's work session, identify next steps and provide any other relevant announcements or information.
- **Work Plan Groups.** It is expected that the eight work plan groups formed early in the strategic planning process, which included 163 community members, will have an on-going role during the implementation phase. This on-going role of the work plan groups is outlined in the Organizational Structure to Advance Projects subsection. As implementation and planning updates occur, the additional work plan groups may be identified and formed by the Council.
- **Existing Groups, Forums, Networks and Reports.** The Council may use existing groups, forums, and networks to discuss implementation activities and solicit on-going input and suggestions as refinements and updates are made to the plan. Other planning efforts within the region will be monitored and coordinated with the Councils' to the greatest

extent possible. Updates to the Council's strategic plan will integrate other planning and economic development initiatives within the region as appropriate.

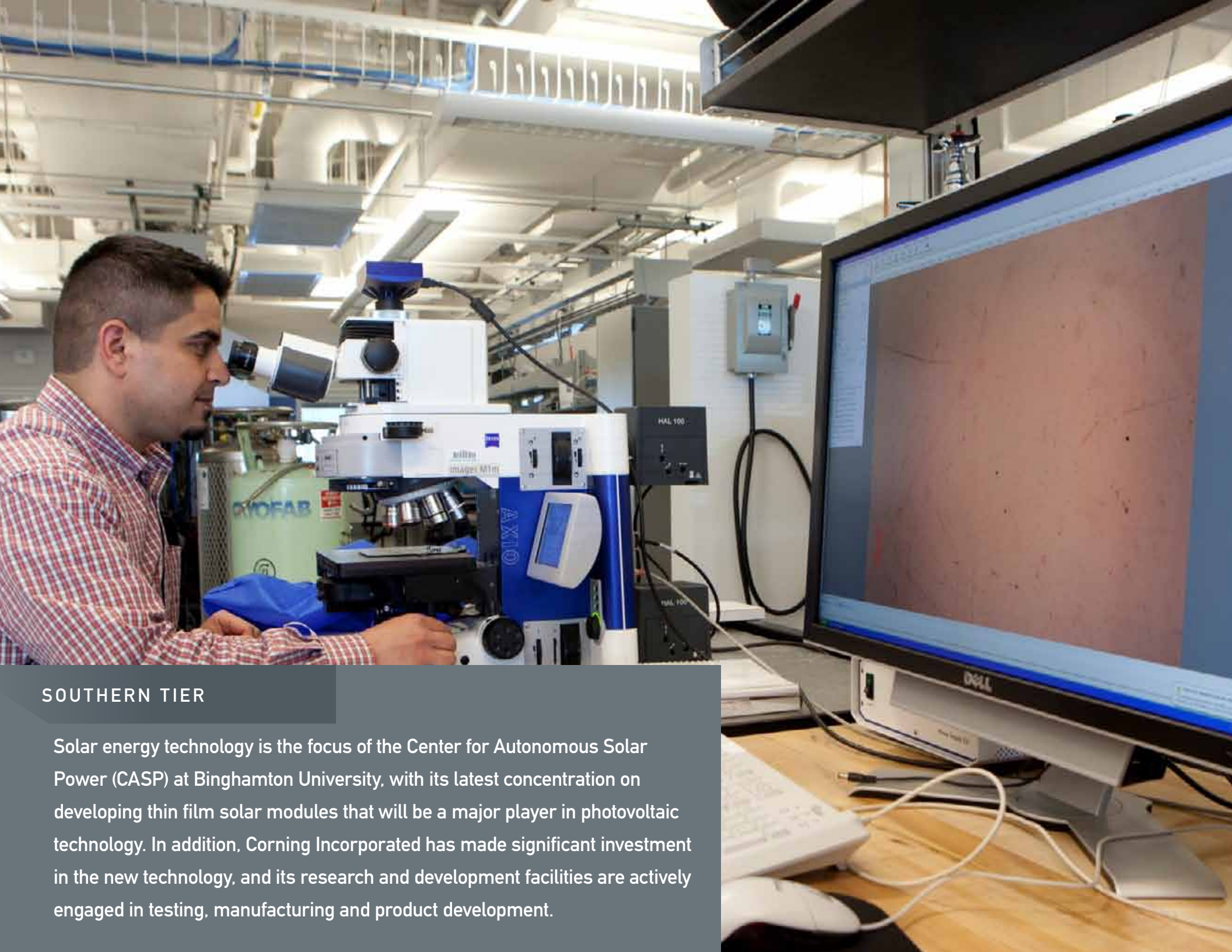
- **Media.** All future meeting dates, public forums and other key announcements will be provided to media sources within the Southern Tier through press releases distributed by the ESD Public Affairs Office. To the extent possible, the Council will use social media to enhance public engagement, with an emphasis on reaching young professionals, college students, and others who use these new media.
- **Other.** The Council will evaluate the effectiveness of its public engagement strategy on a continual basis and will explore new opportunities for public outreach and input as implementation and planning updates progress.

SECTION VI: PERFORMANCE MEASUREMENT

"I have seen respect for each member's position on the Council, appreciation of our region as a whole and the breakdown of barriers already. This has been the perfect time and opportunity for leaders from all facets of our economy to come together, cast partisanship and agenda aside, and truly communicate and work toward a shared goal. This Council is full-steam ahead and our excitement and determination is contagious."

— A. Scott Welliver

Chairman and Chief Executive Officer
Welliver McGuire Inc.
Montour Falls, NY



SOUTHERN TIER

Solar energy technology is the focus of the Center for Autonomous Solar Power (CASP) at Binghamton University, with its latest concentration on developing thin film solar modules that will be a major player in photovoltaic technology. In addition, Corning Incorporated has made significant investment in the new technology, and its research and development facilities are actively engaged in testing, manufacturing and product development.

SECTION VI: PERFORMANCE MEASUREMENT

Performance measures will provide the Council with a mechanism for evaluating and updating the strategic plan based on progress, challenges, or unanticipated circumstances. Note that the Council has developed projected outcomes and quantitative results for each project and action as described in Section IV.

<i>Outcomes and Activities to be Measured</i>	<i>Measures</i>
Growth in Targeted Industry Sectors	
Productization of Energy Technologies	<ul style="list-style-type: none"> • State and federal funding leveraged • Private sector investment in prototype development and productization • Increased intellectual property development, licensing and commercialization • Percentage growth in exports • Absolute and percentage growth in net revenue • New and retained jobs in businesses related to product development • Active involvement of university-based technology centers and programs • Replication of the model • Percentage of energy use saved
Energy Efficiency and Renewable Energy	<ul style="list-style-type: none"> • Private and public sector investment • Number of residential and small scale commercial retrofit projects • Number of large scale energy efficiency retrofit projects • Number of new businesses developed (i.e., biomass and solar related construction and manufacturing) • Absolute and percentage growth of wood pellet manufacturing and timber industry sales • Number of new jobs created and maintained • Percentage of energy use saved
Transportation Industry	<ul style="list-style-type: none"> • Private sector investment • Federal and state funds leverage • Percentage increase of mass transportation manufacturing market captured • Percentage increase of aviation manufacturing market captured • Number of new jobs created and maintained • Absolute and percentage growth in net revenue for businesses in the industry cluster • Number of spin-off companies created • Number of new ventures created • Development of regional transit system model

<i>Outcomes and Activities to be Measured</i>	<i>Measures</i>
Growth in Targeted Industry Sectors	
Agriculture Industry	<ul style="list-style-type: none"> • Number of start-up farm operations and other agri-businesses such as wholesale and distribution • Number of new processing facilities for value-added agricultural products • Number of new farm markets • Number of new jobs created and maintained • Renewable energy generated • Absolute and percentage increase in agricultural land in productive use • Absolute and percentage growth in net revenue for agriculture and forestry businesses • Private investment in application of new technology • Leverage funding such as the Farmers' Market Initiative
Health Care Industry	<ul style="list-style-type: none"> • Number of new non-clinical rural care centers established • Number of new clients served • Number of new and continuing client visits • Number of patients using telemedicine and mobile health care technology • Number of telemedical patient encounters • Cost effectiveness monitoring • Private and non-profit investment in new senior living facilities/programs such as New Markets Tax Credits leveraged • Utilization of publicly owned, unused or underused property • Utilization of university-based technology

<i>Outcomes and Activities to be Measured</i>	<i>Measures</i>
Strengthen the Southern Tier Region's Economic Development Backbone	
Downtown Revitalization and Community Development	<ul style="list-style-type: none"> • Private sector investment • Federal and state funds leveraged • Number of buildings renovated • Number of new commercial spaces • Neighborhoods revitalized • New housing units
Broadband Communications	<ul style="list-style-type: none"> • Increase in number of households and businesses gaining cell phone and high-speed Internet connection • Strengthened broadband for universities, municipalities, and major commercial users • Increase in number of broadband connections to universities, municipalities, major commercial users, schools, and hospitals • Increase in data capacity of connections serving universities, municipalities, major commercial users, schools, and hospitals • Decrease in broadband latency and service interruptions affecting universities, municipalities, major commercial users, and hospitals
Shovel Ready Sites	<ul style="list-style-type: none"> • Number of sites that secure New York's Shovel Ready Certification • Number of businesses locating in the shovel ready sites • Leveraging of federal grants and investments by municipalities, economic development agencies, and private sector • Job creation • Number of brownfields and un/underutilized properties reused
Workforce Development for Industry Sector Growth Projects and Initiatives	<ul style="list-style-type: none"> • Number of workers trained • Number of workers employed • Leveraging private sector investment in workforce development

APPENDICES

"We have assets, as a region, that make us more competitive for economic development opportunities than any individual community on its own. Examples include our strong industrial base in advanced energy products and the transportation sector. By working cooperatively across county lines we can encourage technology transfer from our world ranked universities and foster entrepreneurship and product development in leading edge companies and startups."

— Patrick J. Brennan

Broome County Executive
Binghamton, NY

"We have to take advantage of every possible opportunity to create a more vibrant, sustainable economy for our region, and a brighter, more prosperous future for people in the Southern Tier. Whether this process changes our region depends on whether we, as a council, follow through on the ideas and plans that have been generated here. Real change doesn't happen quickly; we'll need to keep at it, broaden the involvement of others, and continue to be creative."

— Martha Robertson

Chair, Tompkins County Legislature



SOUTHERN TIER

The Southern Tier is well endowed with clean rivers and lakes, providing an abundance of beauty and recreational activities for residents and visitors. According to data from Tourism Economics, visitors spent approximately \$804 million in the Southern Tier in 2010, up nearly 9% from the previous year. Local and state tax contributions attributed to tourism totaled an estimated \$103.3 million in 2010, resulting in an average benefit per household of \$412.

APPENDIX A. Work Plan Group Members

The Southern Tier Region Economic Development Council acknowledges the contributions and participation of the following work plan group members:

Agriculture

Joseph Hauryski, Steuben County
Dr. Kathryn Boor, Cornell University
College of Agriculture and Life Sciences
David Bradstreet, Cornell Cooperative
Extension of Broome County
Steve Herz, Broome County
Dave Stamp, Schuyler County Farm
Bureau
Glen Winsor, Winsor Acres, Broome
County
Lindsay Wickham, New York Farm
Bureau
Dr. Kim Kal-Downs, Binghamton
University
Marvin Pritts, Cornell University
Ed Marx, Tompkins County
Lee Telega, Cornell University
Amy Dlugos, Steuben County
Glenn Nealis, Delaware County
Ken Smith, Cornell Cooperative
Extension of Chenango County
Tom Hilson, Delaware County Watershed
Affairs

Energy

Ernest (Ernie) Hartman, IBEW Local 139
Martha Robertson, Tompkins County
Lou Santoni, Greater Binghamton
Chamber of Commerce
Thomas Santulli, Chemung County
Executive
George Miner, Southern Tier Economic
Growth
Doug Barton, Tioga County
Tom Wilber, Three Rivers Development
Corporation, Corning
Bill Gibson, Broome County
Bob Howarth, Cornell University
Steve Palmatier, Chenango County
Tarik Abdelazim, City of Binghamton
Kate Fitzgerald, Attorney
Alan White, Catskill Center, Delaware
County
Michael German, Corning Natural Gas
Andrea Rubin, Corning Community
College
Brenda English, Corning Community
College

Dr. C. Roger Westgate, Binghamton
University
Rod Howe, Cornell University
Jim Adams, Cornell University
Ken Schlather, Cornell Cooperative
Extension of Tompkins County
David Kay, Cornell University
Peter Bardaglio, Second Nature
Tom Hilson, Delaware County Watershed
Affairs
Wayne Jones, Binghamton University
Glenn Nealis, Delaware County

Health Care

David Patek, Our Lady of Lourdes
Memorial Hospital
Shirley Magana, Guthrie Corning
Hospital
Anthony Cooper, Arnot Ogden Medical
Center
Peter Magrath, President, Binghamton
University
Julie Peacock, Broome Community
College

Nathan Shinagawa, Guthrie Robert
Packer Hospital
Barbara Schindler, President & COO,
Golden Artists Colors, Inc.
Hugh Leonard, Attorney
Mohammad Khasawneh, Binghamton
University
Randy Cook, Broome-Tioga Workforce
Jeff Davis, Davis Consulting
Dave Gray, Steuben County
Dr. Mary Pat Lewis, SUNY Delhi
Rajesh Dave, United Health Services
Andrea Wade, Broome Community
College
Maynard Fahs, Fahs Construction
Terry Kane, Binghamton University
Rob Mackenzie, Cayuga Medical Center

Infrastructure

John Bernardo, Town of Union
John Tonello, City of Elmira
Uttara Prasad, Lin Industries
Patricia Cummings, Leonard and
Cummings LLP

Patrick Brennan, Broome County Executive

Jim Griffin, Hornell Industrial Development Agency

Victoria Ehlen, Southern Tier Central Regional Planning and Development Board

Linda Shumaker, Shumaker Consulting

Jack Benjamin, Three Rivers Development Corporation

Svante Myrick, City of Ithaca

Tom Carr, Corning Community College

Chuck Bartosch, Tompkins County Broadband Committee

Erik Miller, Southern Tier East Regional Planning and Development Board

Glen Faulkner, MTC Cable

Linda Stratigos, Western Catskills

Joe Moody, Town of Union

Jennifer Tavares, Chenango County

John Gutenberger, Cornell University

Jay McNamara, Endicott Interconnect Technologies

Gary Stewart, Cornell University

Joe Francis, Cornell University

Jennifer Yonkoski, Binghamton Metropolitan Transit Study

Frank Evangelisti, Broome County

Pam Eschbaugh, NYS Department of Transportation

JC Smith, EFC

Larry Roma, Binghamton University

Cyndi Paddick, Binghamton Metropolitan Transportation Study

John Fitzgerald, Department of Transportation

Marcia Weber, Southern Tier Central Regional Planning and Development Board

Leslie Boulton, Broome County

Technology Development and Transfer

Michael Stamm, Tompkins County Area Development, Inc.

Donna Lupardo, New York State Assembly

James (Jay) McNamara, Endicott Interconnect Technologies

Daniel Spoor, Lockheed Martin

Gregg Lantz, GPL Integrated IT, LLC

Tony Rosemarino, Lockheed Martin

Ed Gaetano, AM&T

Dr. Eugene Krentsel, Binghamton University

Daniel Porter, CSS Workforce

Alan Paa, Cornell Center for Technology Enterprise and Commercialization

Laura Cima, Cornell Center for Technology Enterprise and Commercialization

Barry Garrison, Corning Community College

Kelli Ligeikis, Broome Community College

Kevin Drumm, Broome Community College

Paul Mutolo, Cornell University

Lou Walcer, Cornell University

Tourism

Dr. Candace Vancko, SUNY Delhi

Peg Ellsworth, The Mark Project

Stella Reschke, Tioga County

Scott Welliver, Welliver Construction

Tim O'Hearn, Schuyler County Administrator

Morgen McLaughlin, FL Wine Country

Judi Hess, Broome County Tourism

Audrey Robinson, Commerce Chenango

Fred Bonn, Ithaca/Tompkins County Visitors Bureau

Brett Bossard, Community Arts Partnership

Joe Massa, The Roxbury, Delaware County

Nancy Latour, Corning Community College

Katie Ellis, Binghamton University

Tim Joseph, New York State Office of Parks, Recreation

Michael Johnson, Cornell University

Mike Printup, Watkins Glen International Raceway

Downtown Revitalization and Community Development

Tim O'Hearn, Schuyler County Administrator

Peg Ellsworth, The Mark Project

Uttara Prasad, Lin Industries

Carolyn Peterson, City of Ithaca

Patricia Cummings, Leonard and Cummings LLP

Steve Dennis, City of Corning

Merry Harris, City of Binghamton

Dawn Burlew, Corning Enterprises

Dr. Patricia Ingraham, Dean of Community Affairs, Binghamton University

Gary Ferguson, Downtown Ithaca Alliance

Debbie Morello, Broome Community College

Sherri Geary, Southern Tier Economic Growth

John Nader, SUNY Delhi

Chelsea Robertson, Southern Tier Central Planning and Development Board

Maureen Wilson, Pyramid Brokerage

Philly Desarno, City of Ithaca

John Nader, SUNY Delhi

Rod Howe, Cornell University

John Sipple, Cornell University

Jennifer Tavares, Chenango County
Omar Sanders, City of Binghamton

Business Development and Entrepreneurship

Martin Dietrich, NBT Bank
Keith Baumann, F. M. Howell & Company
George Miner, Southern Tier Economic
Growth
Wayne Oliver, Sportsfield Specialty
Diane Lantz, Regional Economic
Development and Energy Corporation
Donna Lupardo, New York State
Assembly
Julia Mattick, Tompkins County
Workforce Investment Board
Brian Qualey, U.S. Small Business
Administration
Jack Benjamin, Three Rivers
Development Corporation
Glenn Nealis, Delaware County
Economic Development
Mike Fuller, Pipeline for Progress
Kathryn Fletcher, BizLife Ventures;
Sustainability Coalition
Jamie Johnson, Steuben County
Industrial Development Agency
Doug Boyce, Binghamton Small Business
Development Center
Sheri Arnold, Corning Community
College
Debbie Morello, Broome Community
College

Jim Thompson, Delaware County
Ken McLeod, Binghamton University
Gary Stewart, Cornell University
Paul Streeter, Cornell University
Jan Hertzog, Broome Community
College

Data Committee

Robin Blakely-Armitage, Cornell
University
Joe Douglas Francis, Cornell University
Rod Howe, Cornell University
Erik Miller, Southern Tier East Regional
Planning and Development Board
Victoria Ehlen, Southern Tier Central
Regional Planning and Development
Board
Julie Sweet, NYS Department of State
Kyle Wilbur, NYS Department of State
Christopher Grant, NYS Department of
State
Christian Harris, NYS Department of
Labor
Frank Surdey, NYS Department of Labor

APPENDIX B.

List of Organizations Contacted and Reports and Plans Secured

The following organizations were contacted with requests for information during the preparation of the Southern Tier Central Regional Economic Development Strategic Plan:

Binghamton Local Development Corporation
 Binghamton University (BU)
 BiziLife Ventures
 Broome Community College
 Broome County Economic Development
 Broome County Industrial Development Agency
 Broome County Government
 Broome-Tioga Workforce New York
 Business Incubator Association of New York State, Inc.
 Cattaraugus-Allegany Workforce Investment Board
 Cayuga-Cortland Workforce Investment Board
 CenterState CEO
 Chenango-Delaware-Otsego Workforce Investment Board

City of Binghamton
 Commerce Chenango
 Community & Rural Development Institute (CaRDI) / Cornell Cooperative
 Cornell Cooperative Extension of Chemung County
 Cornell University
 Cornell University Center for Technology Enterprise and Commercialization
 Corning Community College
 Corning Incorporated
 Cortland County Business Development Corporation
 Cortland Works Career Center
 Delaware County Chamber of Commerce
 Delaware County Department of Economic Development
 Delaware County Industrial Development Agency
 Fusion Market Group Corporation
 Greater Binghamton Chamber of Commerce
 IOXUS, Inc.

Krieger Solutions, LLC
 Morrisville State College
 Otsego County Economic Development IDA
 Pipeline 4 Progress
 Southern Tier Association for Human Resources
 Southern Tier HealthLink
 State University of New York Empire State College
 State University of New York System Administration
 Stezzi Training and Consulting
 SUNY College at Oneonta
 SUNY Cortland
 SUNY Delhi
 The Catalysts for Intellectual Capital 2020
 TC3.biz
 Tompkins Cortland Community College
 Tompkins County Chamber of Commerce
 Tompkins Workforce New York

Upstate Venture Connect
 WSKG Public Broadcasting
 YWCA of Broome County
 Plumbers & Pipefitters, Local #112
 IBEW Electricians Local #325
 Carpenters & Joiners Local #281
 Teamsters Local #693
 Laborers Local #7
 Elmira One-Stop
 Rochester & Genesee Valley Labor Federation
 IBEW Local #139
 District 832, Operating Engineers, Local #158
 NYS PEF, Local #175 Hornell
 Chemung/Schuyler Central Labor Council, CSEA Local #849
 Roofers Local #203
 Sheet Metal Workers, Local #112
 Mills Electrical
 Empire State Regional Council of Carpenters
 IBEW Local #241

USW Local #135T

USW

CSEA

U.A. Local #267, Plumbers & Pipefitters

The following list represents all reports and information collected during the planning process by Work Plan Groups:

Agriculture

2007 Census of Agriculture—Southern Tier East Region

2008 Schuyler County Agriculture Plan

2009 Food Science Impact Statement
Agriculture Data, Southern Tier Region

Brochure for Dairy Extension, 4-21-11

Dairy Processing Capabilities

Future of FSV, 2007

Growing Farmers Markets: Improving
Community Development, Food Access
& Farm Returns

GROW MILK-Final

Land & Diet: What is the most land
efficient diet for NYS?

Land-Use Profile, Southern Tier Region

Local Politics & Market Forces: A case
study of ethanol development in NYS

Moving Local Foods from Farms to
Consumers: Lessons from NYS Apples

NYS Multipliers Selected Aggregated
Sectors 2009

Season Extension with High Tunnels

Trends Employment Starting Salary Debt

Business Development and Entrepreneurship

Broadband in the Southern Tier Region

Business Resource Guide

Innovate NY Fund

Link to the SBA Small Business Resource
Guides

Entrepreneurship Institute Proposal

Steuben County Economic
Development Plan, 2011–2013

Socioeconomic Measures, Southern Tier
Region

Southern Tier Region Commuting
Patterns

Data Committee

2010 Census Atlas, Cornell Program on
Applied Demographics (PAD)

2010 Census page, Cornell PAD

Age/Sex/Race in New York State, Based
on Census 2010

Census 2010 profiles

Changing Age Composition in New York
State, Cornell PAD

County Trends & Projections, Cornell
PAD

Demographic Data, Southern Tier
Region

Government Employment, Southern
Tier Region

Housing Characteristics in NYS

How SUNY Matters

Industry Cluster Job Trends

Labor Market Profile (Southern Tier)
Release (1), July 2011

NYS Regional Industry Projections,
2008–18

Occupational Projections, 2008–2018—
Typical E-T Wages (All Regions)

Regional Travel & Tourism Employment
Data

Service Sector Profile Southern Tier
Region

Significant Industries in the Southern
Tier

Size of Firm Data, Southern Tier Region

Southern Tier population 1990–2030

ST REDC LMI Trends (1)

Summary Profile, Southern Tier Region

Upstate New York in Profile: Trends,
Projections, & Community & Economic
Development Issues

Downtown Revitalization and Community Development

Chemung County Housing Needs
Assessment

New York State Urban Council WP (2011)

Section 421m-NYS Real Property Tax
Law

Steps to Downtown Success Stories

Energy

Energy Efficiency Rebates Tool:
Estimating cost savings

Job Creation from Local Energy
Efficiency Work

Estimating the Job Impact of Public
Investment in Bio-Fuel Plants

Home Grown Power: Community Energy
Initiatives in Upstate NY

Industrial Wind Power: What Local
Officials Need to Know

Links to training programs for the
Natural Gas industry

Making Good Choices: What Local
Policymakers Need to Know About the
Green Economy

Map of natural gas leased parcels,
Broome County

Marcellus Shale: Role of Local
Government

Mining, Oil and Gas Data, Southern Tier
Region

Municipal Approaches to Energy
Conservation & Renewable Energy
Production: A Resource for Community
Energy Initiatives

Natural Gas Development: Views of
NYS & Pennsylvania Residents in the
Marcellus Shale Region

Natural Gas & the Property Tax System
Regional Wind

Role of Photovoltaic (PV) industry in
Economic Development

Royalty Value estimates of Natural Gas in
Chenango County

Southern Tier Energy Offset Fuel Oil-
Biomass

Soil and Water Conservation Districts'
Role in Natural Gas Development
Approved by SWCC May 18 2010

Workforce Development Challenges in the Natural Gas Industry

General Documents

Southern Tier East Regional Planning and Development Board, 2010 Comprehensive Economic Development Strategy Annual Report

Southern Tier Opportunity Coalition, Angel Network NYS ED Council Update, 9.11

Taking Hold of the New Economy
Analysis and Recommendations for the Implementation of STEP
Tompkins County Workforce Strategy

Health Care

Age Group Projections through 2035 for NYS counties

Chronic Disease Prevention and Chronic Care Improvement

HANYS briefings

HANYs letter 8.12.11

Health and Economic Development Packet

Health Care Occupational Projections 2008-2018 - Typical E-T - Wages (All Regions)

JAMA 2011, Mirvis Pop Health and Economic Development

Livable Communities

New York Academy of Medicine, Health and Economic Development

Infrastructure

2009 Update, Southern Tier East Regional Broadband Telecommunications Action Plan

Economic Importance of Our Waterways
Exploration of the Potential for an Inland Port in the Greater Binghamton Area

ISO Intro, 10-30-09 Final

ISO, The Concept Staging Hub for Canadian Exports and Imports

Lansing Star Broadband Interview, 8-31-11

Regional Interchange Study

Regional Interchange Study: Appendix A

Regional Interchange Study: Appendix B

Regional Interchange Study: Appendix C

Southern Tier Network Fact Sheet

Southern Tier Network Key Messages

State of the Art OTI network press release, February 2011

Transportation Studies, August 2011

Underserved Broadband Access across the Southern Tier East Region

Water Supply and Sewage Disposal Systems in the Southern Tier East Region

Tourism

2009 Tourism-Economics, NYS Tourism Economic Impact, Tables and Charts

Connected Vehicle Ecosystem

Connected Vehicle Proving Center

Economic Impact of Binghamton University, FY 2010

Highlights of 2010 Visitor Profile for Ithaca and Tompkins County

Intelligent Transport Systems

NYS Tourism Presentation Final

Regional Travel & Tourism Employment Data

Southern Tier Central, Marcellus Tourism Study

Southern Tier 2010 Tourism Economic Impact & Household Benefit

Southern Tier Economic Development Council Region, 2009 Tourism Economic Impact Study

Tourism and Travel Data, Southern Tier Region

APPENDIX C. Summary of Public Engagement

Nearly 1,900 respondents participated in the web-based survey. A sample of the survey tool (subsection A) and summary of responses to each question (subsection B) are summarized in this appendix. More than 9,000 open-end comments were also received and can be seen at the Council's website at <http://nyworks.ny.gov/content/southern-tier>.

A. The Southern Tier Stakeholder/Community Survey Tool

Introduction

The Regional Economic Development Council of the Southern Tier, in conjunction with the Binghamton University Continuing Education and Outreach (CEO) office, wants to learn how you feel about economic development issues.

The following short questionnaire is designed to allow you to voice your opinion. The survey should take no more than ten minutes. Your answers will assist the Regional Economic Development strategic planning process.

All information collected through this survey is strictly confidential. Self identification is optional. Your responses will only be used for planning purposes. If you have any questions, please contact Frank Surdey at frank.surdey@labor.ny.gov.

Your decision whether or not to participate will not affect your relationship with Binghamton University. Questions about your rights as a respondent to this questionnaire may be directed to Binghamton University's Human Subjects Research Review Committee at (607) 777-3818.

Your voluntary completion of the survey constitutes consent to participate.

Sincerely,

Frank Surdey
Managing Economist
NYS Department of Labor

Thomas Kowalik, Ed. D.
Director, Continuing Education and Outreach

1. Please click "Yes" below to indicate that you have read the paragraphs above and agree to proceed with the survey.

(If the respondent continued, the following was presented.)

Part 1—Introduction

Governor Cuomo has initiated a new operating model for economic development in New York State—ten Regional Economic Development Councils. These Councils will serve as the single point of contact for regional economic development, establish community-driven strategies for job creation, and implement regional plans/priorities that comprehensively address regional needs and opportunities.

One of the first orders of business for the Southern Tier Regional Council is to develop an initial five-year Strategic Plan for long term, sustainable regional economic growth. Regional Councils will only be effective when residents, public and private stakeholders, local organizations, businesses and universities all work together towards a shared vision for a stronger community.

This survey serves as an initial step of a critical regional strategy to engage public involvement and solicit feedback/ideas regarding economic development in the Southern Tier.

QUESTIONNAIRE:

This survey seeks your opinion on four topics that are critical in developing an effective and successful 5-year Strategic Plan for the Southern Tier. Our regional plan will be measured and prioritized against the other nine regions of the State for the \$200 million in capital funds and Excelsior Tax Credits available beginning in the 2012 tax year. The four topic areas for feedback include:

- Obstacles or issues that adversely affect economic development in the Southern Tier
- Opportunities unique to the Southern Tier
- Assets specific to the Southern Tier
- Issues of interregional or statewide significance

Please check the box that most closely aligns with your position on each issue. At the end of each section, there is an 'open-ended' box that allows you to enter other issues of significance that were not covered in the listed items. This is an anonymous survey but there is an optional area at the end of the survey to enter your personal contact information if you so wish.

We appreciate your feedback. The entire survey should take no longer than 10–15 minutes to complete.

SURVEY QUESTIONS

(Each item offered the following choices: strongly agree, agree, disagree, strongly disagree, and no opinion. Each item also left space for comments.)

Part 2

In your opinion, to what degree do the following obstacles or issues adversely affect economic development in the Southern Tier that can be addressed in a 5-year strategic plan?

2. Infrastructure/Transportation. This includes lack of rail service; dependable flights to major hubs; not on thruway corridor; lack of sewage treatment capacity; lack of widespread affordable broadband; age/lack of investment in infrastructure; watershed regulations; Susquehanna River Basin TMDL standards; energy grid capacity; public transportation services; high speed internet.
3. Government Inefficiency/Overregulation. This includes lack of cohesive regional planning; lack of coordination among agencies; duplication of federal/state programs; ineffective state government; fragmentation of economic development agencies; overlapping jurisdictions; lack of bipartisan cooperation; bad relationships with regulatory agencies; cohesive economic development programs/services for existing businesses; slow action by planning committees; delayed time frame for project approval from state agencies; business mandates; excessive regulation/paperwork burden; restrictive regulatory environment; mandate relief; unfriendly business environment; fractured/excessive local government jurisdictions.
4. High Taxes/High Cost of Doing Business. This includes property, school, employment, workers compensation, personal and corporate taxes; high energy/utility costs, and fees.
5. Workforce Development. This includes timely training to meet business needs; aging of the labor force; brain drain; lack of flexible training funds; skills mismatch; lack of job clusters to attract workers; declining education funds will impact workforce quality.

6. Business Capital/Lack of Quality Buildings. This includes lack of early stage capital for technology-based startups; lack of venture capital; low interest loans; funds for commercial reutilization; lack of financial incentives; lack of quality industrial/commercial buildings; lack of shell buildings; lack of business parks; NYC land acquisition program.

7. Please identify other significant obstacles or issues not listed above.

Part 3—Opportunities

In your opinion, to what degree should the following opportunities unique to the Southern Tier be the focus of a 5-year economic development strategic plan?

8. Promoting Local Agriculture and Tourism Industries. This includes expanding the use of existing facilities such as Watkins Glen; developing multi-recreation use destinations; organic farms; wine trails; natural resources such as the Finger Lakes; recreational activities such as golf skiing and water sports; ecotourism; agri-tourism; and cooperative extension.

9. Strengthen University/Economic Development Partnerships. This includes creating new synergistic relationships between businesses and universities; enhancing technology transfer; creation of incubators; creating apprenticeships; promoting small businesses that evolve from universities; utilizing alumni networks; developing business parks; providing technical assistance to businesses; coordinating research activities with businesses; university involvement in regional planning; and SUNY investment in regional economic development.

10. Natural Gas Industry/Marcellus Shale. This includes safe exploration, approval and extraction; a balanced strategy; Millennium Pipeline; the potential of using salt mines for gas storage; public/private/educational partnerships; and the development of usable products such as LP gas, chemicals, and diesel fuel.

11. Improve Access to Transportation Systems/Infrastructure. This includes the development of a full service/commercial regional airport; passenger rail

service to NYC; access to I-86 and the future I-99, which provides access to potential development sites; promote advanced Bus Rapid Transit (BRT) in the region; building a bridge over the Susquehanna River between the Town of Union and Vestal; expand broadband/internet access; and capitalize on the fiber optic network along the interstate corridor.

12. Clean Energy. This includes public/private partnerships to promote green businesses; the development of alternative energy through initiatives, subsidies and national marketing assistance; the development of bioenergy/biofuels; expanding wind, solar and other clean/renewable energy manufacturing activity; the development of an energy degree program at Binghamton University; and the development of energy storage products.

13. Please identify other significant opportunities not listed above.

Part 4—Economic Development Assets

In your opinion, to what degree are the following attributes to be considered key economic development assets in the Southern Tier?

14. Quality of Higher Educational Institutions. This includes intellectual and R&D capacity.

15. Natural Beauty/Resources: This includes abundance of clean water, lakes, and woodlands.

16. Natural Gas/Energy

17. Low Cost of Living/High Quality of Life. This includes reasonably priced housing; ample and affordable recreational opportunities; Affordable Dream Communities; and developable land at valued pricing.

18. Globally Recognized Businesses. This includes world-class manufacturers; high level of corporate research; large international technology base; and a highly technical and diverse workforce.

19. Please identify other significant assets not listed above.

Part 5—Issues of Interregional or Statewide Significance

In your opinion, to what degree are the following economic development issues of interregional or statewide significance?

20. High Taxes. This includes property, corporate, income, local/state, UI, and Workers Compensations taxes.

21. Economic Development Issues. This includes job creation strategies; marketing strategies; funds allocated for economic development; aggressive recruitment programs to promote business opportunities in NYS; how NYS can better compete with neighboring states; a comprehensive marketing plan for shovel ready sites; how do we develop public/private partnerships and how do we secure a state financial commitment when needed; and rural issues.

22. Natural Gas Industry/Marcellus Shale/Hydrofracking

23. State Regulatory Process/Procedure. This includes aligning government and regulatory bodies; anti-business requirements; and simplifying/streamlining of regulations.

24. Infrastructure/Transportation Issues. This includes improving passenger/freight rail service; expansion/replacement of infrastructure; completion of I-86; broadband development; and broadband accessibility.

25. Energy Costs/Availability

26. State Mandate Relief. This includes municipal restructuring and unfunded local mandates.

27. Please identify other significant issues of interregional or statewide significance not listed above.

28. Personal Contact Information—Optional

B. Summary of Results: The Southern Tier Stakeholder/Community Survey

Comments submitted in “other” categories may be viewed at the Council’s website at <http://nyworks.ny.gov/content/southern-tier>. A detailed summary of responses to the Southern Tier Stakeholder/Community Survey is reported below by individual question. Free text response from Council members to open-ended “other” questions in each section is summarized at the conclusion of this appendix.

1. In your opinion, to what degree do the following obstacles or issues adversely affect economic development in the Southern Tier that can be addressed in the five-year plan?

Infrastructure/ Transportation	Response	
	%	Count
Strongly Agree	36.7%	510
Agree	40.8%	566
Disagree	13.1%	182
Strongly Disagree	5.9%	82
No Opinion	3.5%	48
Comments		494
Total Answering		1388
Total Skipping Question		514

Government Inefficiency/ Overregulation	Response	
	%	Count
Strongly Agree	49.6%	688
Agree	29.7%	412
Disagree	8.8%	122
Strongly Disagree	5.9%	82
No Opinion	5.9%	82
Comments		463
Total Answering		1386
Total Skipping Question		516

High Taxes/High Cost of Doing Business	Response	
	%	Count
Strongly Agree	56.5%	786
Agree	22.7%	316
Disagree	10.9%	152
Strongly Disagree	6.3%	87
No Opinion	3.5%	49
Comments		440
Total Answering		1390
Total Skipping Question		512

Workforce Development	Response	
	%	Count
Strongly Agree	32.6%	453
Agree	41.3%	573
Disagree	15.5%	215
Strongly Disagree	4.3%	59
No Opinion	6.3%	88
Comments		396
Total Answering		1388
Total Skipping Question		514

Business Capital/Lack of Quality Buildings	Response	
	%	Count
Strongly Agree	20.6%	284
Agree	35.0%	482
Disagree	21.5%	296
Strongly Disagree	6.3%	86
No Opinion	16.6%	228
Comments		344
Total Answering		1376
Total Skipping Question		526

Other	Count	
Responses		536
Total Answering		536
Total Skipping Question		1366

Source, Survey Monkey

B. Summary of Results: The Southern Tier Stakeholder/Community Survey, continued.

2. In your opinion, to what degree should the following opportunities unique to the Southern Tier be the focus of the five-year economic development strategic plan?

Promoting Local Agriculture and Tourism Industries	Response	
	%	Count
Strongly Agree	51.0%	703
Agree	33.2%	458
Disagree	9.2%	127
Strongly Disagree	3.5%	48
No Opinion	3.0%	42
Comments		429
Total Answering		1378
Total Skipping Question		524

Strengthen University/Economic Development Partnerships	Response	
	%	Count
Strongly Agree	45.6%	619
Agree	38.9%	528
Disagree	8.6%	117
Strongly Disagree	2.1%	28
No Opinion	4.9%	66
Comments		352
Total Answering		1358
Total Skipping Question		544

Natural Gas/Marcellus Shale	Response	
	%	Count
Strongly Agree	42.0%	576
Agree	14.1%	194
Disagree	6.6%	90
Strongly Disagree	34.5%	473
No Opinion	2.8%	39
Comments		672
Total Answering		1372
Total Skipping Question		530

Improve Access to Transportation Systems/Infrastructure	Response	
	%	Count
Strongly Agree	36.9%	500
Agree	42.4%	575
Disagree	10.8%	147
Strongly Disagree	4.6%	62
No Opinion	5.3%	72
Comments		358
Total Answering		1356
Total Skipping Question		546

Clean Energy	Response	
	%	Count
Strongly Agree	53.3%	731
Agree	29.5%	405
Disagree	8.2%	112
Strongly Disagree	5.8%	80
No Opinion	3.2%	44
Comments		472
Total Answering		1372
Total Skipping Question		530

Other	Count	
Responses		202
Total Answering		202
Total Skipping Question		1700

B. Summary of Results: The Southern Tier Stakeholder/Community Survey, continued.

3. In your opinion, to what degree are the following attributes to be considered key economic development assets in the Southern Tier?

Quality of Higher Educational Institutes	Response	
	%	Count
Strongly Agree	52.9%	719
Agree	37.9%	516
Disagree	5.1%	70
Strongly Disagree	0.9%	12
No Opinion	3.2%	43
Comments		204
Total Answering		1360
Total Skipping Question		542

Natural Beauty/ Resources	Response	
	%	Count
Strongly Agree	65.0%	887
Agree	28.3%	386
Disagree	4.3%	58
Strongly Disagree	1.3%	18
No Opinion	1.1%	15
Comments		261
Total Answering		1364
Total Skipping Question		538

Natural Gas/Energy	Response	
	%	Count
Strongly Agree	41.3%	560
Agree	16.8%	227
Disagree	10.5%	142
Strongly Disagree	27.4%	371
No Opinion	4.1%	55
Comments		392
Total Answering		1355
Total Skipping Question		547

Low Cost of Living/ High Quality of Life	Response	
	%	Count
Strongly Agree	44.2%	593
Agree	39.6%	531
Disagree	8.8%	118
Strongly Disagree	4.2%	57
No Opinion	3.2%	43
Comments		336
Total Answering		1342
Total Skipping Question		560

Globally Recognized Businesses	Response	
	%	Count
Strongly Agree	28.7%	386
Agree	45.0%	605
Disagree	14.6%	196
Strongly Disagree	4.5%	61
No Opinion	7.2%	97
Comments		295
Total Answering		1345
Total Skipping Question		557

Other	Count	
Responses		133
Total Answering		133
Total Skipping Question		1769

B. Summary of Results: The Southern Tier Stakeholder/Community Survey, continued.

4. In your opinion, to what degree are the following economic development issues of inter-regional or statewide significance?

High Taxes	Response	
	%	Count
Strongly Agree	59.2%	783
Agree	24.5%	324
Disagree	9.5%	126
Strongly Disagree	3.0%	40
No Opinion	3.8%	50
Comments		334
Total Answering		1323
Total Skipping Question		579

Economic Development Issues	Response	
	%	Count
Strongly Agree	42.1%	550
Agree	42.5%	555
Disagree	6.7%	88
Strongly Disagree	2.9%	38
No Opinion	5.7%	75
Comments		280
Total Answering		1306
Total Skipping Question		596

Natural Gas Industry/Marcellus Shale	Response	
	%	Count
Strongly Agree	50.3%	656
Agree	16.6%	216
Disagree	6.4%	84
Strongly Disagree	22.3%	290
No Opinion	4.4%	57
Comments		514
Total Answering		1303
Total Skipping Question		599

State Regulatory Process/Procedure	Response	
	%	Count
Strongly Agree	42.6%	546
Agree	35.4%	453
Disagree	8.4%	108
Strongly Disagree	5.5%	71
No Opinion	8.0%	103
Comments		312
Total Answering		1281
Total Skipping Question		621

Infrastructure/Transportation Issues	Response	
	%	Count
Strongly Agree	42.3%	559
Agree	43.0%	568
Disagree	8.0%	106
Strongly Disagree	2.6%	35
No Opinion	4.0%	53
Comments		214
Total Answering		1321
Total Skipping Question		581

Energy Costs/Availability	Response	
	%	Count
Strongly Agree	41.9%	549
Agree	40.0%	524
Disagree	10.0%	131
Strongly Disagree	2.0%	26
No Opinion	6.0%	79
Comments		275
Total Answering		1309
Total Skipping Question		593

State Mandate Relief	Response	
	%	Count
Strongly Agree	43.8%	569
Agree	33.4%	434
Disagree	6.8%	88
Strongly Disagree	1.9%	25
No Opinion	14.2%	184
Comments		236
Total Answering		1300
Total Skipping Question		602

Other Responses	Count
Total Answering	172
Total Skipping Question	1730

Southern Tier Regional Council Five-Year Strategic Plan Survey Responses

Economic Development Obstacles/Issues, Opportunities and Assets Unique to the Region

Early in the planning process 30 members of the Regional Council of the Southern Tier responded to the Southern Tier Community/Stakeholder Survey, which included 19 open-ended survey questions. These questions offered respondents the opportunity to provide additional information in free text form by economic development category. The results are summarized below. Number of responses is on the left.

Please identify the five critical issues or obstacles, unique to your region, that adversely affect economic development and can be addresses in the five-year strategic plan.

38 Infrastructure/Transportation

- 8 Lack of investment in infrastructure/aging infrastructure
- 5 Lack of widespread affordable broadband
- 5 Inefficient water/sewer capacity
- 3 Lack of rail service/no rail service to New York City
- 3 Commercial air service /dependable air service to major hubs
- 2 Transportation issues, internal and external
- 2 New York City Watershed
- 2 Limited public transportation
- 1 Susquehanna River basin TDML standards
- 1 Watershed regulations
- 1 Low priority is schooling and public transit
- 1 Limited roads/rail for movement of goods

- 1 Region not on Thruway corridor
- 1 Secondary traffic corridors need upgrade
- 1 Infrastructure project delivery process needs streamlining
- 1 Need better bandwidth and energy grid capability

37 Government Inefficiency/Overregulation

- 11 Cost and bureaucratic burden of state/local regulations/mandates
- 5 Dispersed/fractured local government including a political patchwork of municipalities and overlapping jurisdictions
- 3 Lack of financial incentives/support and over-regulation of businesses
- 3 Lack of coordination among economic development agencies
- 2 Delayed time frame for approvals from state agencies
- 2 Prohibition on SUNY commercializing technology development on campus/lack of technology transfer for college labs to private businesses
- 1 Downstate concentration of political power

- 1 Duplication of federal/state programs
- 1 Ineffective state government
- 1 Misunderstood/underdeveloped relationships with regulatory agencies
- 1 Slow action by planning committees
- 1 Limited university and state/local government coordination of regional economic development
- 1 Lack of public relations on the affordability of the region
- 1 Tightening school budgets will challenge educational performance
- 1 Lack of allocation funding for small/rural communities
- 1 Lack of urgency to respond to region's economic difficulties
- 1 Excessive cost of higher education

22 High Taxes/High Cost of Doing Business

- 12 High taxes and related costs
- 7 High utility costs
- 2 Inability to attract new businesses due to taxes and regulation
- 1 High cost of doing business

17 Workforce Development

- 6 Shallow pool of skilled workers and/or educated staff in specialized fields
- 2 Ability to attract/retain the best and brightest
- 2 Flexible training funds for manufacturers and technology-based businesses/lack of training funds for skill upgrades
- 1 Loss of high paid/high skill jobs
- 1 Lack of job clusters
- 1 Aging of skilled workforce
- 1 Workforce skills mismatch
- 1 Need a labor market analysis of the 8 counties
- 1 Brain drain
- 1 Current human resource availability is ignored

14 Business Capital/Lack of Quality Buildings

- 2 Lack of venture capital
- 2 Lack of federal/state smaller scale assistance/incentive programs
- 1 Early stage capital for technology-based start-up businesses
- 1 Access to financing

- 1 Lack of quality industrial/commercial buildings
- 1 Appropriate facilities for growing technology-based companies
- 1 Lack of shell buildings
- 1 Lack of building stock and permitted sites with infrastructure
- 1 Lack of low interest loans/grants for facility upgrade/expansion and equipment acquisition
- 1 New York City land acquisition program, conservation and agricultural easements inflating prices and limiting land for future development
- 1 Lack of funds to develop underutilized sites with environmental issues
- 1 Lack of business park sites and lack of funds to develop new sites like the Build Now NY Program

25 Other Issues

- 4 Lack of housing/suitable housing
- 3 Natural gas fracking/gas drilling
- 3 Lack of regional identity
- 2 Lack of dynamic business base
- 2 Deteriorating Main Streets/lack of creative marketing strategies
- 1 Proximity to Pennsylvania
- 1 No strategic roadmap to access Marcellus Shale with acceptable guidelines
- 1 Undeveloped tourism programs
- 1 Lack of milk price supports
- 1 Lack of unified media market to communicate
- 1 Urban revitalization
- 1 Relief for farming community

- 1 Binghamton University and Cornell need to embrace natural gas technology
- 1 High share of population on public assistance
- 1 Lack of connectivity and mobility between upstate regions and a total disconnect with New York City
- 1 Arts and cultural events are dwindling

Please identify five opportunities, unique to your region, on which a five-year economic development strategic plan should be focused.

31 Promoting Local Agriculture and Tourism Industries

- 9 Local agriculture, tourism, vineyards and food self sufficiency/local foods movement - organic and niche
- 5 Natural resources
- 3 Promote value-added industries that come from agriculture
- 3 Uniquely situated to develop a comprehensive eco-tourism/agri-tourism programs
- 3 Increase multi-usage of venues such as Watkins Glen International
- 2 Sustainable agriculture
- 2 Further develop the region's substantial recreational resources (ski centers, golf, water recreation, hiking, biking, camping, fishing and snow mobiling)
- 1 Incredible architecture, scenic beauty and rural charm

- 1 Tourism/arts
- 1 Explore and advance organic food processing and green technologies through Cooperative Extension
- 1 Fallow land for unique agricultural endeavors

25 Strengthen University/Economic Development Partnerships

- 15 Increased use of local universities (business incubators, technology transfer, and talent pool) to enhance economic development
- 2 Expand entrepreneurship spun off from the universities/tech transfer should be stimulated by low cost land and other inputs
- 2 Retain college graduates
- 1 Expand collaboration of educational and healthcare institutions in areas of technology and research
- 1 Develop innovative apprenticeship program to facilitate synergistic relationships between small businesses and colleges
- 1 Strong technology cluster
- 1 More effective integration of college/university resources with economic/community planning agencies
- 1 Develop comprehensive business park aligned with the higher educational institutions
- 1 More autonomy from Albany with regards to state colleges/universities

20 Natural Gas

- 16 Natural gas industry with appropriate environmental controls and a balanced strategy

- 2 Adopt public/private/university partnerships to utilize gas industry to create mineral and alternative energy industries in the region
- 2 Gas industry/salt/energy storage

17 Improve Access to Transportation Systems/Infrastructure

- 3 Improve access to Interstates 86/99, rail service and air service
- 2 Full service/commercial modern airport
- 2 Develop business sites on the Interstate highway system
- 2 Expand internet access/development of infrastructure to support telecommuting
- 1 Plan/build a new waste treatment facility for the region
- 1 Passenger rail service to New York City
- 1 Build bridge between Town of Union and Vestal to promote proper growth and traffic flow
- 1 Support public transit initiatives such as an advanced Bus Rapid Transit (BRT) system
- 1 Capacity in existing infrastructure systems
- 1 Renovate existing vacant commercial structures and/or adapt for new use
- 1 Region's newly upgraded interstate highway and fiber network provide excellent means for business to reach regional, national and international customers
- 1 All out Main Streets have 'Great Bones' and public infrastructure in place

7 Clean Energy

- 2 Clean and renewable energy including wind, solar and biomass
- 1 Develop bioenergy in concert with research institutions
- 1 Establish energy rebate program to lower utility costs
- 1 Through subsidies, region can become a hotbed for alternative energy business development
- 1 Develop energy curriculum, degree program at Binghamton University
- 1 Promote green businesses using existing sustainability networks

32 Other Issues

- 4 Promoting a diverse and talented workforce
- 2 Retention and expansion of our existing manufacturing base
- 2 Affordability and quality of life/low cost of living and labor
- 2 Enhance regional workforce development
- 2 Strong healthcare sector/quality health care
- 2 Proximity to New York City markets — opportunities for satellite offices and small-scale outsourcing
- 2 Geographic location — close to major cities in Northeast
- 1 Amend existing state regulations that impede innovation to re-engage the regions manufacturing and agricultural sectors
- 1 Building a regional identity
- 1 Strengthen/support center cities/villages

- 1 Untapped private sector expertise
- 1 Availability of undeveloped land
- 1 Develop programs to invest in qualified mixed-use projects in downtowns
- 1 Promote PILOT programs
- 1 Promote electronics packaging industries
- 1 Helicopter expertise
- 1 Opportunity to assist with international expansion of regional manufacturers
- 1 Expand food processing industry
- 1 Eliminate burdensome laws such as Wicks and modify scaffolding laws to allow for appeals
- 1 Build on region's high tech industries
- 1 Develop region's transportation industry cluster
- 1 Promote Project Labor Agreements that will promote the use of local labor
- 1 Expand to meet the needs of rural businesses

Please list the three greatest economic assets within your region.

19 Natural Beauty/Resources/ Agriculture/Tourism

- 5 Natural resources - agriculture, forestry, bluestone, water
- 4 The natural beauty for the region, including water availability
- 2 Micro climate - grapes

2 Tourism

- 1 Agriculture/viniculture
- 1 Agriculture and food processing system
- 1 Agriculture infrastructure and farm communities
- 1 Affordable outdoor recreation
- 1 Watkins Glen International
- 1 Great potential of wood and maple products

13 Quality of Higher Educational Institutions

- 10 Strong institutions of higher learning
- 1 Binghamton University
- 1 University and corporate research
- 1 World class university - Cornell University

11 Low Cost of Living/High Quality of Life

- 4 High quality of life , relatively low cost of living
- 3 Quality health care institutions
- 2 Reasonably-priced housing and land
- 1 Low cost real estate
- 1 Affordable American Dream communities

9 Natural Gas/Energy

- 6 Natural gas
- 2 Marcellus shale
- 1 Energy storage (salt caverns) - shale gas

8 Transportation/Infrastructure

- 3 Interstate 86
- 1 Transportation network including rail
- 1 Access to major transportation infrastructure
- 1 World class fiber optic network
- 1 Large available development sites along interstate highway
- 1 Full service commercial airport located on interstate

6 Globally Recognized Businesses

- 4 Existing manufacturing industries — such as EIT, BAE and Lockheed
- 1 Manufacturing workforce
- 1 Large international technology base

14 Other Issues

- 4 Geographic proximity to New York City and other large metropolitan areas
- 3 Skilled and diverse workforce
- 2 Interested and active stakeholders
- 2 Strong economic development network of partners
- 1 The strong role of Rural Preservation Corporations
- 1 Municipal cooperation within the Southern Tier
- 1 Academic and workforce center

APPENDIX D. Statewide Economic Development Issues

High Cost of Doing Business in New York State

- High business taxes due to state government inefficiency and growing budgets
- High energy and other utility costs
- High cost of worker compensation insurance
- Need to offset the high health care costs to businesses by investing in statewide programs that address the growing rate of chronic disease, especially diabetes, cardiovascular disease and cancer

Infrastructure Issues

- Shift away from NYS financial assistance to municipalities for needed infrastructure upgrades
- Need for expansions, upgrades and repairs of rail, particularly short line freight rail
- Lack of intercity or commuter passenger rail service connecting regions of the state to key markets
- High cost of needed repairs and mandated upgrades to clean water and wastewater treatment facilities
- Need for funding to complete interstate

infrastructure projects (I-86 and I-99), as well as state funding for local roads and bridges

- Need to provide additional infrastructure such as dams and dikes, to protect communities from future devastation caused by flooding
- Need for upgrades to airports to allow the aviation industry across the state to improve service and be competitive
- Need for funding to improve pedestrian infrastructure such as sidewalks and bicycle lanes

Economic Development Issues

- Regulations and lack of investment are barriers to significant growth in the statewide dairy industry
- Deferral of tax incentives from companies
- Funding for on-going workforce development
- Lack of compatibility among designated regional boundaries for many state programs and regulatory enforcement agencies, which prohibits a regional approach in many areas; i.e., tourism and I Love New York; NYS DOT; NYS DEC; ESDC, etc.

Workforce Development Issues

- Need for investment in K–12 education
- Need for STEM programs to motivate children to pursue higher education in fields such as math, science and engineering
- Reduced funding for workforce development, especially in growing industries such as energy, healthcare and transportation
- Dwindling pool of talented workers due to out-migration and lack of ability to retain talent graduating from some of the best universities in the world
- Lengthy process to obtain Department of Education approval for academic programs as colleges and universities
- Overlap and lack of coordination among agencies; example: health care industry struggles with effectively and efficiently responding to policies and procedures imposed by Department of Health and Department of Education
- Inefficient process to obtain required licensing through the Department of Education; example is in healthcare with high demand jobs such as lab technicians

Federal and State Policies, Procedures and Unfunded Mandates

- Chesapeake and New York City Watersheds, impact on wastewater treatment facilities (see below)
- Susquehanna River Basin, particularly EPA TMDL mandate
- Labor/migrant worker laws and weekly payroll rules for farm workers
- Inconsistency in federal and state policies such as NYS DEC and Army Corps of Engineers, and in state interagency interactions
- Multiple unfunded mandates to counties and local municipalities that add cost, but not value
- Impact of Article 28 regulation on the health care industry, which add significant cost and time delays
- High cost of fire and police to municipalities due to arbitration requirements that shift cost to communities mandated by the Taylor Law. This limits the bargaining power of local governments.
- Eligibility for On-Bill Financing is limited to only 0.5% of customers. Unless the cap

is removed or the limit is increased, this program will achieve only a fraction of its potential impact.

Inefficiency and Complexity of the State Regulatory Process

- Uncertainty on state's position on natural gas drilling in the Marcellus Shale formation
- Dairy marketing agreements
- Regulatory environment, involving agencies such as DOL, DOH and DEC, is a drain on private, not-for-profit and public sectors because it is costly to municipalities, reinforces a lack of accountability among state agencies, creates a barrier to New York State's economic competitiveness, and impacts the ability of economic development agencies to quickly respond to opportunities.

Examples:

Potential for Significant Growth in the Dairy Industry: Overcoming Regulations and Risk

New York State is a significant milk-producing state. Proximity to populations in New York City, Boston and Philadelphia allow a large portion of the state's milk production to command the highest-value fluid price. The Southern Tier has 781 dairy farms, which produce 13% of the state's aggregate milk production.

The state's private and public infrastructure for the industry that has evolved over the long history of its

milk production continues to keep our producers competitive and on the cutting edge of management and technology. However, even though New York ranks fourth in the nation for milk production, our state is a net importer of milk from other states. In 2007, dairy-processing plants in the state purchased 1.8 billion pounds more milk than our farms produced.

The state's dairy producers want to expand, and there is interest in new dairy-processing plants to locate facilities in the state. There is an opportunity to significantly grow this statewide industry through changes in state regulations and taxes, working to resolve federal regulations regarding farm labor and human resource management, working with federal agencies to reduce the risk for dairy operations, making an investment in management education programs and investing funds for growth and new business development.

Expansions, Upgrades and Repairs of Rail, Particularly Short Line Freight Rail

The NYS DOT's 2009 Statewide Rail Plan, along with its 2008 Rail Needs Survey, identifies tens of millions in investments needed for short line freight operations in the Southern Tier. Most notably, the New York Susquehanna and Western, the Utica Main Line, the Bath & Hammondsport Railway and the WCOR are in need of significant investment to keep them functional, usable short line

rail connections in New York. Additional investments needed in the region include a \$2.6 million investment (year 2000 figures; likely substantially higher today) to replace a bridge in the Binghamton area that has become hazardous to trucks passing below, with an average of three to five accidents annually.

A specific example is the lack of service to the majority of the Utica Main Line, which runs through Broome and Chenango counties in the Southern Tier (and Madison County in the Central New York region and Oneida County in the Mohawk Valley region). The line was severely impacted during the floods of 2006 and was not repaired at that time. A substantial portion of the Utica Main Line, owned by NYSW (under PILOT agreements with multiple county IDA's) has been out of service since June 2006. Another restriction on the movement of freight is the congestion in the Binghamton area. Capital projects funded by NYS DOT have begun to address these challenges, funding the construction of new crossovers, relocation of existing track connections, and the addition of more yard tracks for "building" trains.

Chesapeake Bay Watershed

The New York portion of the Chesapeake Bay Watershed District consists of the Chemung and Susquehanna River basins and includes more than 6,250 miles in 19 counties with a population of about 650,000. New York makes up approximately 10% of the total Bay

watershed area and 4% of the total population.

In 2000, Governor George Pataki signed a Memorandum of Understanding to agree to work cooperatively with the EPA, other tributary states and the District of Columbia to improve Chesapeake Bay water quality. The EPA has made estimates regarding the maximum annual loadings of nitrogen, phosphorus and sediment that can be received by the Bay and still meet water quality standards. These maximum annual loading limits will be allocated to each state by the EPA at Total Maximum Daily Loads (TMDLs).

The EPA has pending regulations for TMDLs, with stringent discharge limits for Total Nitrogen (NP) and Total Phosphorus (TP). These mandates could come with very high costs to municipalities and businesses in New York State, increasing operating costs and system user rates. Upgrades would be required for many wastewater treatment plants. Operation and maintenance costs would also increase as phosphorus removal often necessitates the addition of costly chemicals for treatment.

Repairs and Mandated Upgrades to Clean Water and Wastewater Treatment Facilities

The projected upgrades and maintenance costs for water and wastewater treatment facilities statewide are significant and diverse, ranging from the replacement of sewer pipes to more sophisticated

upgrades mandated by the federal Clean Water Act and the Chesapeake Bay Watershed District regulations. These facilities are essential for overall quality of life, as well as a key piece of infrastructure to attract businesses and support the growth of existing businesses.

The NYS Department of Environmental Conservation projects \$36.2 billion is needed for improvements to wastewater and runoff systems by 2028. The cost for improvements to drinking water systems is estimated at more than \$38 billion, though \$28 billion of that estimate is for New York City. Yet funds for upgrades to clean water and wastewater treatment facilities in 2012 will likely be reduced to 2008 levels. The burden to pay for these upgrades will fall on the local governments, which are facing difficult financial times; especially those impacted by recent disastrous floods.

In the Southern Tier alone, Chemung County predicts \$87 million in repairs and Broome County's repair and upgrade forecast exceeds \$166 million, including \$25 million in repairs for a collapsed wall and subsequent damage caused by the late summer floods of 2011.

APPENDIX E. Recent Business Announcements

The information in this section includes recent press releases, news articles and public announcements that have been brought to the attention of the New York State Department of Labor. They do not reflect all business expansion and contraction activity in the Southern Tier.

Expansions/Opening

- **Binghamton University** (Broome County) recently presented a proposal to the NYSUNY 2020 Challenge Grant Program that will increase enrollment and add jobs to the local community. The grant program, introduced earlier this year by Governor Andrew Cuomo and State University New York (SUNY) Chancellor Nancy Zimpher, allows the university and three other SUNY schools to apply for up to \$35 million in state funds for academic enhancements and capital development. The mission is to make SUNY a leading catalyst for job growth throughout the state. Binghamton University's proposal includes an expansion of its educational mission along with investments in the campus and local community resulting in an overall annual economic impact of \$800 million on the region and \$1.1 billion across the state. The five-year plan calls for expanding enrollment by 2,000 students, constructing a new health and natural sciences facility, supporting a new Southern Tier Economic Development Center in downtown Binghamton, and creating 1,300 jobs in the local community, including 150 faculty positions, and 1,600 jobs state wide. (August 3, 2011)
- Plans for a \$41 million hotel and convention center at **Tioga Downs Casino** in Nichols (Tioga County) are under way. The goal is to make the facility more of a play, eat, and stay destination for consumers. The hotel will include up to 132 rooms, a convention center with banquet halls for weddings and other events, a restaurant and a covered parking area for up to 224 vehicles. An estimated 75 full-time jobs will be created to staff the hotel. Construction on the hotel is expected to start no later than March 2013 and to be completed in 2014. Tioga Downs now has about 300 employees. (July 6, 2011)
- **Agro Farma Inc.**, a dairy product manufacturer in New Berlin (Chenango County), received \$18 million in federal New Market Tax Credits to help pay for the acquisition and installation of new machinery and equipment to meet consumer demand. In 2007, the company launched Chobani brand Greek-style yogurt. Over the past five years, Agro Farma has invested about \$115 million in property and plant improvements. The new, \$90 million project is expected to result in the retention of 386 jobs and the creation of 450 full-time, permanent jobs, according to Empire State Development. (June 28, 2011)
- Australian officials have selected **Lockheed Martin's** MH-60R Seahawk helicopter for a fleet of 24 new-generation, multi-role naval combat aircraft. The work will mean local job retention, possibly more work opportunities, and the potential for job creation at the end of this year at Lockheed's Owego (Tioga County) facility. The value of the program is worth "several hundred million dollars" and more than \$1 billion for Team Seahawk. (June 17, 2011)
- Everpower Wind Holdings and the town of Howard (Steuben County) recently broke ground on the \$100 million **Howard Wind Project**, an enterprise establishing 25 wind turbines in the town with the potential for two more in the future. Construction is scheduled for completion by the end of August or early September 2011. The turbines are expected to tie into the grid in mid-October 2011, with an anticipated starting date of December 2011. (June 12, 2011)
- **Miller Environmental Group, Inc.** is opening an office in Elmira (Chemung County). The company is involved in the gas drilling industry doing pipeline inspections, cleaning, and transporting wastewater and frack (hydraulic fracturing) tank rentals. When the company completes renovations at the 9,000-square-foot warehouse building and becomes operational, between 12 and 20 employees will be hired during the first year. (May 26, 2011)
- **Corning Community College (CCC)** opened a new \$4 million athletic facility in Corning (Steuben County). Also in line with the college's infrastructure upgrades, the Corning Community College board of trustees recently voted unanimously to move forward with a plan to build two, 150-bed dormitories on CCC's main campus. (May 24, 2011; May 12, 2011)
- More than two dozen highway and bridge projects totaling \$5.8 million are scheduled in 2011 in Chemung County. The local share of costs is \$3 million, with the remaining balance funded by federal and state aid. Various bridge and culvert replacements and roadway upgrades are planned. (May 17, 2011)
- **Affordable Senior Housing of New York Inc.**, a Buffalo-area developer, received final approval from the local planning board to develop a 125-unit senior housing complex in Johnson City (Broome County). (April 27, 2011)

- The Newman Development Group officially broke ground on its \$12 million student housing project, **Twin River Commons**, in Binghamton (Broome County). The housing project will open in August 2012 in time for the fall semesters at Binghamton University and Broome Community College. (April 26, 2011)
- Housing developer Calamar Inc. hopes to break ground in the summer of 2011 on a 107-unit senior housing project, **Colonial Square**, in the Town of Erwin (Steuben County). Construction is scheduled to be complete in early 2012. (April 13, 2011)
- A project backed by Arrowhead Ventures that would bring a **BJ's Wholesale Club**, several units of senior housing and a wetland to the Village of Lansing (Tompkins County) is nearing final approval. BJ's is expected to employ 78 at the site. (March 31, 2011)
- **Transonic Systems Inc.**, which manufactures blood flow measurement devices, broke ground on a 30,000-square-foot expansion in Lansing (Tompkins County). The new facility, to be used primarily for manufacturing, is expected to generate about 50 additional jobs over the next three years. (March 23, 2011)
- **United Health Services**, which operates a 916-bed hospital and health care system serving the greater Binghamton region, kicked off its fundraising campaign for a \$5 million expansion of the ICU at Wilson Medical Center in Johnson City (Broome

County). The expansion is the first major upgrade to the unit since the mid-1970s. (March 9, 2011)

- Profits at **Corning Incorporated** surged 41% in the fourth quarter of 2010, lifted by a bump in sales of liquid crystal display (LCD) television glass and ultra-strong glass for cell phones and touch-screen tablets. The specialty glass and ceramics pioneer commands more than 60% of the global LCD glass market. The company expects gross margins in every one of its segments to improve in 2011. (January 25, 2011)
- Hiring has begun at the new **CVS distribution center** in the Town of Chemung (Chemung County). The company received 3,000 applications for the first 100 job openings. The new hires will stock the facility over the next three months before a new round of hiring is conducted later in 2011. The site is expected to employ 600 when fully operational. (December 22, 2010)
- Construction is under way on the New York State Center of Excellence in Small Scale Systems Integration and Packaging (S3IP) at **Binghamton University** (Broome County). The \$30 million, 114,000-square-foot building will provide space for expansion and consolidation of S3IP and its team of scientists and engineers. The facility will undertake research and commercialization efforts in energy-efficient electronic systems, systems integration and packaging, flexible electronics, autonomous solar power,

advanced materials and sensors, and health care and life sciences. The project will support 180 temporary construction jobs. (October 14, 2010)

- **CAF USA**, a railway equipment manufacturer with a plant in Elmira Heights (Chemung County), received a five-year, \$298.1 million contract from Amtrak. CAF will manufacture and perform final assembly on 130 new single-level rail cars. The contract is expected to create 575 local jobs. The first car should roll off the assembly line in October 2012. CAF USA is a subsidiary of a Spanish company. (September 7, 2010)
- Roughly 18 months after it was first proposed work is underway on **Schlumberger's** \$30 million facility in Horseheads (Chemung County). The company supplies a wide array of materials and technical services to the region's natural gas drilling industry. The new facility will include 500,000 square feet of buildings on 90 acres. Employment levels are expected to eventually reach 400. (July 19, 2010)
- **United Health Services** plans to build a \$35 million "state-of-the-art medical practice" in Vestal (Broome County). The 85,000-square-foot facility is slated to open in spring 2012. It will include primary care physician offices, a walk-in center, X-ray and other imaging services, and a retail pharmacy. (May 17, 2010)
- **Empire Pipeline**, a subsidiary of Buffalo-based National Fuel Gas Co., is in the early

stages of planning a \$43 million natural gas pipeline, which will run from the northwest corner of Tioga County, PA to the town of Corning (Steuben County). The company hopes to begin construction in spring 2011 and begin operating the pipeline in fall 2011. The project will create 70 construction jobs. (October 25, 2009)

- **Lourdes Hospital** began a three-year, \$70 million construction project to update and expand its medical complex in Binghamton (Broome County). The project consists of an expanded emergency department, a new open MRI facility, two new surgical suites, a flood wall, an ambulatory care building, a two-story main entrance connecting the ambulatory building to the main hospital, an expanded radiology department, and a multi-story parking garage. (March 12, 2009)

Closings/Contractions

- **Sikorsky Aircraft** will let go 386 workers at its plant in Chemung County, due primarily to a lull in orders for its military helicopters. The facility's job count grew from around 400 in 2004 to nearly 1,200 prior to the layoff announcement. Trade Act eligibility is being explored. This follows the loss in 2009 of more than 1,000 high-paying jobs at the Lockheed Martin plant in Tioga County, due to the cancellation of the presidential helicopter contract. (June 2, 2011)

APPENDIX F. List of Potential Shovel Ready Sites

Painted Post Foundry Site

Steuben County
57 acres
Cost: \$3 million

This 57-acre site is adjacent to Interstate 86 and is owned by the Village of Painted Post. The site is a former brownfield site, which has been remediated and has received DEC sign-off for redevelopment. It is an established priority site, identified through the recently completed Interstate 86/99 Corridor Study that was commissioned by the Three Rivers Development Foundation. It is zoned for industrial use with full infrastructure to the site. Completion will require establishing a new access point to the site, which is estimated at \$3 to \$5 million.

Steuben County Industrial Park Site

Steuben County
98 acres
Cost: \$1.2 million

This 98-acre site owned by the Steuben County Industrial Development Agency has been certified as shovel ready through the New York State Build Now NY program and has gone through the SEQRA process, which encompassed all the necessary environmental reviews. It is currently zoned industrial and has been engineered for a multi-tenant business park. It has been identified as a priority site through the

Steuben County Economic Development Plan and the recently completed Bath and Hammondsport Rail Corridor Study. The site needs infrastructure brought to it at an estimate of \$500,000, and rail upgrades are necessary to establish rail service to the site, which is estimated at \$700,000 for a total investment of \$1.2 million.

Finger Lakes Highland Site

Steuben County
149 acres
Cost: \$3.5 million

The Finger Lakes Highland Site in Wayland, NY has been identified as a priority site in the Steuben County Economic Development Plan and was recently acquired by JMaC properties through the combined efforts of JMaC and the Steuben County IDA. This 149-acre site adjacent to Interstate 390 in Wayland is zoned industrial and is in the process of going through the SEQRA review to qualify it as site shovel ready. The IDA has declared its intent to be lead agent for the SEQRA review and all environmental studies are in process. Preliminary engineering has identified \$3.5 million worth of costs to extend public utilities to the site, specifically, \$1.3 million for water and sewer, \$1 million for access, and \$1.2 million for gas and electric.

E=mt3

Tioga County
85 acres
Cost: \$900,000

This site consists of 85 acres in the Town and Village of Owego and is on a state highway within a half mile of a Route 17 interchange. It has all utilities and basic engineering for an SWPPP is complete. Approximately \$900,000 is needed for some road drainage work and to create a turning lane to allow for proper highway access. The site is zoned general business and light industrial. The site is owned by the Tioga County IDA.

Taylor Site

Tioga County
75 acres
Cost: \$4 million

This property measures 75 acres and is located on New York State Route 434 in Apalachin between two Route 17 highway interchanges. The site is zoned general business, but could be rezoned industrial. The site needs sewer, water, and natural gas infrastructure. Investment would be about \$4 million. A private owner is willing to sell.

Town of Owego Site

Tioga County
35 acres
Cost: \$900,000

This 35-acre site is attached to a current industrial park. Sewer, water, and natural gas are available with small investment. There is short line rail on site. A \$900,000 investment would create rail siding and bring all utilities to site. The property is owned by Town of Owego.

Lounsberry Site 1

Tioga County
45 acres
Cost: \$100,000

This 45-acre site adjoins the Best Buy distribution center at a Route 17 highway interchange. It has sewer, water and natural gas and is zoned commercial/ industrial. The site is owned by the Town of Nichols. Approximately \$100,000 is needed to improve site access and for drainage work to make the site ready for development.

Lounsberry Site 2

Tioga County
45 acres
Cost: \$250,000

This site consists of 45 acres behind Best Buy Distribution.. It is half a mile from the Route 17 highway interchange. The site has water but needs sewer and natural gas

extension. Environmental work is complete and the site has industrial/commercial zoning. A \$250,000 investment will bring natural gas and sewer to the site to make it shovel ready. The property is owned by the Tioga County IDA.

Earl B. Clark Business Park

Chenango County
40 acres
Cost: \$3 million

This 40-acre site has all engineering, archaeological, and site plan work complete. The site is owned by the Chenango County IDA, and they have had interest from several potential tenants. To make the site shovel ready, upgrades are necessary for sewer and water and to add a rail spur.

Airport Corporate Park South

Chemung County
250 acres
Cost: \$2.2 million

The Chemung County IDA and Southern Tier Economic Growth Inc. own a 250-acre site that is immediately adjacent to interchange 50 of I-86. It is directly across the interstate from the Elmira Corning Regional Airport and the original Airport Corporate Park where Sikorsky, Silicon Carbide Products, Mirion, Inc., General Revenue Corporation, DeMet's Candy, SYNTHES, Hunt Engineers, Fortuna Energy, and other major employers are located. A \$2.2 million investment is needed to bring utilities to the site.

Brandywine Corridor BOA

Broome County
100 acres
Cost: \$3 million

This 100-acre site is the subject of a New York State-funded Brownfield Opportunity Area Step 2 Nomination Study. The first phase of the project requires site acquisition, environmental remediation, and site clearance to initiate the redevelopment of the corridor. Portions of the site are controlled by the Broome County IDA. The entire site is zoned commercial or industrial.

Airport Corridor Business Park

Broome County
300 acres
Cost: \$3 million

Broome County owns 300 acres as part of the Greater Binghamton Regional Airport campus. The county has completed an airport master plan that recommends development of this land as a new corporate park, which will focus on aviation-related businesses. A sewer line extension is needed for the site. The county has completed an engineering analysis to determine feasibility and preliminary costs for this project.

North Dryden Industrial Park

Tompkins County
43 acres
Cost: \$400,000

This 43+ acre site is vacant, industrial zoned land in the Village of Dryden. It is privately owned by one individual. It

is located on New York State Route 13 with the most direct access in Tompkins County to Route 81. Water extension and wastewater upgrades have been completed. Intersection improvements at North Street and Route 13 need to be completed that would realign the intersection and provide adequate truck access to the site.

Airport Technology Park

Tompkins County
60 acres
Cost: \$2.7 million

This 60-acre site owned by the Tompkins County Airport. The land is vacant and zoned for light industrial development. The site is conveniently located on the Warren Road corridor near the airport and New York State Route 13. The Cornell Business and Technology Park, Warren Road Business Park, and Borg Warner are located along this corridor. The lands have been identified as the next site for future industrial development in the county. Preliminary studies on potential build-out were conducted. The lands were included in a newly formed sewer district where lines were installed along Warren Road in 2010. The site needs infrastructure including water and wastewater at an estimated cost of \$700,000, and internal roadways and curb cuts to Warren Road and Cherry Road at an estimated cost of \$2 million for a total project cost of \$2,700,000.

Lansing Town Center Business Park

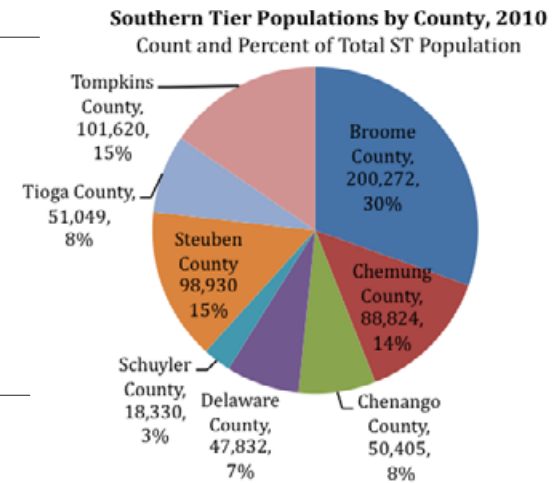
Tompkins County
40 acres
Cost: \$1.5 million

This 40-acre site is owned by the Town of Lansing. It is part of a 150-acre site that makes up the core of a planned new town center that would include a mix of housing, commercial, and light industrial development. The town center is envisioned as a multi-modal, mixed-use area. It is located within the county's development focus areas. The site has municipal water as well as electric and gas. NYSEG has indicated that based on the type of uses contemplated, service upgrades should not be a problem. The town is developing a municipal sewer to serve the area and the site is in the proposed district. The town has also developed an incentive policy for the Tompkins County IDA to promote industrial development here. The site will be accessed from Route 34. The plan is to have a common stormwater retention area in order to preserve as much development land as possible for commercial sites. The estimated costs for engineering, financing and site improvements, including interior roadways, curb cuts, trails and pathways, and site utilities is estimated at a cost of \$1,500,000.

APPENDIX G. Additional Detail, Regional Assessment of Existing Conditions and Economic Opportunities

Distribution of the Southern Tier Population by County

The population of the Southern Tier is concentrated in three locations. These are the Broome County area, the Chemung-Steuben County area and the Tompkins County area.

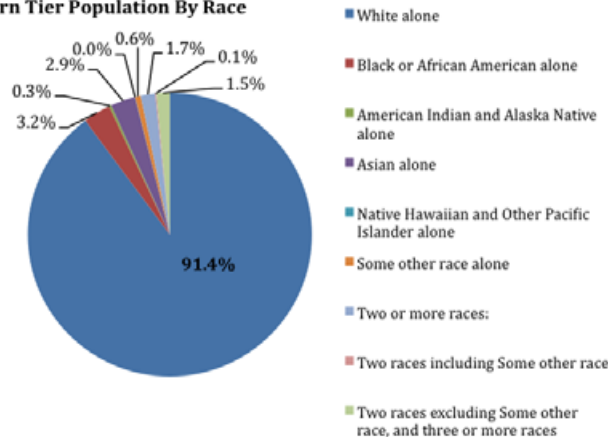


Source, U.S. Census Bureau, 2010

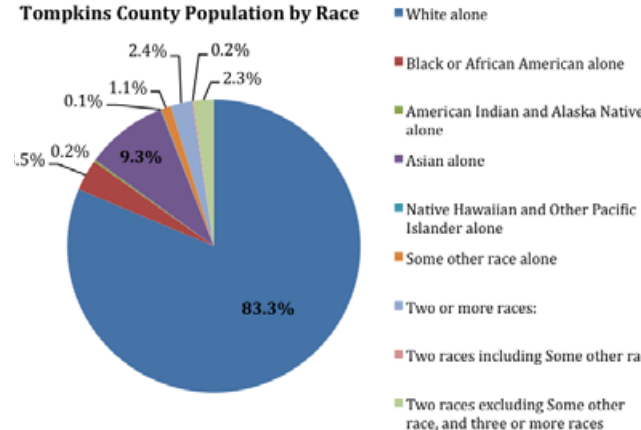
Racial and Ethnic Diversity in the Southern Tier

The Southern Tier population is largely white. Exceptions occur in Broome and Tompkins County where there is somewhat greater diversity. Tompkins County is home to the largest percentage of Asian population in the region, and Chemung County to the region's largest proportion of black or African-American population.

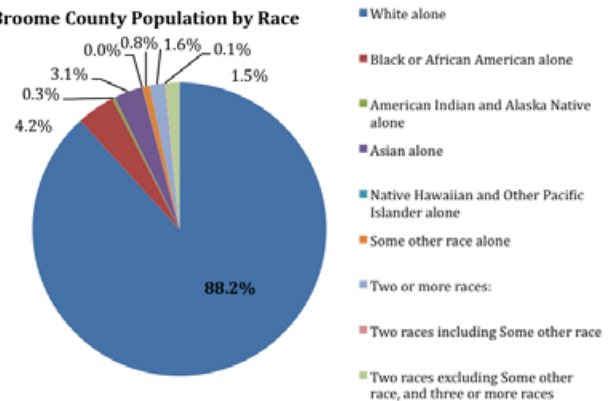
Southern Tier Population By Race



Tompkins County Population by Race



Broome County Population by Race

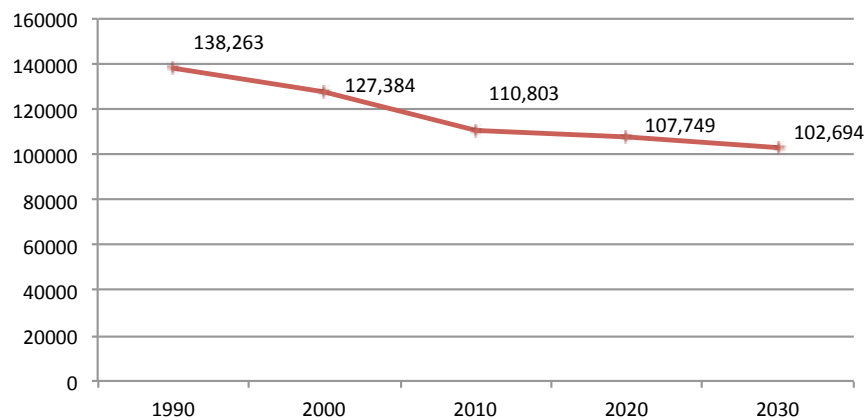


Source, U.S. Census Bureau, 2005-2009 American Community Survey Five-Year Estimates

Population Projections

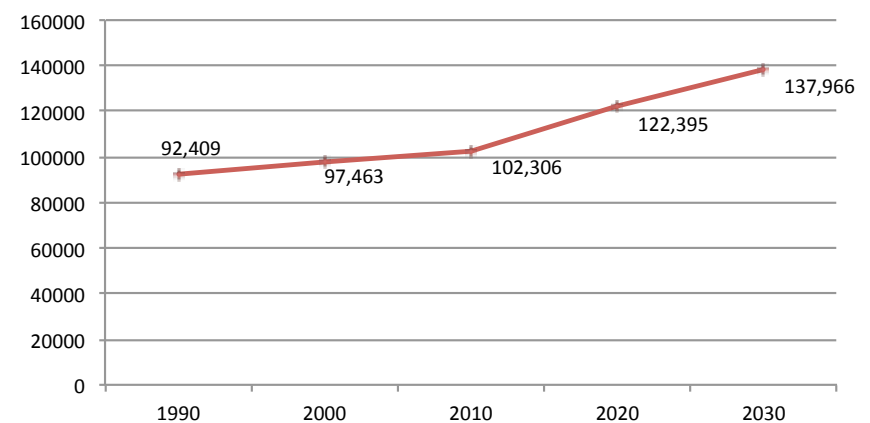
Cornell Program on Applied Demographics estimates project that the Southern Tier will continue to lose population aged 0–14 and 25–44 over the next two decades as the population aged 65+ increases dramatically.

Southern Tier Population, 1990 - 2030, Ages 0-14



Source, Cornell Program on Applied Demographics, 2008 (2020 and 2030 are Cornell PAD estimates)

Southern Tier Population, Age 65+



Source, Cornell Program on Applied Demographics, 2008 (2020 and 2030 are Cornell PAD estimates)

Education

Of all Southern Tier counties, Tompkins County, by far, has the most educated population.

Southern Tier Educational Attainment by County (Adults, Age 25+)	<i>Broome County</i>	<i>Chemung County</i>	<i>Chenango County</i>	<i>Delaware County</i>	<i>Schuyler County</i>	<i>Steuben County</i>	<i>Tioga County</i>	Tompkins County
Bachelor's degree	14.1%	11.5%	10.1%	10.5%	9.6%	10.1%	13.1%	21.0%
Master's degree	8.8%	6.3%	5.1%	6.0%	5.5%	7.3%	7.5%	16.1%
Professional school degree	1.6%	2.0%	1.3%	1.0%	1.6%	1.1%	1.0%	2.9%
Doctorate degree	1.1%	0.8%	0.6%	0.7%	0.3%	1.0%	0.8%	8.7%
Total	25.7%	20.6%	17.2%	18.2%	17.0%	19.5%	22.3%	48.7%

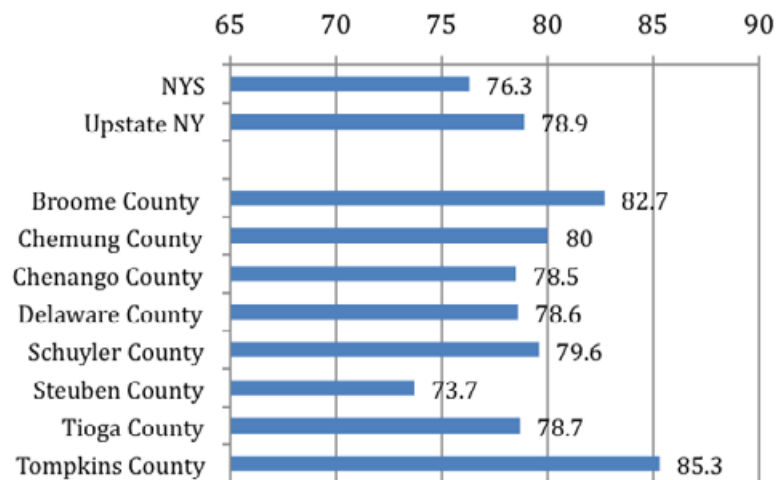
Source, U.S. Census Bureau, 2005–2009 American Community Survey Five-Year Estimates

Health

Healthy Diet and Physical Activity. Fundamental to promotion of good health and reduction in costly chronic disease are healthy diet and physical activity. Results of the 2008–9 U.S. Behavioral Risk Factor Surveillance System survey (BRFSS), as reported by the New York State Department of Health, reveal disparity in health behaviors across the region. The percentage of adults reporting leisure time physical activity within the past 30 days ranges from estimated highs of 85.3% and 82.7% in Tompkins and Broome Counties to a low of 73.7% in Steuben County. The percentage of adults reporting eating five or more vegetables or fruits per day was low across the region, ranging from highs of 33.1%, 28.0% and 27.4 % in Tompkins, Chemung and Broome Counties to a low of 22.5% in Tioga County.

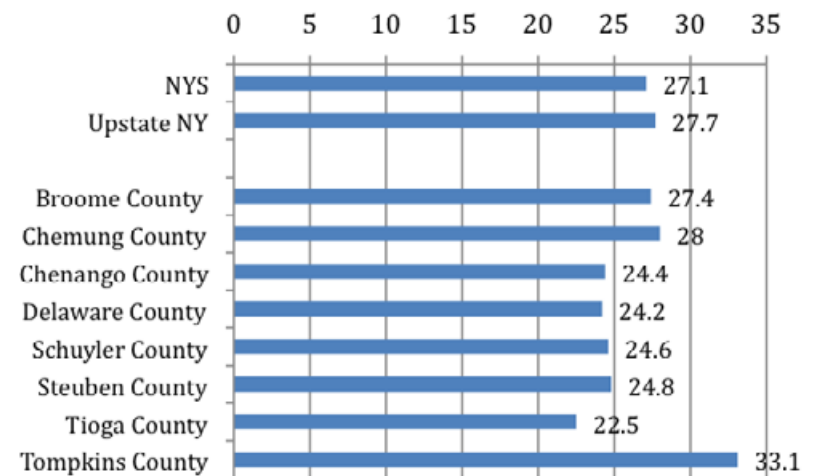
Healthy Diet and Physical Activity

% Adults Who Participated in Leisure Time Physical Activity in Last 30 Days - Age-Adjusted, 2008-9



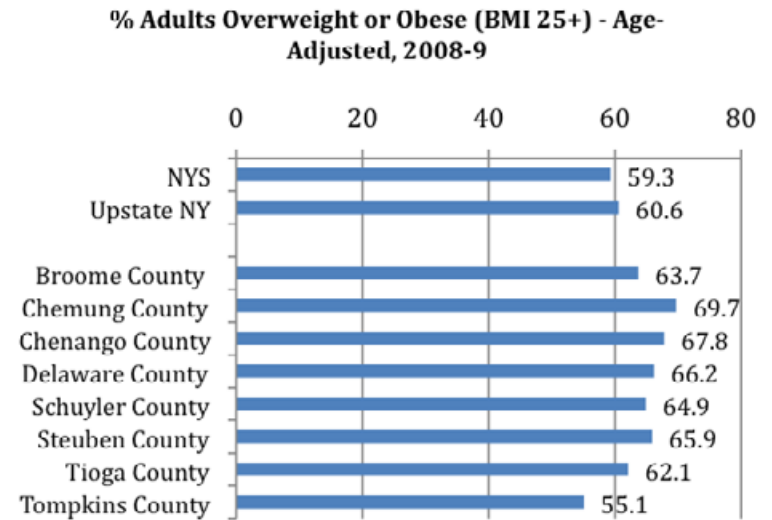
Sources, New York State Department of Health and CDC Behavioral Risk Factor Surveillance System (BRFSS), 2008–9

% Adults Eating 5 or More Fruits or Vegetables per Day - Age-Adjusted, 2008-9



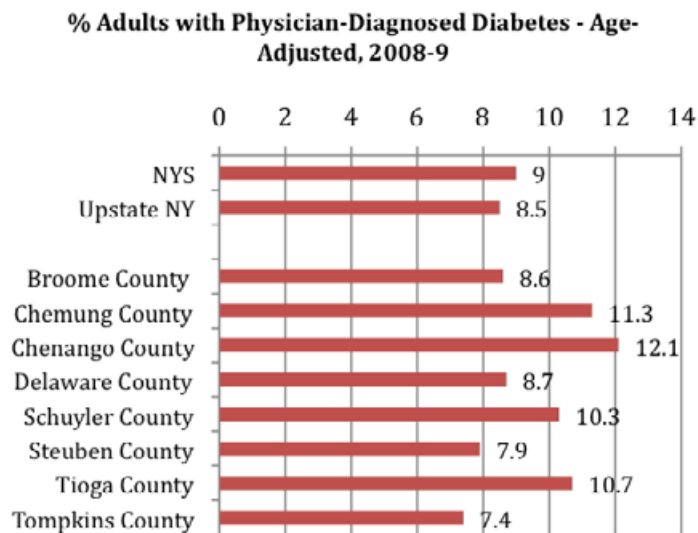
Sources, New York State Department of Health and BRFSS, 2008–9

Obesity and Overweight

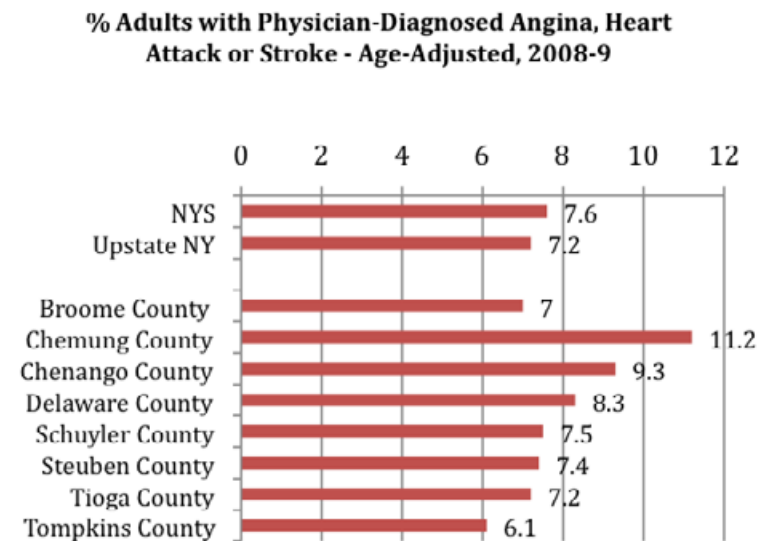


Sources, New York State Department of Health & BRFSS, 2008-9

Chronic Disease



Sources, New York State Department of Health & BRFSS, 2008-9



Sources, New York State Department of Health & BRFSS, 2008-9

Chronic Disease

While the use of cancer screening such as mammography and colonoscopy in the Southern Tier appears generally consistent with state rates, rural counties appear to have lower compliance than more populous counties where the region's medical centers are based. These include Chenango, Delaware, Schuyler and Tioga Counties. Further, in these same rural regions, there appears to be a greater proportion of the population aged 18–64 without health insurance, which is likely a barrier to access. The rate of persons visiting a primary care physician for routine care within the past year was slightly lower across the Southern Tier than for the state (72.7%) overall (BRFSS, 2008–9).

Everyday smoking represents a major risk factor for cancer in general, and is strikingly common across the Southern Tier. Of note as well, is a corresponding elevation in the incidence of lung and bronchus cancer rates reported by the New York State Department of Health.

	Broome County	Chemung County	Chenango County	Delaware County	Schuyler County	Steuben County	Tioga County	Tompkins County	NYS
Everyday smoking among adults, Age-Adjusted	17.2	26.1	19	17.5	18.2	16.8	17.1	8.7	11.3
Lung & Bronchus Cancer - Incidence per 100,000 population	52.1	67.1	55.7	52.4	47.6	66.7	54.9	48.6	44.4

Sources, New York State Department of Health 2003–2007 Cancer Registry Data as of June 2010 and BRFSS, 2008–9

Select Cancer Screening and Incidence Rates	Broome County	Chemung County	Chenango County	Delaware County	Schuyler County	Steuben County	Tioga County	Tompkins County	NYS
% Total, Had a mammogram within the past 2 years, Women 50+, Age-Adjusted	84.7	86	76.3	74.8	80.9	86	77.6	85.2	83.1
Female Breast Cancer - Incidence per 100,000 population	112.2	128.9	103.4	103.4	101.6	115.3	120.8	122.3	124.3
% Total, Sigmoidoscopy or colonoscopy within past 10 years, Adults 50+, Age Adjusted	67.6	64	51.8	54.9	60.8	65	64.2	72.3	64.6
Colorectal Cancer - Incidence per 100,000 population	16.4	18.0	17.0	17.5	25.4	16.9	16.2	15.5	16.7

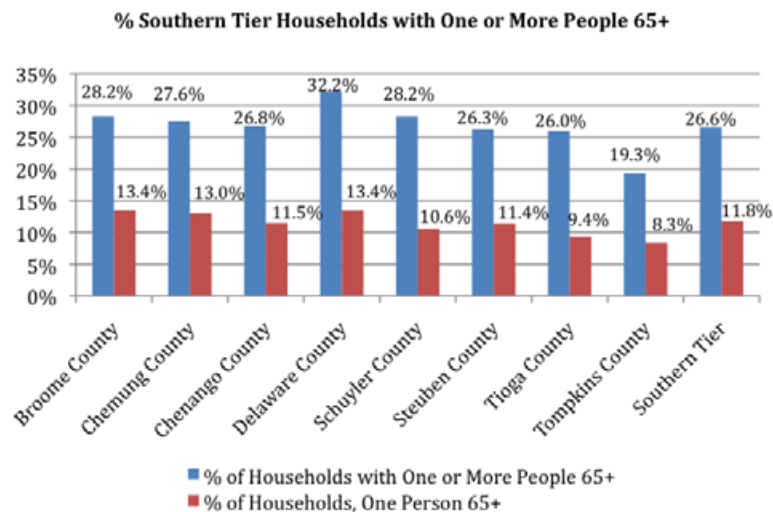
Sources, New York State Department of Health 2003–2007 Cancer Registry Data as of June 2010, and BRFSS, 2008–9

Housing

Southern Tier housing units are older, more likely to be vacant and more dependent on fossil fuels when compared with the profile of housing in the nation. New York State shares similar challenges.

Aging and Health Care Delivery

The Southern Tier population is aging rapidly. Among total households in the region, some 11.8% are occupied by a person over the age of 65 who is living alone. As these individuals and others 65+ age during the upcoming two decades, the Southern Tier will be faced with the challenge of providing appropriate living quarters and health care at affordable cost.



Source, U.S. Census Bureau, 2005–2009 American Community Survey Five-Year Estimates

Housing Occupancy in the Southern Tier Region and New York State, 2005-2009					
Characteristic	% Share		Characteristic	% Share	
	Southern Tier	New York State		Southern Tier	New York State
Total Housing Units	(300,378)		Housing Tenure	(259,470)	
Occupied	84.4%	89.8%	Owner Occupied	69.0%	55.7%
Vacant	13.6%	10.2%	Renter Occupied	31.0%	44.3%
Units in Structure	(321,736)		Year Householder Moved Into Unit	(259,470)	
1 Unit	64.6%	47.0%	2005 or Later	24.1%	22.1%
2 Units	8.9%	10.9%	2000-2004	23.4%	25.0%
3-4 Units	6.0%	7.2%	1990-1999	21.5%	23.8%
5-9 Units	4.3%	5.3%	1980-1989	12.8%	12.1%
10-19 Units	2.0%	4.2%	1970-1979	8.5%	8.9%
20 or More Units	3.4%	22.9%	1969 or Earlier	9.7%	8.1%
Mobile Home	10.8%	2.6%			
			House Heating Fuel	(259,470)	
Year Structure Built	(300,378)		Utility Gas	50.8%	52.6%
2005 or Later	0.8%	1.1%	Tank or LP	9.0%	3.1%
2000-2004	3.2%	3.3%	Electricity	10.8%	8.6%
1990-1999	8.9%	6.1%	Fuel Oil	20.3%	32.5%
1980-1989	10.6%	7.6%	Coal or Coke	1.6%	0.2%
1970-1979	13.5%	10.2%	Wood	6.6%	1.6%
1960-1969	9.9%	12.4%	Solar	0.0%	0.0%
1950-1959	11.4%	15.5%	Other	0.8%	0.8%
1940-1949	6.9%	9.4%			
1939 or Earlier	34.7%	34.3%			

Source, U.S. Census Bureau, 2005–2009 American Community Survey Five-Year Estimates.
Southern Tier regional data adapted by the Cornell Program on Applied Economics

Housing

Age of Housing Units				
% Total Structures		United States	NYS	Southern Tier
US Estimate				
Total:	127,699,712			300,378
Built 2000 or later	3,708,567	11.3%	4.4%	4.0%
Built 1990 to 1999	18,111,220	14.2%	6.1%	8.9%
Built 1980 to 1989	18,335,229	14.4%	7.6%	10.6%
Built 1960 to 1979	21,289,228	28.2%	22.6%	23.4%
Built 1940 to 1959	14,784,435	17.4%	24.9%	18.3%
Built 1939 or earlier	18,432,913	20.4%	43.7%	41.6%

Source, U. S. Census Bureau, 2005–2009 American Community Survey Five-Year Estimates

Occupied and Vacant Housing Units				
% Total Structures	United States		Southern Tier	NYS
US Estimate % Total				
Total:	127,699,712		300,378	
Occupied	112,611,029	88.2%	84.4%	89.8%
Vacant	15,088,683	11.8%	13.6%	10.2%

Source, U. S. Census Bureau, 2005–2009 American Community Survey Five-Year Estimates

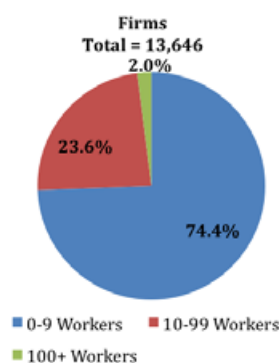
Housing Heating Fuel				
% Total Structures	Estimate	United States	NYS	Southern Tier
Total:	112,611,029			-259,470
Utility gas	56,461,477	50.1%	52.6%	50.8%
Bottled, tank, or LP gas	6,285,588	5.6%	3.1%	9.0%
Electricity	37,788,909	33.6%	8.6%	10.8%
Fuel oil, kerosene, etc.	8,310,813	7.4%	32.5%	20.3%
Coal or coke	135,341	0.1%	0.2%	1.6%
Wood	2,127,527	1.9%	1.6%	6.6%
Solar energy	36,503	0.0%	0.0%	0.0%
Other fuel	476,270	0.4%	0.8%	0.8%

Source, U. S. Census Bureau, 2005–2009 American Community Survey Five-Year Estimates

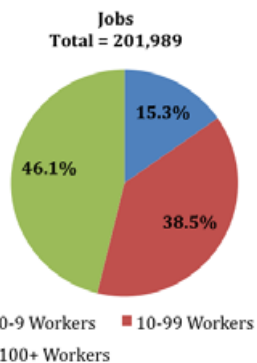
Labor

Growth among firms in the Southern Tier was primarily concentrated in very small businesses.

**Private Sector Size of Firm Growth, 2010
Southern Tier**

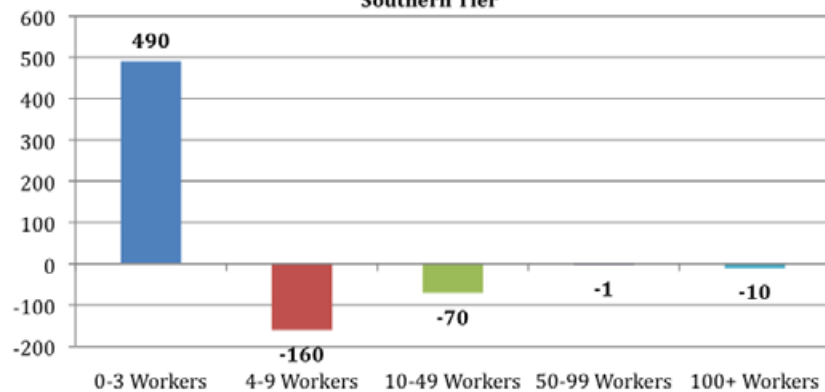


Source, New York State Department of Labor



Source, New York State Department of Labor

**Firm Growth by Size of Firm, 2005-2010
Southern Tier**



Tourism

According to data from Tourism Economics, visitors spent approximately \$804 million in the Southern Tier in 2010, up nearly 9% from the previous year.

Tourism Spending In the Southern Tier Region, 2009–10

County	Tourism Region	2009	2010	% Change
Broome	Central	\$230,879	\$257,624	11.6%
Chemung	Finger Lakes	\$82,121	\$98,184	19.6%
Chenango	Central	\$26,663	\$28,371	6.4%
Delaware	Catskills	\$78,992	\$82,494	4.4%
Schuyler	Finger Lakes	\$26,374	\$27,329	3.6%
Tioga	Finger Lakes	\$30,173	\$34,422	14.1%
Steuben	Finger Lakes	\$112,790	\$118,614	5.2%
Tompkins	Finger Lakes	\$150,843	\$157,230	4.2%
Southern Tier Region		\$738,835	\$804,269	8.9%

Source, 2010 Tourism Economics commissioned by ESDC

Tourism

According to Tourism Economics, local and state tax coffers benefitted substantially from tourism spending in the region. Local and state tax contributions attributed to tourism totaled an estimated \$103.3 million in 2010, resulting in an average benefit per household of \$412.

Local and State Tax Contributions From Tourism Spending, 2009–2010, Southern Tier Region

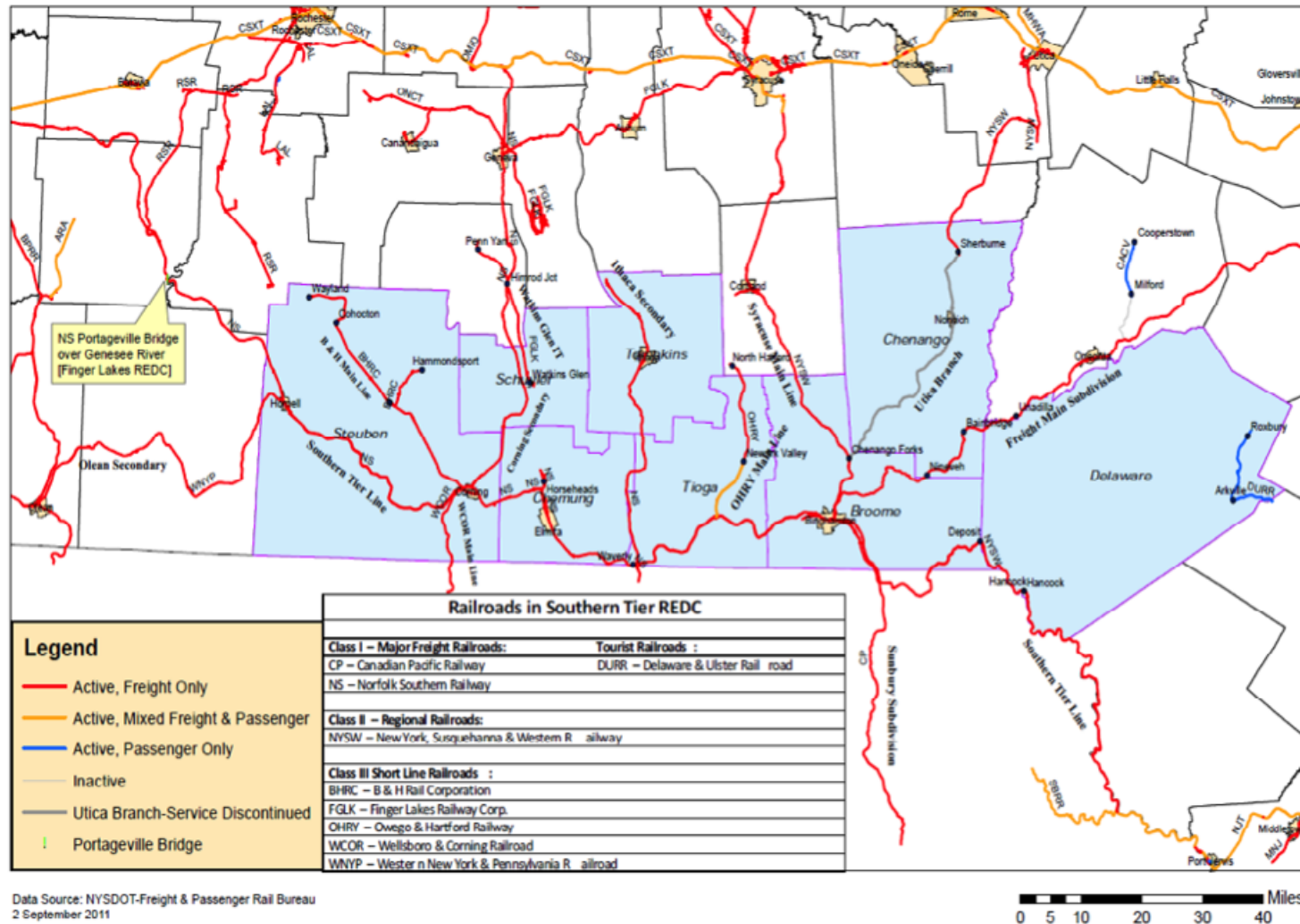
<i>County</i>	<i>Tourism Region</i>	<i>Local Taxes</i>	<i>State Taxes</i>	<i>Combined Taxes</i>	<i>Occupied Housing Units</i>	<i>Tax Benefit per Household</i>
Broome	Central	\$ 17,096,675	\$ 15,971,653	\$ 33,068,328	82,167	\$ 402
Chemung	Finger Lakes	\$ 6,346,700	\$ 6,087,036	\$ 12,433,736	35,462	\$ 351
Chenango	Central	\$ 1,646,327	\$ 1,758,877	\$ 3,405,204	20,436	\$ 167
Delaware	Catskills	\$ 4,787,038	\$ 5,114,302	\$ 9,901,340	19,898	\$ 98
Schuyler	Finger Lakes	\$ 1,883,520	\$ 1,694,259	\$ 3,577,779	7,530	\$ 475
Tioga	Finger Lakes	\$ 2,598,438	\$ 2,604,771	\$ 5,203,209	40,344	\$ 129
Steuben	Finger Lakes	\$ 7,734,358	\$ 7,353,594	\$ 15,087,952	20,350	\$ 741
Tompkins	Finger Lakes	\$ 10,915,923	\$ 9,747,616	\$ 20,663,539	38,967	\$ 530
Southern Tier Region		\$53,008,979	\$50,332,108	\$103,341,087	265,154	\$ 412

Source, 2010 Tourism Economics commissioned by ESDC

Infrastructure

Rail

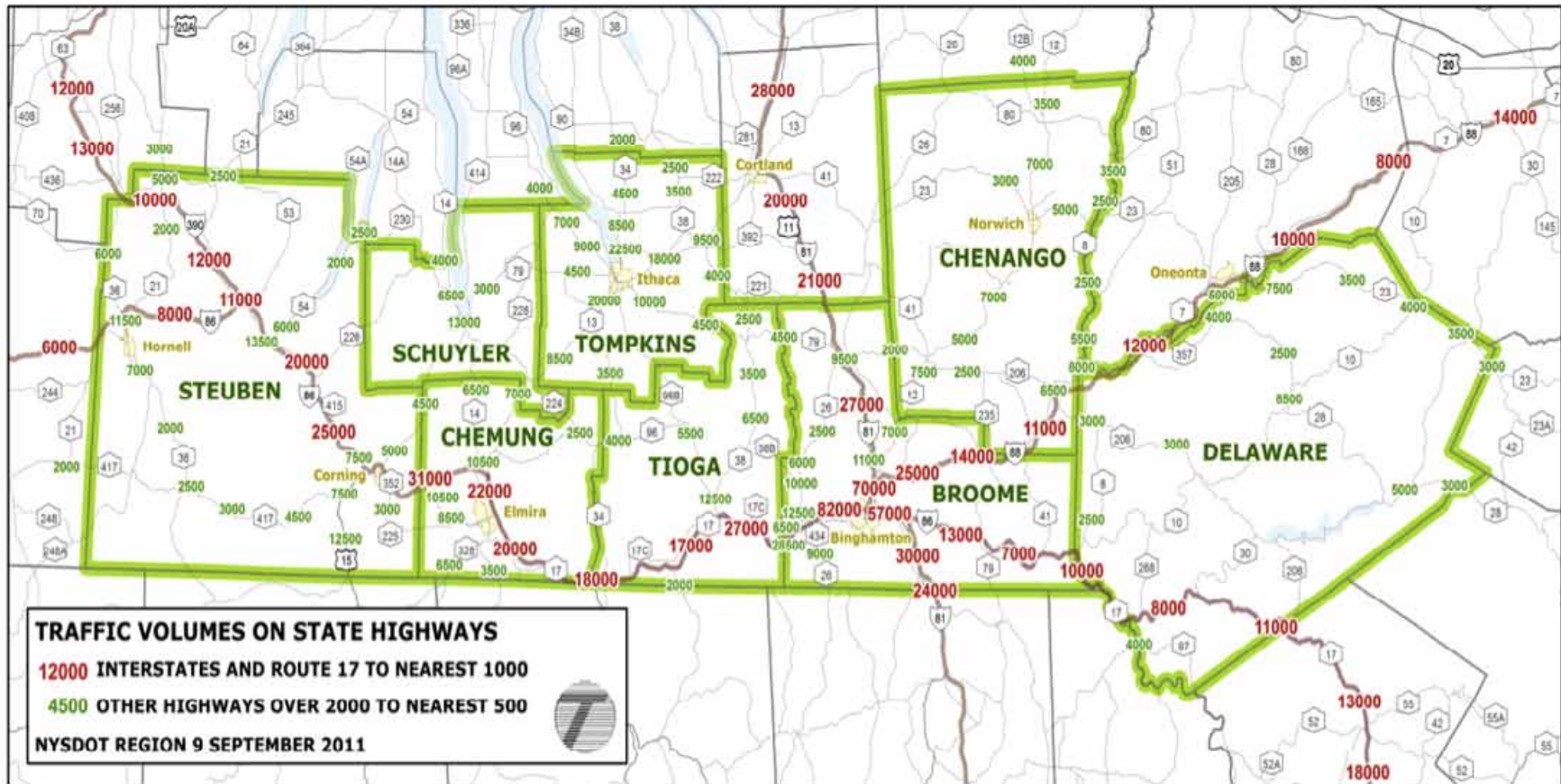
A 2011 map of Southern Tier rail infrastructure appears below.



Source, New York State Department of Transportation, Freight & Passenger Rail Bureau, 2 September 2011

Interstate Highways, Major Arteries and Traffic Counts

The 2011 map below shows the Southern Tier interstate and highway system. The most heavily traveled roads are the region's interstate highways, with the highest traffic volumes concentrated in the Binghamton area.



Source, New York State Department of Transportation, Region 9, September 2011

